

Міністерство освіти і науки України
Центральноукраїнський національний технічний
університет

Кафедра іноземних мов

Навчальний посібник
з англійської мови для студентів II курсу
зі спеціальності «Галузеве машинобудування»
(спеціалізація «Підйомно-транспортні, будівельні, меліоративні
машини і обладнання»)

Кропивницький 2019

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Затверджено на засіданні
кафедри іноземних мов
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Кропивницький - 2019

Навчальний посібник з англійської мови для студентів II курсу спеціальності «Галузеве машинобудування» (спеціалізація «Підйомно-транспортні, будівельні, меліоративні машини і обладнання») / [уклад. Л.В. Філіппова.] ; – М-во освіти і науки України, Центральноукраїн. нац. техн. ун-т. – Кропивницький : ЦНТУ, 2019. – 108 стор.

Даний посібник призначений для студентів II курсу денної та заочної форми навчання спеціальності «Галузеве машинобудування» (спеціалізація «Підйомно-транспортні, будівельні, меліоративні машини і обладнання»). Посібник спрямований на розвиток навичок і вмінь читання текстів за фахом.

Посібник може бути використаний як для аудиторної роботи під керівництвом викладача, так і для самостійної роботи.

Рецензент: доц., к.п.н. Миценко В.І.

Передмова

Навчальний посібник для розвитку навичок професійно-орієнтованого читання і усного мовлення призначений для студентів II курсу за спеціалізацією «Підйомно-транспортні, будівельні, меліоративні машини та обладнання».

Тексти посібника супроводжуються вправами на закріплення активної лексики, формування і активізацію навичок читання та розвитку іншомовної комунікативної компетенції професійного спрямування. Кожен розділ посібника включає англо-український термінологічний словник.

Мета посібника – підвести студентів до самостійного читання і розуміння літератури зі спеціальності на англійській мові.

Навчальний посібник розрахований для роботи як в аудиторії, так і для самостійної роботи студентів.

UNIT 1

Завдання 1.

а) Прочитайте міжнародні слова і перекладіть їх.

application	analysis	asphalt
automatic	bulldozer	cement
component	design	efficiency
factor	hydraulic	hydromechanical
industry	machinery	manufacturer
model	per cent	position
principal	transmission	

б) Прочитайте наступні слова і запам'ятайте їх. Перекладіть приклади їх використання.

account	- опис
Brief account	
blade angle	- кут установки відвалу
guideline	- основний напрямок
A brief account of the central guidelines	
reliability	- надійність, міцність безпека роботи (машини)
To improve the reliability of road equipment	
drive	- привід
Hydraulic drive; a hydraulic pump	
item	- деталь, предмет
power	- потужність
Power transmission	
power rating	- номінальна потужність
Higher power ratings	
performance	- робота
recent	- недавній, останній, свіжий
Recent ideas, recent news, recent years	
road ripper	- дорожній риппер
scarifier	- скарифкатор, розпушувач
schedule	- намічати, планувати,

Scheduled time (work)	розраховувати
output-	- випуск, продуктивність
Daily (effective, combined) output	
hydraulics	- гідравліка

Завдання 2.

I. Вкажіть відповідний переклад речень.

2. Перекладіть слова в режимі прямого і зворотнього перекладу.

I

1. higher power ratings	1. збільшити надійність дорожнього устаткування
2.a brief account of the central guidelines	2. проектні організації
3.a complete set of machinery	3. короткий перелік основних напрямів
4.to improve the reliability of the road equipment	4. більш висока номінальна потужність
5. design organisations	5. повний комплект механізмів

II

1.economic efficiency	1. автогрейдер
2.specifications of road equipment	2. гідравлічне управління кутом установки лопати або скаріфікатора
3.many other manufactured machines	3. рентабельність
4.a motor grader	4. багато інших випущених машин
5.hydraulic blade and ripper angle control	5. характеристики дорожнього устаткування (розпушувача)

Завдання 3. Заповніть пропуски відповідними по значенню словами, приведеними в таблиці.

a) higher power ratings	e) hydraulic drive
b) road building equipment	f) an account
c) output	g) guidelines
d) reliability	

1. Factories produce different _____.
2. The main factor that has improved the performance and specifications of our equipment is the general introduction of the _____.
3. Our industry has started building the equipment of _____.
4. Our design organizations are working to improve the _____ of the working equipment.
5. Now here is a brief _____ of the central _____.
6. The combined _____ of the main components has greatly increased.

Завдання 4. Опираючись на граматичні ознаки пасивного стану (одна з форм дієслова to be + III форма смислового дієслова), вкажіть номери речень з дієсловом-присудком в пасивному стані. Дайте можливі способи перекладу.

1. This firm produces the machines that are capable of performing efficiently a wide range of operations under different natural conditions.
2. In recent years our industry has started building the equipment of higher power ratings.
3. A higher level of road building mechanisation was achieved due to introductions of these machines.
4. This includes a number of research and development institutes.
5. The motor graders of this trademark are well known.
6. The economic efficiency of this system needs no comment.

Завдання 5. Прочитайте текст і дайте відповіді на наступні запитання.

1. What items of road building machines are manufactured?
2. What do our design organizations work at?
3. What main guidelines of the road building equipment industry are mentioned in the text?

ROAD BUILDING MACHINERY INDUSTRY TODAY AND TOMORROW

Every year Road Building Machinery Industry produces different types of road building machines: bulldozers, scrapers, motor graders, road rollers and a great quantity of other road building equipment and a complete set of machinery. Our design organizations and manufacturing plants are continuously working on improving the reliability, performance, economic efficiency and specifications of road equipment.

Here is a brief account of the central guidelines they follow in their work.

Higher power. In recent years our industry has started building the equipment of higher power ratings: the average power ratings of the principal items of the road building equipment have grown by 10 to 15 per cent and are scheduled to go another 20-25 per cent.

Hydraulic drive. The major factor that has improved the performance and specification of the equipment is the general introduction of hydraulic drive. The combined output of the main hydraulic drive components has remarkably increased. An example of the successful application of hydraulics to new equipment is the DZ -122 motor grader which now comes equipped with a heavier hydromechanical power transmission, hydraulic blade and ripper angle controls, and a hydraulically operated bulldozer scarifier.

Завдання 6. Прочитайте речення і вкажіть, які відповідають змісту тексту, які ні і виправте їх.

1. Different types of road building machines are produced every year.
2. To improve the reliability, performance, economic efficiency and specifications of road equipment our design organizations and manufacturing plants must work continuously.
3. Increasing power ratings is one of the ways of improving the efficiency and reliability of road building equipment.
4. The major factor that has improved the performance and specification of the equipment is the general introduction of higher power ratings.
5. Hydraulics is successfully applied to the new designs of the DZ -122 excavators.
6. The DZ -122 motor grader is now equipped with wide application of hydraulics.

Завдання 7. Знайдіть відповідне закінчення в правій колонці до речень в лівій колонці.

I

- | | |
|---|--|
| 1. Road Building Machinery Industry produces | a. is the task of our design organizations and manufacturing plants. |
| 2. Improving the reliability, performance, economic efficiency and specifications of the road equipment | b. a great variety of road building machines. |
| 3. In recent years the equipment of higher power ratings | c. the performance and specification of the equipment. |
| 4. The general introduction of hydraulic drive helps to improve | d. is produced by our industry. |

II

- | | |
|---|--|
| 1. The DZ -122 motor grader | a. output of the main hydraulic drive components. |
| 2. The DZ -122 motor grader is now equipped | b. equipped with a heavier hydromechanical power transmission. |
| 3. Now the DZ -122 motor grader is | c. with hydromechanical power transmission, hydraulic blade and ripper angle controls. |
| 4. They have increased the combined | d. is a good example of the successful application of hydraulics to new equipment. |

UNIT 2

Завдання I. Прочитайте наступні слова і запам'ятайте їх. Перекладіть приклади їх використання.

- | | |
|--|---------------------------------|
| acclaim | - схвалення, визнання |
| International acclaim | |
| current | - поточний, нинішній, сучасний |
| Current events; current production; current production model | |
| hydraulics | - гідравліка |
| A hydraulic pump; hydromechanical power transmission | |
| top | - досягати якого-небудь рівня |
| To top a hill; to top a mark; to top a level | |
| blade | - відвал |
| A (bull) dozer blade | |
| concrete | - бетон |
| Asphalt/concrete; cement/concrete | |
| incorporate | - включати, вводити вбудовувати |

input	- подача, завантаження
Air input; energy input; heat input.	
output	- випуск, продуктивність
Daily output; effective output; combined output	
overhaul	- капітальний ремонт
purchase	- купувати, закупляти
To purchase a manufacturing licence	
ripper	- розпушувач
Road ripper	
scarifier	- скарифікатор
springboard	- плацдарм

Завдання 2.

1. Вкажіть відповідний переклад речень.

2. Перекладіть слова в режимі прямого і зворотного перекладу.

1. a large-scale production of automated bulldozers	1. сучасне дорожньо-будівельне обладнання
2. a current production model	2. незвичайний інженерний підхід
3. a control panel	3. широке міжнародне визнання
4. a wide-spread international acclaim	4. широкомасштабне виробництво бульдозерів
5. an unusual engineering approach	5. сучасна модель
6. current road building equipment	6. пульт управління

Завдання 3.

1. Прочитайте і перекладіть наступні словосполучення.

2. Визначте функції виділених слів і заповніть таблицю функцій II, III, IV форм дієслова (проставте номери речень).

Частина речення	II форма Past Indefinite (-ed)	III форма Participle II (-ed)	IV форма Participle I (-ing)
Просте минуле		1	
Означення			
Частина присудка			
Обставина			2

1. automated bulldozers	12. is equipped with
2. adjusting the blade position	13. has won an accaim
3. purchased a manufacturing licence	14. electronics incorporated in
4. are translated	15. the combined life
5. has grown	16. has been increased
6. adjusting the actual blade position	17. the improved performance
7. the combined output	18. have been experimenting
8. the predominating method	19. models produced earlier
9. has increased	20. are then translated into
10. had been tried	21. the models produced by
11. was tried	22. an adjusted position

Завдання 4. Прочитайте текст, знайдіть речення, в яких йдеться про міжнародне визнання систем автоматичного контролю кута відвалу бульдозера.

AUTOMATION

. Our industry has gone into large-scale production of automated bulldozers, motor graders, asphalt/concrete and cement/concrete units and other equipment. Every current production model is equipped with the Profil - 20 automatic system which controls the blade angle and height. The Profil -

20 electronics incorporated in the control panel continuously monitors the actual blade position against the input, adjusting the former, if necessary.

The system of automatic control has won a widespread international acclaim. The Komatsu, of Japan, among others, purchased the manufacturing licence for the Autoplan - 1 system after it had been tried out on Japanese bulldozers.

New Development Projects. Our developments in the analysis and design of road building equipment provide a fine springboard for new ideas and unusual engineering approaches which are then translated into physical equipment.

Lately the combined life of the main types of our road-building machines has grown by 50 to 100 per cent. For motor graders the life before the first overhaul has increased up to 5000 - 6000 hr, for scrapers and bulldozers is up to 6000 - 8000 hr. The current road building equipment is by 50 to 100 per cent as efficient as the comparable models produced earlier.

Завдання 5. Доповніть речення, перекладаючи слова в дужках.

1. Every current production model is equipped with the Profil-20 automatic system which controls the ____ (висоту і кут установки відвала).
2. The system of the automatic control has won an ____ (міжнародне визнання).
3. The life before the first ____ (капітальний ремонт) for motor graders has increased.

Завдання 6. Прочитайте наступні речення и вкажіть, які з них відповідають змісту тексту, а які ні і виправте їх.

1. The system of automated control has won a widespread acclaim in our country.

2. Lately the combined life of the main types of our road-building machines has grown by 100 per cent.
3. The Profil-20 electronics is incorporated in the control panel to monitor continuously the actual blade position against the input, adjusting the former, if necessary.
4. Before purchasing the manufacturing licence for the Autoplan -1 system it was tried out on Japanese bulldozers.
5. For road-building machines the life before the first overhaul has greatly increased.
6. Every current production model is equipped with the Autoplan system.

Завдання 7. Знайдіть відповідне закінчення в правій колонці до речень в лівій колонці.

I

- | | |
|---|--|
| 1. The Profil - 20 automatic system | a. by the Komatsu after trying out on Japanese bulldozers. |
| 2. The actual blade position is adjusted against the input | b of our road-building machines has grown. |
| 3. The combined life of the main types | c. if necessary. |
| 4. The manufacturing licence for the Autoplan - 1 system was bought | d. controls the blade angle and height. |

II

- | | |
|---|--|
| 1. The new ideas and unusual engineering approaches are | a. as efficient as the comparable models produced earlier. |
| 2. The current road building equipment is by 50 to 100 per cent | b. has greatly increased. |
| 3. The life before the first overhaul | c. to control blade position |

4. The Profil - 20 electronics is incorporated in the control panel d. translated into physical equipment.

Завдання 8. Дайте відповіді на наступні запитання.

- 1 What is every current production model equipped with?
- 2 When did the Komatsu, of Japan, purchase the manufacturing license for the Autoplan-1 system?
- 3 Has the combined life of the main types of our road-building machines grown?
- 4 Has the efficiency of the current road building equipment increased?

Завдання 9. Назвіть основні напрями розвитку будівельно-дорожньої промисловості.

UNIT 3

Завдання I. Прочитайте і перекладіть наступні міжнародні слова:

operation	energy	gravel
series	guarantee	material
channel	safe	vertical
horizontal	scheme	special
system	practice	minute
instrument	climate	front
control	tester	base

Завдання 2. Прочитайте наступні слова і запам'ятайте їх. Перекладіть приклади їх використання.

basin	- котлован, басейн, водоймище, ставок;
bench	- тераса, уступ
concave	- ввігнутий
convex	- опуклий, випуклий

crawler tractor - гусеничний трактор
The D271A Bulldozers are based on the T100M crawler tractor.

cutter - різець, ріжучий інструмент
special side cutter - планувальник укосів

The bulldozer is equipped with a special side cutter.

dike - гребля, рів, канава

ditch - канава, рів, кювет

embankment - насип, набережна

hill sides - схили гори

include - заключати, укласти

interchangeable - взаємозамінний,
рівнозначний

Their main units are interchangeable.

mouldboard - відвал

The bulldozer mouldboard is a rectangular piece of metal made of high quality steel

A special side cutter is attached to the mouldboard.

optional - необов'язковий,
факультативний,
нестандартний, що
постачається за вибором,
бажанням.

The wideners for the D-271 A bulldozer mouldboards are supplied optionally.

They are optional equipment.

pit - яма

pivot joint - шарнірне з'єднання за
допомогою штиря, болта,
штифта

A special side cutter is attached to the mouldboard with three pivot joints.

plane - рівняти, вирівнювати,
згладжувати

pulley	- шків, блок
reliability	- надійність
The reliability of the control system; the reliability of the working equipment	
rib	- ребро
rope	- канат, мотузок, трос
rope – and – pulley	- канатоблочна система
mouldboard control system	управління відвалом
The D271A bulldozer is equipped a rope - and - pulley mouldboard control system.	
The mouldboard rope - and - pulley control system was tested for many years of practice.	
stiffening rib	- ребро жорсткості
Welded stiffening ribs ensure the required rigidity (stiffness) of the mouldboard.	
trench	- траншея, канава, рів, копати канаву
widener	- розширювач
You can widen the mouldboard by means of special wideners.	

Завдання 3.

1. Вкажіть відповідний переклад слососполучень.

2. Перекладіть словосполучення в режимі прямого і зворотнього перекладу.

- | | |
|---|--|
| 1. a rope-and-pulley | a. розробка виїмок і котлованів |
| mouldboard control system | b. неповоротний відвал |
| 2. cutting pits and basins | c. сипкий матеріал |
| 3. planing chanel beds and construction sites | d. жорсткість у вертикальному і горизонтальному напрямку |
| 4. a fixed mouldboard | e. планування трас, каналів і будівельних майданчиків |
| 5. an angling mouldboard | |

6.loose material

f. поворотний відвал

7. vertical and horizontal
rigidity

g. канатоблочна система
управління відвалом

Завдання 4. Утворіть від наступних дієслів віддієслівні іменники і перекладіть їх за зразком:

to build	building
будувати	будівництво

- | | |
|----------------|---|
| 1. to heat | - нагрівати |
| 2. to cut | - різати |
| 3. to move | - переміщати |
| 4. to level | - вирівнювати |
| 5. to backfill | - засипати (траншею після укладання труб) |
| 6. to clear | - очищати |
| 7. to plan | - планувати |
| 8. to fell | - рубати, валити (дерева) |
| 9. to stump | - корчувати (пні) |

Завдання 5. Перекладіть словосполучення з віддієслівними іменниками.

1. levelling soils
2. cutting and moving soils
3. backfilling pits and basins
4. planing hill-sides
5. building dams, dikes and embankments
6. felling trees
7. stumping trees and bushes
8. clearing roads of snow

Завдання 6. Перекладіть наступні речення, звертаючи увагу на переклад присудка в пасивному стані.

1. The soil surface layer is cleanly cut with the bulldozer mouldboard.

2. The bulldozer mouldboard cleanly cuts the soil surface layer.
3. The wideners supplied optionally can increase the length of the bulldozer mouldboard.
4. The length of the bulldozer mouldboard can be increased with the help of wideners.
5. A special side cutter is attached to the mouldboard with three pivot joints.
6. Three pivot joints attach a special side cutter to the mouldboard.

Завдання 7. Прочитайте текст і скажіть, для яких операцій використовуються бульдозери.

HIGH-PRODUCTION BULLDOZERS-TWINS.

The D-271A and D-492A bulldozers effectively carry out such work as the operations of:

- cutting, moving, and levelling soil, gravel and other loose materials,
- backfilling ditches and trenches,
- cutting pits and basins, benches on the hill sides,
- planing hill-sides, channel-beds and construction sites,
- building embankments, dams, dikes,
- tree felling and stumping
- and also road clearing of snow.

The productivity of the bulldozers is 70cu m/hr.

The D-271A and D-492A bulldozers are based on the T-100 M crawler tractors. The D-271A bulldozer is equipped with a fixed mouldboard, while the D-492A bulldozer has an angling mouldboard. The road- and- pulley mouldboard control is distinguished by its simplicity and reliability. Their main units are interchangeable.

Perfect mouldboard design. The mouldboard is manufactured of high quality steel. The welded stiffening ribs

ensure the vertical and horizontal rigidity of the mouldboard. The length of the D- 271A bulldozer mouldboard can be increased up to 4580 mm.by means of the wideners, supplied optionally. The D- 271A bulldozer is completed with a special side cutter that is attached to the mouldboard with three pivot joints.

Завдання 8. Визначіть, які із наступних речень відповідають змісту тексту, а які ні і виправте їх.

1. Stumpling trees and building embankments is just the work for bulldosers.
2. The operations of loading and transporting soil, sand and other loose materials can be performed by using bulldosers.
3. To increase the bulldozer power you may use the wideners.
4. The bulldozer mouldboards are manufactured of aluminium.
5. The stiffening ribs ensure the increasing the length of the mouldboard.
6. The rope-and-pulley mouldboard control system cannont be used in severe climatic conditions.

Завдання 9. Знайдіть відповідне закінчення в правій колонці до речень в лівій колонці.

I

- | | |
|--|---|
| 1. The D-271A and D-492A bulldozers | a. an angling mouldboards, correspondingly. |
| 2. The base of the D-271A and D-492A bulldozers | b. is easy to operate. |
| 3. The D-271A and the D-492A bulldozers have a fixed and | c. are designed to carry out heavy duty road building work. |
| 4. The road- and- pulley mouldboard control | d. is the T-100 M crawler tractor. |

II

- | | |
|---|--|
| 1. The main units of the rope-and- pulley mouldboard control. | a. is manufactured of high quality steel. |
| 2. The mouldboard | b. are interchangeable and reliable in operation |
| 3. The vertical and horisontal rigidity of the mouldboard is | c. with an attached special side cutter. |
| 4. The wideners, supplied optionally can help you | d. ensured by the welded stiffening ribs. |
| 5. The D- 271A bulldozer is completed | e. to increase the length of the D- 271A bulldozer mouldboard. |

Завдання 10. Дайте відповіді на наступні запитання.

1. What road building operations can the D-271A and D-492A bulldozers perform?
2. What is the productivity of the D-271A and D-492A bulldozers?
3. What is the main difference in the D-271A and D-492A bulldozer mouldboards?
4. What opportunities does the interchangeability of the main parts give?
5. What are the results of testing the rope-and-pulley mouldboard control system in various climatic conditions?
6. Which of the bulldosers have a special cutter and what is it used for?

Завдання 11. Розкажіть про досконалу конструкцію відвалу.

UNIT 4

Завдання І. Прочитайте наступні слова і запам'ятайте їх. Перекладіть приклади їх використання.

brake - гальмо, гальмувати

band brake - стрічкове гальмо

An instant-action band brake

beam - брус, балка, бімс

longitudinal beam - поздовжній брус

transverse beam - поперечний брус

The frame is a well-designed structure consisting of the stamped longitudinal and transverse beams welded together.

clutch - муфта, затиск, зчеплення, фрикціон

friction clutch - фрикційне зчеплення

cushion - подушка, сидіння

energize (syn. to power) - живити енергією, приводити в дію

The winch (лебідка) is energised (powered) by the main engine.

equalize - упрямляти, врівноважувати

equalizing device - балансирний пристрій

An equalizing device guarantees the smooth motion of the bulldozer, without jerks and blows.

An equalizing device protects the main machine units from sharp jerks and blows.

fail - невдача, провал; терпіти невдачу

fail-safe - надійний, працюючий без збоїв, безперебійний

The required rigidity of the tractor frame guarantees its fail-safe operation.

furnish (=to equip) - комплектувати, забезпечувати

The tractor is furnished with a three-seat driver's cab.

gauge - вимірювальний прилад

The cab is furnished with the necessary instruments and gauges

gear box - коробка швидкостей

The gearbox is an essential part of any tractor, automobile or a machine tool (металоріжучий верстат).

hold (held,held) - тримати, утримувати

The instant-action band brake makes it possible to hold the mouldboard in any desired position.

housing - корпус, кожух

lever - важіль, рукоятка

hand-lever controlled winch - лебідка з ручним управлінням важеля

The rope-and-pulley system is equipped with the hand-lever controlled winch.

meet - відповідати, задовільняти вимогам

rigid - жорсткий, суворий

The bulldozer meets the most rigid requirements.

reeve (rove, reeved) - просмикувати канат, трос через кільце, шків; кріпити, закріплювати

rope reeving scheme - схема запасовки канатів

The rope reeving schemes are simple in use.

You can easily fulfil all the reeving operations for several minutes.

The rope is reeved through the pulley tackle.

shaft - вал, вісь; ручка, рукоятка

power take-off shaft - вал відбору потужності

steering - рульове управління

steering clutch housing - корпус бортових фрикціонів

A crawler tractor is steered with the help of the steering clutches.

(pulley) tackles

- полиспаст, талі

The rope comes through a series (система) of the pulley tackles.

winch

- лебідка, піднімати за
допомогою лебідки

The winch is intended for speedy lifting and lowering the bulldozer mouldboard.

The winch is mounted behind the tractor.

Завдання 2. Перекладіть наступні речення, звертаючи увагу на переклад речень з присудком у пасивному стані.

1. A special side cutter is attached to the mouldboard by three pivot joints.
2. Three pivot joints attach a special side cutter to the mouldboard.
3. All the reeving operations are fulfilled for several minutes.
4. You can fulfil all the reeving operations for several minutes.
5. The bulldozer rope-and-pulley system is energized by the hand-lever controlled winch.
6. The hand-lever controlled winch energizes the bulldozer rope-and-pulley system.

Завдання 3. Прочитайте і перекладіть наступний текст.

SIMPLE AND FAULTLESS MOULDBOARD CONTROL SYSTEM

The D- 271A and D- 492A bulldozers are equipped with the rope-and-pulley mouldboard control system which perfectly proved itself in various climatic conditions and was tested by many years of practice. The mouldboard is speedily lifted and lowered. The rope reeving schemes are very simple and all the reeving operations can be fulfilled for several minutes.

The rope from the mouldboard comes through a series of the pulley tackles to the winch, which is powered by the main engine through the gearbox power take-off shaft. The driver controls the winch directly from the cab. The instant-action band brake mounted on the winch makes it possible to hold the mouldboard in any position.

The rope-and-pulley system of the D- 271A and D-492A bulldozers is energized by the hand-lever controlled winch, which meets the most rigid operational requirements.

Strong Frame and Comfortable Cab

The very strong frame guarantees the fail-safe operation of the bulldozers for a long time in the heaviest ground conditions. The frame consists of the stamped longitudinal beams welded to the steering clutch housing. The equalising device adds stability to the bulldozer when it crosses various obstacles and protects the main units from sharp jerks and blows.

The closed convenient three-seat driver's cab has the necessary gauges and instruments. The large window area of the cab ensures good visibility in road building operations. The front and rear windows can be opened or closed. The soft seat cushion, good internal lighting, cab heater help the driver to concentrate completely on production operations.

Завдання 4.

Знайдіть відповідний переклад наступних слів.

1. канатоблочна система управління відвалом
2. схема запасовки канатів
3. система поліспастів
4. вал відбору потужності
5. стрічкове гальмо миттєвої дії
6. лебідка
7. безперебійна робота
8. штампований брус (балка),

9. балансирний пристрій

10. планувальник укосів

Завдання 5. Заповніть пропуски відповідними словами, наведеними в кінці речення.

1. The mouldboard rigidity is ensured with the help of the welded ____ (beams, stiffening ribs).
2. The bulldozer is furnished with the ____ mouldboard control system (band brake, gear box, rope-and-pulley).
3. The ____ is intended for lifting and lowering the bulldozer mouldboard (gear box, power takeoff shaft, winch).
4. The winch takes power from the ____ (gear box, gear-box power take-off shaft).
5. Are the ____ really very simple in operation? (steering clutch, rope reeving scheme, rope reeving schemes).
6. The mouldboard can be held in any position by means of the ____ (pulley tackles, winch, instant -action band brake).
7. The winch is ____ by the main engine (supplied, mounted, energised).
8. The rope-and-pulley system is controlled with the ____ (longitudinal beam, transverse rod, hand lever).
9. The stiffening ribs welded to the mouldboard ensure the ____ operation of the bulldozer (smooth, fail-safe, rigid).
10. The welded together ____ ____ form the tractor frame (longitudinal and transverse beams, vertical and horizontal beams).
11. The bulldozer work stability is guaranteed by means of the ____ (very strong frame, steering clutch housing, equalizing device, necessary gauges).

Завдання 6. Прочитайте речення і вкажіть, які відповідають змісту тексту, а які ні і виправте їх.

1. The rope reeving schemes are very complicated.
2. The winch of the bulldozer is powered from an auxiliary engine.

3. The driver is not able to control the winch directly from the cab.
4. The convenient cab is furnished with the necessary gauges and instruments.
5. The mouldboard is always in the fixed position.

Завдання 7. Знайдіть відповідне закінчення в правій колонці до речень в лівій колонці.

I

- | | |
|--|---|
| 1. The D- 271A and D- 492A bulldozers are equipped | a.. the rope-and-pulley system of the D- 271A and D- 492A bulldozers. |
| 2. The mouldboard is | b. to hold the mouldboard in any position. |
| 3. The instant-action band brake is mounted on the winch | c. speedily lifted and lowered. |
| 4. The hand-lever controlled winch powers | d. with the rope-and-pulley mouldboard control system. |

II

- | | |
|---|---|
| 1. The very strong frame guarantees | a. and protects the main units from sharp jerks and blows. |
| 2. The frame consists of | b. itself in various climatic conditions. |
| 3. The equalising device adds stability in crossing various obstacles | c. the fail-safe operation of the bulldozers for a long time in the heaviest ground conditions. |
| 4. The rope-and-pulley mouldboard control system proved | d. the stamped longitudinal beams welded to the steering clutch housing. |

Завдання 8. Дайте відповіді на наступні запитання.

1. What is the winch powered by?
2. What does the bulldozer frame consist of?

3. What does the frame guarantee?
4. What device protects the main bulldozer units from sharp jerks and blows?

Завдання 9. Охарактеризуйте:

1. The simple and faultless mouldboard control system.
2. The strong frame and comfortable cab.

UNIT 5

Завдання I.

а) Прочитайте наступні міжнародні слова і перекладіть їх.

tunnel	maximum
export	manufacture
efficiency	diesel
general	support
cycle	mobile
control	operation

б) Прочитайте наступні слова і запам'ятайте їх. Перекладіть приклади їх використання.

attachment	- пристосування, устаткування
working attachment	- робоче обладнання
replaceable attachment	- змінне обладнання

The bucket is a working attachment.

The main bucket, loading bucket, clamshell, hook suspension, forks are replaceable attachments.

bucket	- ківш - універсальний ківш
a general purpose bucket	

The main member of an excavator is the bucket.

The main bucket, loading bucket

clamshell	- грейфер
feature = element	- риса, особливість

An important feature, main feature, distinguished features.

fork	- вила
hanger	- грабкова підвіска
hook suspension	- крюкова, гакова підвіска
keep up with	- триматися нарівні, не відставати

I can't keep up with you.

To keep up with modern achievements

loader	- навантажувач
--------	----------------

The face shovel can substitute a loader.

shovel	- лопата
face shovel	- пряма лопата
pull shovel	- зворотня лопата
transfer	- перетворювати

Using the hanger instead of the bucket transfers the excavator into a 5000 H capacity crane.

versatile	- багатобічний, гнучкий, що легко змінюється
-----------	--

A versatile machine

Завдання 2. Утворіть віддієслівний іменник від наступних дієслів і перекладіть їх.

1. to dig	копати
2. to drive	прокладати
3. to do	робити, виконувати
4. to handle	перекладати, грузити
5. to scoop	робити виїмки
6. to service	обслуговувати

Завдання 3.

I. Вкажіть відповідний переклад словосполучень.

2. Перекладіть слова в режимі прямого і зворотнього перекладу.

I

- | | |
|--------------------------------------|--|
| 1. a working attachment | a. швидкість пересування |
| 2. servicing and control | b. змінне обладнання |
| 3. travel speed | c. гідравлічні екскаватори різного класу |
| 4. a variety of hydraulic excavators | d. обслуговування і управління |
| 5. a replaceable attachment | e. робоче обладнання |

II

- | | |
|-----------------------------|-----------------------------------|
| 1. an additional support | a. універсальний ківш |
| 2. a face and pull shovel | b. невеликі об'єми земляних робіт |
| 3. a general purpose bucket | c. максимальна продуктивність |
| 4. a diesel-powered tractor | d. пряма і зворотня лопата |
| 5. small-scale earth work | e. дизельний трактор |
| 6. maximum efficiency | f. додаткова опора |

Завдання 4. Прочитайте текст і вкажіть відмінні риси гідравлічного екскаватора.

EO - 262IA.

EXCAVATORS

Excavators are widely used for constructing embankments and scooping in road building, for digging foundation pits and trenches, for driving tunnels and so on. The main member of an excavator is the bucket. Quick changing the working attachments makes them a more versatile machine capable of doing different earthwork, handling and other jobs at maximum efficiency.

The "Red Excavator" plant located in Kyiv produces a variety of hydraulic excavators well known not only in our

country. The plant is well furnished with modern production and technical equipment and staffed with skilled engineers, technicians and workers. Continuous improving the production technology and excavator design allows the plant to keep up with the modern engineering achievements and to enlarge export. The excavators produced by this plant are used in more than 40 countries of the world. They are prominent for their high reliability and simple maintenance.

EO - 2621A Hydraulic excavator.

Small-scale earth work at maximum efficiency - this is just for the EO- 2621A excavator. The EO - 2621A excavator equipment is based on the IOM3-6 diesel-powered tractor. This machine has the following distinguished features:

1. The general-purpose bucket is used as the face and pull shovels. The face shovel can substitute a loader with success.
2. The bulldozer blade makes the machine more versatile and serves as an additional support in digging.
3. It combines different operations in a cycle.
4. It is highly mobile (the travel speed is 2.1 - 19 km/h).
5. It is simple in servicing and control.
6. The EO - 2621A excavator has the following replaceable attachment:
 - the main bucket (its capacity is 0.275 m³),
 - the loading bucket (its capacity is 0.55 m³),
 - the clamshell,
 - the hook suspension or hanger (using a hanger instead of the bucket transfers the excavator into a 5000 H/500 kg capacity crane),
 - the forks,
 - the working equipment with the set-off axis of digging (maximum digging depth is 3 m).

Завдання 5. Підберіть відповідний переклад з колонки справа до словосполучень в колонці зліва.

- | | |
|---------------------------------------|-----------------------------------|
| 1. a foundation pit | a. завод-постачальник на експорт |
| 2. an exporting manufacturer | b. виробничо- технічне обладнання |
| 3. set-off digging axis | c. котлован |
| 4. modern engineering achievements | d. відрізняються |
| 5. are prominent for | e. зміщена вісь копання |
| 6. production and technical equipment | f. сучасні досягнення техніки |

Завдання 6. Вкажіть, які речення відповідають змісту тексту, а які ні і виправте їх.

1. Constructing embankments and scooping in road building, digging foundation pits and trenches, driving tunnels and so on cannot be done without excavators.
2. Excavators are versatile machines because of quick changing the working attachments.
3. The excavators produced by the "Red Excavator" plant are used not only in our country.
4. The plant is able to keep up with the modern engineering achievements.
5. To enlarge the export the plant carries out the continuous work on improving the production technology and the excavator design.
6. Simple handling and high reliability are the prominent features of the excavators.
7. The base of the excavator is the ЮМЗ-6 diesel-powered tractor.
8. The pull shovel can be used as a loader with success.
9. The bulldozer blade is an additional support in digging.

10. Its travel speed is high enough which makes the machine mobile.
11. The E0 - 2621A excavator has only the stationary equipment, so replaceable attachment cannot be used.

Завдання 7. Знайдіть відповідні закінчення в правій колонці до речень в лівій.

I

- | | |
|--|---|
| 1 Constructing, handling and earthwork | a. an excavator a more versatile machine. |
| 2. The face shovel can | b. are well known not only in our country. |
| 3. The quick change of the working attachments makes | c. are successfully fulfilled with the help of excavators |
| 4. The hydraulic excavators produced by the "Red Excavator" plant. | d. substitute a loader with success. |

II

- | | |
|--|--|
| 1. To keep up with the modern engineering achievements and to enlarge export | a. is the base for the EO - 2621A excavator |
| 2. They are well known | b. is used as the face and pull shovels. |
| 3. The IOM3- 6 diesel-powered tractor | c.. the plant improves the production technology and excavator design. |
| 4. The general purpose bucket | d. for their high reliability and simple operation. |

III

- | | |
|-----------------------------------|--|
| 1. The face shovel can be used as | a. as an additional support in digging. |
| 2. The bulldozer blade serves. | b. the excavator into a 5000 H/500 kg capacity crane |
| 3. Using a hanger instead of | c. different operations in a |

the bucket transfers cycle..
4. It combines d. a loader with success.

Завдання 8. Дайте відповіді на наступні запитання.

1. What jobs is the excavator designed for?
2. What makes the excavator a versatile machine?
3. Are the excavators produced by the "Red Excavator" plant exported?
4. What does the plant do to keep up with the modern engineering achievements and to enlarge export?
5. What are the prominent features of the excavators?
6. What tractor model are the excavators based on?
7. What is used as a loader in the excavator?
8. What can be used as an additional support in digging?
9. What is its travel speed?
10. What replaceable equipment does the E0 - 2621A excavator have?

UNIT 6

Завдання I. Прочитайте наступні слова і словосполучення і запам'ятайте їх.

adapt	- пристосовуватися
best adapt	- оптимально пристосовуватися
appliance	- пристосування, прилад
cast (cast, cast)	- відливати
crawler	- гусениця (трактора)
ground pressure	- тиск на ґрунт
heater	- опалювач гідросистеми
hydraulic cooler	- гідравлічний охолоджувач
indispensable	- необхідний, обов'язковий

lighting appliance	- освітлення
links	- траки
observance	- огляд
modern styling	- сучасна форма
output	- продуктивність
shock absorber	- амортизатор
swing	- повертати (ся), вертiти (ся)
utilize	- використовувати, утилізувати
windshield wiper	- склоочисник

Завдання 2. Прочитайте наступний текст і дайте відповіді на запитання після тексту.

E 5015A HYDRAULIC EXCAVATOR

The E 5015A hydraulic excavator is prominent for its high output in the 0.5 -0.8 m³ class of diggers. The following features are combined in a single machine:

1. Power plant with hydraulic pump of variable capacity¹. The pump is a double section axial-plunger with the automatic capacity of its control depending on the digging conditions. The hydraulic fluid is cooled by the hydraulic cooler blown with the engine fan.
2. Wise linkage geometry², the reliable design. The *turntable platform with working attachments³* is swung by a high-torque hydraulic motor.
3. High cutting force, large output, simple control and servicing.
4. Convenient cab. The cab design gives a driver a wide observance in operation. There is a comfortable seat with a shock absorber, heater, fan and windshield wiper. The cab is properly soundproof and thermally insulated. The lighting appliances perfectly illuminate an operating zone.

5. Good cross-country ability⁴ is provided by a rigid and stable frame and hydraulic disc brakes. The crawler width is 0.61m. The links are cast. The ground pressure is 0.4 kg f/cm². *The travel speed by own power*⁵ is up to 0.555m/s.

Commentary

- | | |
|---|---|
| 1. a hydraulic pump of variable capacity | - гідронасос регульованої продуктивності |
| 2. wise linkage geometry | - раціональна кінематика руху (робочого органу) |
| 3. a turnable platform with working attachments | - поворотна платформа з робочими органами |
| 4. cross-country ability | - прохідність |
| 5. travel speed by own power | - швидкість пересування своїм ходом |

Завдання 3. Дайте відповіді на наступні запитання.

1. What pump is used in the E-5015A excavator design?
2. How is the hydraulic fluid cooled in the E -5015A excavator?
3. What motor swings the turnable platform with the working attachment in the E -5015A excavator?
4. What equipment does the convenient cab have?
5. What gives a good cross-country ability?
6. What is the travel speed of the E - 5015A excavator by own power?

Завдання 4. Складіть план тексту.

Завдання 5. Перекажіть зміст тексту, дотримуючись плану.

UNIT 7

Завдання I. Прочитайте текст і дайте відповіді на запитання:

1. What is the EO -4123 hydraulic excavator characterized by?
2. What control members are located on the control board?

EO -4123 HYDRAULIC EXCAVATOR

The EO-4123 hydraulic excavator is characterized by the *most favourable front-end geometry*¹, high cutting force, quick replacement of *the front-end attachments*², good maneuverability and high cross-country ability, handy servicing, excellent operator's conditions, modern styling.

The control board has the following control members: brake lock, standby control, boom, bucket, R.H. (права) crawler, gas (подача палива), L.H. (ліва) crawler, swing, arm.

Its front-end equipment is made of *high-tensile heat-treated steel*³. The *two-piece boom*⁴ permits an easy change of outreach (виліт) and quick replacement of the front-end attachments (a pull shovel of 0.4m³ and 1m³ capacity, a turning clamshell of 0.65m³ size, a face shovel of 0,8m³volume).

Specifications

Capacity of the basic basket, m ³	0.5
Maximum digging depth, m	5.5
Maximum cutting force, ft	11,5
Pressure in the hydraulic system, kgf/cm ²	250
Diesel engine power, hp	80
Mass, t	18.5
Travel speed, km/h	I 1-2
	II 2-4
	III 5-10
	IV 10-20

The hydraulic system of the EO-4123 excavator fully utilizes the engine power because of the pump with the automatic power regulator which adapts in the best way the digging speed and the force to the actual operating conditions.

Commentary

- | | |
|--|---|
| <i>1. the most favourable front-end geometry</i> | - раціональна кінематика руху робочого устаткування |
| <i>2. the front-end attachment (equipment)</i> | - робоче обладнання переднього навішування |
| <i>3. high-tensile heat-treated steel</i> | - високоміцна термооброблена сталь |
| <i>4. the two-piece boom</i> | - двохсекційна стріла |

Завдання 2. Знайдіть в тексті еквіваленти наступних словосполучень:

- | | |
|-------------------------------|------------------------------|
| 1. органи управління | 7. фіксатор гальма |
| 2. резервні органи управління | 8. управління подачею палива |
| 3. гусениця ліва | 9. гусениця права |
| 4. поворот | 10. рукоять |
| 5. поворотний грейфер | 11. ківш зворотної лопати |
| 6. ківш прямої лопати | |

Завдання 3. Складіть план тексту про екскаватор EO - 4321.

Завдання 4. Розкажіть про екскаватор EO-4321.

UNIT 8

Завдання І. Прочитайте текст і дайте відповіді на запитання після тексту.

3980 EXCAVATOR

This model is the largest of the European built tracked and wheeled 360-degree excavators. The engine used in this crawler machine is the same basic 6-cylinder unit as that used in the H-65C loader. The undercarriage is of the welded construction designed for heavy-duty operations. The track system has eight bottom rollers and one top *idler roller*¹ on each side. *Track tensioning*² is performed by the conventional hydraulic adjustment with *spring shock absorbers*³. Four wide *track shoes*⁴ give the ground pressure varying from 7.1 to 4.5 lb per sq in⁵.

There is a fully independent drive for each track for the forward, neutral and reverse positions. Each track can reverse instantly to give *pivot turns*⁶. The drive is hydrostatic, so no brake or clutch is involved but non-screen track-lock is automatically obtained releasing the control lever. Two independent hydraulic motors of high-torque piston types drive through the double oil bath reduction gears. The maximum travel speed is 1.55 m p h (2.5 km/h).

The *slewing*⁷ system also has a hydrostatic drive. The 360-degree continuous rotation is provided by a fully-cushioned hydrostatic piston motor which is geared directly to the massive heavy-duty cross-roller *slewing* ring. The slew motors are identical with the track motors and interchangeable throughout the excavator range of the company.

The two-piece boom is adjustable for giving the changing of the boom length and angle. The boom extension can be set to three different lengths. The angle between the two boom sections can be varied: it will give an increased delivery

of height in one position and in the second position it will give an increased depth. The maximum digging depth is 6.3m (20 ft 8 in). The maximum reach, from the centre line, is 9.9m.

Commentary

- | | |
|--------------------------|-------------------------|
| 1. idler roller | - підтримуючий ролик |
| 2. track tensioning | - натягнення гусениці |
| 3. spring shock absorber | - пружинний амортизатор |
| 4. track shoe | - ланка гусениці, трак |
| 5. sq in. | - дюймів квадратних |
| 6. pivot turn | - розворот на місці |
| 7. slewing | - поворот, поворотний |

Завдання 2. Дайте відповіді на наступні запитання.

1. What engine is used in the 3980 excavator?
2. How many rollers does the track system have?
3. How is slewing performed?
4. What can you say about the two-piece boom?

UNIT 9

Завдання I. Прочитайте текст і дайте відповіді на запитання після тексту.

CATERPILLAR HYDRAULIC EXCAVATOR

The 225 model to be introduced is the excavator of the 21000 kg, 147.0001b machine type, having a variable flow hydraulic system and the Caterpillar track-type tractor *undercarriage*¹.

Two piston-type pumps provide high pressures of 250 kg/cm² and 280 kg/cm² (3600 and 4000 psi) for the implement and travel circuits respectively. The separate *pilot*² control systems actuate all the hydraulic control operations. The pumps automatically vary the hydraulic flow as the work requirements change maintaining the steady horsepower load on the engine. The system automatically *proportions*³ the power in the

required ratio to meet the demands of the implement, swing and travel circuits. The undercarriage is similar to the current caterpillar crawler tractor equipment and features a full hydrostatic drive.

Two hydraulic motors provide independent control of each track for maneuverability and the top travel speed of 4 km/h (2.5 mph). The hydraulic motors permit the counter-rotation of the tracks, while the hydrostatic drive provides the *stepless transmission*⁴ to balance automatically the ground speed against the *torque*⁵ requirements. The 225 model has a maximum reach of 10.1 m (33 ft 2 in.) and maximum digging depth of 7.01 m (23 ft).

Commentary

- | | |
|-------------------------|--|
| 1.undercarriage | - несуча система (трактора або автомобіля); ходова частина |
| 2.pilot | - допоміжний клапан (в гідравлічних механізмах) |
| 3.proportion | - співвідносити |
| 4.stepless transmission | - плавна передача |
| 5.torque | - обертаючий момент, момент кручення |

Завдання 2. Дайте відповіді на наступні запитання.

1. What are all the hydraulic control operations actuated by?
2. Do the pumps automatically vary hydraulic flow?
3. What are the functions of the hydraulic motors and hydraulic drive?

Завдання 3. Знайдіть в тексті еквіваленти для наступних словосполучень.

1. гусеничні і колісні екскаватори;
2. 6-циліндровий дизельний двигун;

3. напружений режим роботи;
4. зварна конструкція;
5. натягнення гусеничного трака;
6. повністю незалежний привід для кожного гусеничного трака;
7. положення вперед, нейтрально і назад;
8. розворот на місці;
9. гідростатичний поршневий двигун;
10. управління розворотом і траками гусениць;
11. зміна довжини стріли (крана) і кута.

Завдання 4. Прочитайте і виправте речення, які не відповідають змісту тексту.

1. This model is the largest of the European built tracked and 360-degree excavators.
2. The engine used in this crawler machine differs from the basic 6-cylinder unit used in the H-65C loader.
3. The welded construction of the undercarriage is designed for heavy-duty operations.
4. There are eight bottom rollers and one top idler on each side of the track system.
5. The conventional hydraulic adjustment with spring shock absorbers is used to perform track tensioning.
6. The ground pressures made by four wide track shoes always remain stable.
7. Each track has a fully independent drive for the forward, neutral and reverse positions.
8. Each track cannot reverse instantly to give pivot turns.
9. Because of the hydrostatic drive, no brake or clutch is involved.
10. The fully-cushioned hydrostatic piston motor is geared directly to the massive heavy-duty cross-roller slewing ring.

11. The slew motors are not identical with the track motors but they are interchangeable throughout the excavator range of the company.
12. The length of the two-piece boom and its angle can be adjusted.
13. There are three different lengths of the boom extension.
14. The angle between the two boom sections cannot change and so there is no increased delivery of height and depth.

Завдання 5. Знайдіть відповідне закінчення в правій колонці до початку речень в лівій колонці.

I.

- | | |
|--|--|
| 1. This model is the largest of the European | a. construction is designed for heavy-duty operations. |
| 2. This crawler machine is designed. | b. one top idler on each side of the track system. |
| 3. The undercarriage of the welded | c. on the base of the 6-cylinder unit used in the H-65C. |
| 4. There are eight bottom rollers and | d. the built tracked and wheeled 360-degree excavators. |

II

- | | |
|--|---------------------------------------|
| 1. The conventional hydraulic adjustment with the spring shock absorbers | a. each track can reverse instantly |
| 2. The ground pressures varying from 7.1 to 4.5 lb per sq in. | b. is used for track tensioning. |
| 3. Each track has a fully independent drive | c. is given by four wide track shoes. |
| 4 To give pivot turns | d. for the forward, neutral and |

reverse positions.

III

- | | |
|--|---|
| 1. No brake or clutch is involved | a. provides 360-degree continuous rotation. |
| 2. The fully-cushioned hydrostatic piston motor | b. because of hydrostatic drive. |
| 3. The slew motors are identical with the track motors and | c. to give the changing of the boom length and angle. |
| 4. The two-piece boom is adjusted | d. interchangeable throughout the excavator range of the company. |

IV

- | | |
|--|--|
| 1. The boom extension can be set | a. can be varied. |
| 2. The angle between the two boom sections | b. two boom sections gives the depth increasing. |
| 3. The changing of the angle between the two boom sections | c. to three different lengths. |
| 4 In the second position the changing of the angle between the | d. gives the increased delivery of height. |

UNIT 10

Завдання I. Прочитайте і запам'ятайте слова і словосполучення з тексту.

- | | |
|------------------|-----------------------------|
| actuate | - приводити в дію |
| adjustment | - регулювання |
| backrest | - спинка сидіння |
| direct injection | - безпосереднє вприскування |
| dissipation | - розсіяння, розподіл |
| drawbar pull | - тягове зусилля |

fuel consumption	- витрата палива
flywheel horsepower	- потужність в кінських силах на маховику двигуна
fore or aft	- вперед або назад
foot operated brake	- ножне гальмо
forced lubrication	- змазування під тиском
front and back platen blade	- передня і задня пластини відвала бульдозера
hardness	- жорсткість
high-tensile steel	- високоміцна сталь
hydraulic booster	- гідропідсилювач
gearshift lock lever	- важіль стопора механізму перемикання передач
grouser shoe	- башмак гусениці з ґрунтозчепленням
light-touch control	- регулювання легким торканням
multiple disc clutch	- багатодискове зчеплення
multiple disc steering clutch	- багатодисковий фрикціон
oil damper	- масляна амортизація
powershift	- силове перемикання передач
reclining angle	- кут нахилу (спинки сидіння)
safety switch	- аварійний перемикач
single phase torque converter	- гідротрансформатор з одним реактивним колесом
single stage converter	- одноступінчатий трансформатор
slipping	- ковзання
steering lever	- важіль управління
torque	- момент кручення
torque converter planetary gear	- планетарна коробка передач

track link	- ланка гусениці
turbocharger	- турбоагнітач
wet clutch	- зчеплення, що працює в масляній ванні, фрикціон

Завдання 2. Прочитайте наступний текст.

D85 A-18 BULLDOZER

The Komatsu-Commins NT 855, 4-cycle, 6 cylinders, water-cooled, *turbocharged* diesel engine is used as the undercarriage. It offers the *flywheel horsepower* of 220 HP at 1800 RPM, maximum *torque*, plus the low *fuel consumption* due to the *direct injection*.

The Komatsu's unique TORQFLOW transmission consists of the water-cooled, single-stage, single-phase *torque converter*. The *planetary-gear, multiple-disc clutch* transmission is hydraulically *actuated* and *force - lubricated* for the optimum heat *dissipation*. The speed (3 forward and 3 reverse) and directional changes are controlled with the help of the single-lever control. The *gearshift lock lever* and the neutral *safety switch* prevent the machine from accidental start. The *wet, multiple-disc steering clutches* are hydraulically *actuated* and require no *adjustment*.

The wet, contracting-band, *foot-operated* steering brakes have a *hydraulic booster* for *light-touch control* and long service life. The steering clutches and brakes are interconnected for easy steering (two pedals can be controlled by one foot).

The cushioned seat with an *oil damper* minimizes the transmission of the vibration to the operator. The seat is adjustable by 160 mm (6.3) *fore or aft*. The cushion *hardness* is also adjustable in accordance with the operator's weight. The large *reclining angle* of the seat *backrest* gives additional convenience to the operator's comfort for greater productivity.

The *high-grouser shoes* minimize the *shoe slipping* and increase the *drawbar pull*. The lubricated *track links* are optionally available for more extended service.

High-tensile steel employed in the *front and back plates* of the blade is used in construction and enhances more the durability.

Завдання 3. Дайте відповіді на наступні запитання.

1. What can you say about the undercarriage of the D 85 A-18bulldozer?
2. What does the TORQFLOW transmission consist of?
3. What type of the converter is used in the TORQFLOW transmission of the D 85 A-15bulldozer?
4. How many speeds does the D 85 A -18 bulldozer have?
5. What is used to prevent the machine from accidental start?
6. What is the hydraulic booster used for?
7. What purpose are the steering clutches and brakes interconnected for?
8. What is done in the cab for the operator's greater productivity?
9. What steel are the front and back plates of the blade made of?

Завдання 4. Знайдіть в тексті еквіваленти для наступних словосполучень:

1. низька витрата палива,
2. примусове (під тиском) змазування,
3. пряме вприскування,
4. одноступінчате,
5. потужність в кінських силах на маховику двигуна,
6. важіль стопора механізму перемикання передач,
7. багатодисковий фрикціон,
8. стрічкове гальмо, ножне гальмо,

9. ресорне сидіння,
10. кут нахилу спинки сидіння,
11. тягове зусилля,
12. башмак гусениці з високим ґрунтозчепленням,
13. змазані ланки гусениці,
14. передня і задня пластини відвала,
15. гідротрансформатор з одним реактивним колесом.

Завдання 5. Прочитайте і виправте речення, які не відповідають змісту тексту.

1. The base of the D85A-18 is the Komatsy-Commins NT 855, 4-cycle, 6 cylinders, water-cooled, turbocharged diesel engine.
2. Its flywheel horsepower is 220 HP at 1800 RPM with the maximum torque and high fuel consumption due to the direct injection.
3. The Komatsu's unique TORQFLOW transmission comprises a water-cooled, single-stage, single-phase torque converter.
4. The planetary-gear, multiple-disc clutch transmission is manually actuated and force - lubricated for the minimum heat dissipation.
5. Three forward and three reverse speeds and directional changes are controlled with the help of the single-lever control.
6. The gearshift lock lever and the neutral safety switch prevent the machine from accidental start.
7. The wet, multiple-disc steering clutches are hydraulically actuated so they require some adjustment.
8. There are wet, contracting-band, foot-operated steering brakes with a hydraulic booster for light-touch control and long service life.
9. The steering clutches and brakes are separated for easy steering (two pedals can be controlled one by one).

10. The transmission of the vibration to the operator is minimized by the cushioned seat with an oil damper.
11. The seat can be moved by 160 mm (6.3) fore or aft.
12. The cushion hardness is regulated in accordance with the operator's height.
13. The seat backrest cannot be adjusted to give additional convenience to the operator's comfort for greater productivity.
14. The shoe slipping and increasing the drawbar pull are minimized by the high-grouser shoes.
15. The lubricated track links are delivered optionally to extend the service life.
16. The front and back plates of the blade are made of high-tensile steel.

Завдання 6. Знайдіть відповідне закінчення в правій колонці до початку речень в лівій колонці.

1

- | | |
|---|--|
| 1. The undercarriage of the bulldozer is | a. with the maximum torque and low fuel consumption due to direct injection. |
| 2. The bulldozer features the flywheel horsepower of 220 HP at 1800 RPM | b. is hydraulically actuated and force – lubricated. |
| 3. The water-cooled, single-stage, single-phase torque converter | c. the Komatsu-Commins NT 855, 4-cycle, 6 cylinders, water-cooled, turbocharged diesel engine. |
| 4. For the optimum heat dissipation the planetary-gear, multiple-disc clutch transmission | d. is used in the Komatsu's unique TORQFLOW transmission. |

II

- | | |
|---|--|
| 1. The speed (3 forward and 3 reverse) and directional changes | a. have the hydraulic booster for a light-touch control and long service life. |
| 2. The gearshift lock lever and the neutral safety switch prevent | b. actuated and require no adjustment. |
| 3. The wet, multiple-disc steering clutches are hydraulically | c. the machine from accidental start. |
| 4. The wet, contracting-band, foot-operated steering brakes | d. are controlled with the help of the single-lever control. |

III

- | | |
|--|---|
| 1. The steering clutches and brakes are | a. by 160 mm (6.3) fore or aft. |
| 2. The cushioned seat with an oil damper minimizes | b. interconnected for two pedals to be controlled by one foot). |
| 3. The seat is adjustable | c. adjustable in accordance with the operator's weight. |
| 4. The cushion hardness is | d. the transmission of the vibration to the operator. |

IV

- | | |
|--|---|
| 1. The large reclining angle of the seat backrest gives | a. the shoe slipping and increase the drawbar pull. |
| 2. High-grouser shoes minimize | b. is used in construction and enhances more the durability. |
| 3. The lubricated track links are | c. additional convenience to the operator's comfort for greater productivity. |
| 4. High-tensile steel employed in the front and back plates of the blade | d. optionally available for more extended service. |

UNIT 11

Завдання I. Прочитайте наступні слова і словосполучення, постарайтеся їх запам'ятати

ability	- здатність
cross-country ability	- прохідність
actual	- дійсне
adjust	- регулювати (механізм), встановлювати
assure	- запевняти, гарантувати
control panel	- пульт управління
incorporate	- об'єднуватися, сполучати в одне ціле; вбудовувати
input	- введення, подача, завантаження
large-scale production	- серійне виробництво
maintenance	- експлуатація, технічне обслуговування

road maintenance; engine maintenance	
clear	- очищати, прибирати
pass	- прохід, перехід, тут:операція
a number working passes	
performance	- робота
reduce	- зменшувати
ripper	- розпушувач, риппер
ripper angle control	
save	- рятувати, економити
supply	- постачання
supplies	- запаси
take out	- знищувати, усувати, страхувати

Завдання 2. Прочитайте текст. Дайте можливі варіанти заголовка тексту.

A grader is used for *road maintenance*, levelling, building site work, filling in drains and ditches and *snow clearing*.

Our industry has gone into the *largescale production* of automated motor graders. Every current production model is equipped with the Profil-20 automatic system which controls the blade angle and height. The Profil-20 electronics incorporated in the control panel continuously monitors the actual blade position against the *input*, *adjusting* the former, if necessary. The automatic control *reduces a number of working passes* required to meet the International construction standard by the factor of four to six. It gives important *saving* in *supplies* and fuel, *takes out* a lot of muscle work and *assures* high measure of operational precision.

The general introduction of the hydraulic drive has improved the performance and specifications of the equipment.

An example of the successful application of hydraulics to the new equipment is the DZ-122 motor grader which now comes equipped with a heavier hydromechanical power transmission, hydraulic blade and *ripper angle controls*.

Завдання 3. Прочитайте і виправте речення, які не відповідають змісту тексту.

1. A grader is used for road maintenance, i.e. levelling, building site work, filling in drains and ditches and road clearing of snow.
2. Every current production model is equipped with the Profil-20 automatic system which controls the blade width.
3. The Profil-20 electronics is incorporated in the control panel to monitor the actual blade position and adjust it if necessary.
4. The automatic control increases a number of working passes required to meet the International construction standard by the factor of four to six.
5. The general introduction of hydraulic drive has made possible to improve the performance and specifications of the equipment.
6. Now the DZ-122 motor grader is equipped with a lower hydromechanical power transmission, hydraulic blade and ripper angle controls.

Завдання 4. Знайдіть відповідне закінчення в правій колонці до початку речень в лівій колонці.

- | | |
|---|---|
| 1. Road maintenance, levelling, building site work, filling in drains and ditches and snow clearing | a. the actual blade position against the input, adjusting the former, if necessary. |
| 2. The Profil-20 automatic system installed on every current production model | b. the International construction standard. |

- | | |
|---|--|
| 3. The Profil-20 electronics incorporated in the control panel continuously monitors | c.is the work just for a grader. |
| 4. The automatic control reduces by the factor of four to six a number of working passes required to meet | d. controls the blade angle and height. |
| 5. This system gives important saving in supplies and fuel, | e. improved by the general introduction of the hydraulic drive |
| 6. The performance and specifications of the equipment have been | f. decreases a lot of muscle work and assures the high measure of operational precision. |

Завдання 5. Дайте відповіді на наступні запитання.

1. What are graders used for?
2. What can the Profil-20 automatic system perform?
3. What are the results of the general introduction of hydraulic drive?

Завдання 6. Доберіть заголовки до абзаців тексту.

Завдання 7. Розкажіть про автоматичну систему контролю "Профіль -20".

UNIT 12

Завдання 1. Прочитайте і запам'ятайте слова і словосполучення до тексту.

actuation	- приведення в дію
ejector	- вприскувач, ежектор
elevator	- підйомник
capacity	- продуктивність
cushion hitch	- зчіпний пристрій з амортизацією
gear shift	- перемикання передач
match	- погоджувати, підбирати
planetary gear reduction box	- планетарний редуктор
top speed	- максимальна швидкість
upgrade	- форсувати, підвищувати
uprated	номінальні характеристики

Завдання 2. Прочитайте наступний текст.

NEW ELEVATING SCRAPER FROM CATERPILLAR

The 621 *elevating* scraper has been added to the range of the earth moving equipment by the Caterpillar Tractor Co Ltd.

Replacing the J621, 623 scrapers offers an increased *capacity* (17m³ - 22yd³), semi-automatic 8-speed transmission as the standard equipment and *cushion hitch*.

The *uprated* hydraulic system increases the available elevator power. The bowl or *ejector actuation* does not interrupt the power to the elevator. The elevator motor of the 62 per cent engine horsepower has two forward and one reverse speeds. The elevator motor drives the elevator chain at 78.9 mpm in the low and at 105.4 mpm in the high position through the 42 : 1 *planetary gear reduction box*.

A single lever controls the 8-speed semiautomatic transmission. The reverse, the first and the selected *gear shifts*, are made manually. Selecting any speed between two and eight, an operator limits the maximum speed and transmission will shift automatically in the range from the second up to and down from the desired *top speed*.

The new scraper bowl is *matched* exactly to the tractor and elevator mechanism.

Завдання 3. Виправте речення, які не відповідають змісту тексту.

1. Replacing the J621, 623 elevating scrapers offers an increased capacity, fully automatic 8-speed transmission.
2. The 8-speed semi-automatic transmission is controlled automatically.
3. The elevator motor has eight speeds.

Завдання 4. Знайдіть в тексті еквіваленти для наступних словосполучень:

1. зчіпний пристрій з амортизацією, що поставляється за вимогою покупця;
2. планетарний редуктор;
3. перемикання передач;
4. максимальна швидкість;
5. напівавтоматична коробка передач.

Завдання 5. Знайдіть в тексті відповіді на наступні запитання.

1. Has the 623 elevating scraper replaced the J621 model?
2. How many speeds does the elevator motor have?
3. What is the 8-speed semi-automatic transmission controlled by?

UNIT 13

Завдання І. Прочитайте наступні слова і словосполучення, запам'ятайте їх.

adverse terrain	- несприятлива місцевість (для праці)
comparable	- порівнянний, заслугуючий порівняння
conventional	- звичайний, загальноприйнятий, традиційний
hazardous	- ризикований, небезпечний
install	- встановлювати, вмонтовувати
propel	- рухати, гнати вперед, приводити в дію
remote-controlled equipment	- устаткування з дистанційним управлінням
skill	- мистецтво, майстерність, уміння, кваліфікація
an average skill operator	
terrain	- місцевість
training	- підготовка, навчання
trend	- напрям, загальний напрям тенденція

The laser system installed on a new scraper has increased its output.

Завдання 2. Прочитайте текст і назвіть нові напрями у виробництві скреперів.

NEW TRENDS IN BUILDING SCRAPERS

In recent years our industry has started building equipment of higher power ratings. A typical example of the new wave of high-efficiency road equipment is the DZ -115 *self-propelled*, two-engine scraper which is being prepared for

production by the manufacturer of self-propelled earth moving equipment. The scraper offers an excellent cross-country capacity and high speeds on *adverse terrain*, its capacity is by 25-30 per cent higher than in the earlier models of the *comparable* type and size. Its two-engine power is 720 hp, the travelling speed is 50 kph.

Our industry has gone into large-scale production of automated scrapers. The Kopir-Staniloplan laser automatic control system is *installed* on the new scrapers and this turns a *conventional* scraper into a high-efficiency all-purpose machine. It is so easy in operation that an operator of the average *skill* and *training* can successfully perform rather complex jobs of road and runway construction better than the best operator can do on a standard unit.

But it is not the whole story. A single Kopir laser set will control several automated scrapers. The economic effectiveness of the system really needs no comment.

The time is drawing near when the job of road construction will be fully automated, opening up the prospects for robotized and *remote-controlled equipment* for operation on application in *hazardous* conditions.

Завдання 3. Знайдіть в тексті еквіваленти для наступних речень.

1. Економічна ефективність системи дійсно не потребує коментарів.
2. Наша країна приступила до крупносерійного виробництва автоматизованих скреперів.

Завдання 4. Заповніть пропуски в реченнях перекладами слів у дужках.

1. In recent years our industry has started building equipment of higher ____ (потужності).
2. The DZ -115 ____ (самохідний) scraper is being prepared for production.

3. The ____ (економічна ефективність) of the system really needs no comment.
4. Time is drawing near when the job of ____ (дорожнє будівництво) will be fully ____ (автоматизований) opening up the prospects for ____ (дистанційно кероване) equipment.

Завдання 5. виправить речення, які не відповідають змісту тексту.

1. The power rating of the scraper is 720 hp.
2. The new scraper can be operated by skilled operators because of its high degree automation.
3. Automated bulldozers are manufactured and offered to road building industry.
4. The Kopir-Staniloplan laser automatic control system is installed on new scrapers to help increase the efficiency of the scraper.
5. The scraper performs rather complex road construction jobs.
6. A single Kopir laser set will control scraper work.
7. The economic effectiveness of the system is the subject to improvement.
8. Robotized and remote-controlled equipment will widely be used for heavy-duty work.

Завдання 6. Дайте відповіді на наступні запитання.

1. What is a typical example of the equipment of higher power ratings?
2. What road building equipment has the industry started to produce?
3. What automatic control system is installed on new scrapers?
4. What is the automatic control system used for?
5. What are the future prospects in road building?

Завдання 7. Перекладіть письмово третій абзац.

UNIT 14

Завдання I. Прочитайте наступні слова і словосполучення, запам'ятайте їх.

access	- доступ
angle	- кут
clearance angle	- кут зазору
bog down	- зав'язнути (в болоті)
converter	- перетворювач
torque converter	- гідротрансформатор
cross-country (ability)	- підвищеної прохідності, всюдихід
diesel power unit	- дизельна установка
gear change	- перемикання передач
ground pressure	- тиск на ґрунт
fouling	- забруднення, засмічення
flotation	- прохідність транспортного засобу
inclinometer	- уклономір
inflator	- насос для накачування шин
jib	- стріла крана
overhang	- нависати зверху
outrigger	- виносна стріла підйомного крана
ridge	- утворення вм'ятин
sideways	- убік, боком
slew	- переносити з поворотом
spin	- обертання
premature wheel spin	- передчасне обертання колеса
steering	- рульове управління
power-assisted steering	- механічне рульове управління
hydraulic steering	- гідравлічне рульове управління
undulating	- хвилеподібна поверхня
outrigger	- аутригер, опора
wage	- долати

Завдання 2. Прочитайте текст і дайте відповіді на запитання після тексту.

CROSS-COUNTRY CRANE

This new crane is designed to give high performance on rough ground. The *ground clearance angles* of the chassis have been set to the absolute maximum to prevent any part of the machine from *ridges* and *fouling* on *undulating* ground. Large wheels have been fitted to give low *ground pressure* and maximum flotation on soft-ground. The tire pressure can quickly be adjusted by a built-in *tire inflator* to suit the given conditions. A six-speed gear box and *torque converter* are matched to the 185 hp Ford *diesel power unit* which gives an exceptionally high power-to-weight ratio of 9 hp per ton.

This *cross-country crane* is fitted with a *power-assisted steering* to the front axle and a *hydraulic steering* to the rear axle, giving a driver a choice of the four-wheel steering, which enables the crane to travel sideways. In addition a driver can select the four-wheel drive or the rear-drive only. The *torque converter* transmission makes gear changing unnecessary when the crane is travelling on soft ground.

The forward-mounted engine and the normal travel position of the *jib* (which overhangs the cab) give virtually equal loadings on the front and rear axles. This equal axle loading has three major advantages. Firstly, it greatly reduces the risk of the crane becoming bogged down at one end. Secondly, it prevents a *premature wheel spin* when crossing soft ground. If the crane wheels are unbalanced, the machine will tend to dig itself into soft ground. Thirdly, it gives a much smoother ride when the crane is travelling at the normal road speed. The crane will *wade* through 27 inches of water or liquid mud.

The fully blocked crane will *slew* the maximum load of 12 tons through 360° at 12 ft radius.

The crane controls are operated from the driver's cab through a remote, low-effort servo system. All the controls can be operated simultaneously. The *outriggers* are operated from the cab by a press button control system. Each outrigger must

be raised or lowered independently and, as an additional safety feature, the cab is fitted with a built-in inclinometer as a standard equipment. The cab and controls have been designed to provide a driver the maximum comfort and safety. The cab has easy access through the sliding lockable doors on each side and has excellent all-round visibility.

Завдання 3 Прочитайте і вкажіть, які речення не відповідають змісту тексту.

1. This new crane is designed to give high performance on soft ground.
2. The ground clearance angles of the chassis have been adjusted to the absolute minimum to prevent any part of the machine from ridges and fouling on undulating ground.
3. The large wheels have been fitted to give the necessary ground pressure and minimum flotation on soft-ground.
4. A built-in tire inflator is used to adjust the tire pressure to suit the given conditions.
5. A six-speed gear box and torque converter are matched to the 185 hp Ford petrol power unit to get an exceptionally high power-to-weight ratio.
6. The power-assisted steering to the rear axle and the hydraulic steering to the front axle give a driver a choice of the four-wheel steer when traveling sideways.
7. The driver can select the front- or rear-drives.
8. When the crane is travelling on soft ground a driver has to apply gear changing because there no torque converter transmission.
9. The forward-mounted engine and the normal travel position of the jib give equal loadings on the front and rear axles.
10. This equal axle loading greatly reduces the risk of the crane bogging down at one end.
11. A remote, low-effort servo system helps a driver operate the crane controls from the driver's cab.
12. A press button control system is used to operate the outriggers from the cab.
13. The intensive using of hydraulics has made the cab comfortable and safe for a driver.

Завдання 4. Знайдіть відповідне закінчення в правій колонці до початку речень в лівій колонці.

I

- | | |
|---|---|
| 1. This new crane may be | a. give low ground pressure and maximum flotation on soft-ground. |
| 2. The absolute maximum set of the ground clearance angles of the chassis | b. to suit the given conditions by a built-in tire inflator. |
| 3. The large wheels | c. used effectively on rough ground. |
| 4. The tire pressure can quickly be adjusted | d. prevents any part of the machine from ridges and fouling on undulating ground. |

II

- | | |
|--|--|
| 1. A six-speed gear box and torque converter are matched | a. the four-wheel drive or the rear-drive only. |
| 2. This cross-country crane is fitted with | b. changing unnecessary when the crane is travelling on soft ground. |
| 3. In addition the driver can select | c. the four-wheel steer, which enables the crane to travel sideways. |
| 4. Torque converter transmission makes the gear | d. to the 185 hp Ford diesel power unit . |
| 5. This gives the driver the choice | e. the power-assisted steering to the front axle and the hydraulic steering to the rear axle |

III

- | | |
|--|--|
| 1. The forward-mounted engine and the normal travel position of the jib give | a. the driver's cab through a remote, low-effort servo system. |
| 2. The crane controls are operated from | b. to provide a driver with the maximum comfort and safety |
| 3. The outriggers are operated from the cab by | c. virtually equal loadings on the front and rear axles |

- | | |
|--|--|
| 4. The cab and controls have been designed | d. the sliding lockable doors on each side and has excellent all-round visibility. |
| 5. The cab has easy access through | e. the press button control system. |

Завдання 5. Дайте відповіді на наступні запитання до тексту.

1. What has been suggested to give the crane high performance on rough ground?
2. What steering is used to the front and rear axles?
3. What three major advantages does the equal axle loading of the forward-mounted engine and overhung position of the jib give?
4. What can you say about the crane controls?
5. What is done to make driver's work easier and safer?

UNIT 15

Завдання I. Прочитайте наступні слова і словосполучення.

accommodate	- пристосовуватися, підходити
advance	- розвивати, удосконалювати
bushing	- втулка
control valve	- розподільний клапан
damage	- пошкодження
dumping angle	- кут відхилення
feature	- характерна ознака
fit	- підганяти, встановлювати, вмонтовувати
frame	- рама
side frame	- бокова рама
front loader	- навантажувач фронтального навішування
heavy duty	- важкий режим роботи
hone	- хонінгувати

hydraulic ram	- гідроциліндр
incur	- піддаватися
lift arm	- стріла навантажувача
linkage	- зчеплення
make	- сорт, марка
piston rod	- шток плунжера, шатун
pivot point	- точка (центр) обертання
ram	- поршень нагнітального насоса
rear axle	- задня вісь, міст
rollback angle	- кут крену (назад)
robust	- міцний
seal	- сальник
undue	- надмірний
undue load, undue stress	

Завдання 2. Прочитайте текст і розкажіть про переваги навантажувача Trima.

TRIMA LOADER

The Trima loader has become the best front loader in Sweden in recent years. The Trima loader is built for maximum reliability and minimum maintenance.

The *heavy duty robust lift arms* are a feature of the Trima *loaders*. All the loaders except the models the 810 and 912 H are equipped with double acting *hydraulic rams*. The implement control is also hydraulic.

The Trima 1320, 1620 and 1820 have a parallel *linkage*. The working range of the implements, i.e. the *rollback and dumping angles* are comparable with the loaders without the parallel linkage. The parallel linkage means that the implements maintain the same angle during lifting and lowering movements. This is extremely beneficial in materials handling and other similar tasks.

The Trima loaders with a *side frame* suit the majority of tractor *makes* and models. The tractor can be equipped with the side frames that will accommodate the several types of loader

models without any extra cost. In addition the same loader can be used on several tractors. In most cases the side frames are continued to the rear axle preventing any *undue* stress which may cause any *damage* to the tractor. The side frames are easy to fit and so no special tools are required.

Mounting and dismounting the Trima loader to and from a tractor is a child's game. This is done by using the tractor hydraulics and completed in several minutes. No tools are required.

The Trima loader has a highly advanced hydraulic system. It is connected to the tractor standard system. The hydraulic cylinders are *honed* and the *piston rods* are hard-chromed. A separate hydraulic system can be supplied for various tractor models.

The control valve is operated by a single lever, which provides extremely easy control of all the functions. The single lever located conveniently permits an operator to control simultaneously several loader functions.

Larger Trima loaders are equipped with a position indicator which shows the position of the implement during lifting or lowering movements. The indicator is located on the lift arm, clearly seen from the operator's seat.

Завдання 3. Виправте речення, які не відповідають змісту тексту.

1. The Trima loader is built for minimum maintenance and maximum reliability.
2. All the loaders are equipped with double acting hydraulic rams.
3. The working range of the implements is comparable with the loaders without any parallel linkage.
4. Parallel linkage means that the implements always maintain the same angle.
5. The Trima loaders with a side frame suit the majority of tractor makes and models.
6. Several types of loader models are equipped with a side frames without any extra cost.

7. The same loader can be used on several tractors.
8. The control valve provides extremely easy control of all the functions.
9. The single lever is located conveniently to permit the operator simultaneous control of several loader functions.
10. Larger Trima loaders have a position indicator which shows the direction of lifting or lowering movements.

Завдання 4. Знайдіть відповідне закінчення в правій колонці до початку речень в лівій колонці.

I

- | | |
|---|---|
| 1. The trima loader is built for | a. the majority of tractor makes and models. |
| 2. All the loaders except the models 810 and 912 H are | b. that the implements maintain the same angle during lifting and lowing movements. |
| 3. The working range of the implements, i.e. the rollback and dumping angles are. | c. maximum reliability and minimum maintenance. |
| 4. The parallel linkage means | d. equipped with a double acting hydraulic rams. |
| 5. The Trima loaders with the side frame suit | e. comparable with the loaders without parallel linkage. |

II

- | | |
|--|---|
| 1. The tractor can be equipped with the side frames that | a. a position indicator which shows the position of the implement during lifting or lowering movements. |
| 2. The same loader can | b. permits an operator to control several loader functions. |
| 3. The control valve is operated by a single lever, | c. will accommodate several types of loader models without having any extra cost. |
| 4. The single lever is located conveniently and | d. be used on several tractors. |

5. Larger Trima loaders are equipped with e. which provides extremely easy control of all the functions

Завдання 5. Знайдіть в тексті еквіваленти для наступних словосполучень.

1. міцна стріла навантажувача;
2. важкий режим роботи;
3. гідроциліндр двосторонньої дії;
4. контроль устаткування;
5. навантаження;
6. надмірне зусилля (навантаження).

Завдання 6. Дайте відповіді на наступні запитання.

1. Why has the Trima loader become the best front loader in Sweden?
2. What does parallel linkage mean?
3. How much time does it take to mount and dismount the Trima loader?
4. How is the mounting and dismounting of the Trima loader done?
5. What can you say about the hydraulic system of the Trima loader?
6. How are all the operations controlled by of the Trima loader?
7. What shows the position of the implement during lifting or lowering movements?

UNIT 16

Завдання I. Прочитайте наступні слова і словосполучення.

- | | |
|-----------|----------------|
| chippings | - щєбінь |
| compact | - ущільнення |
| convey | - передавати |
| corner | - огинати кути |

front-mounted roller	- циліндр, що обертається, передньої навіски
gear	- приводити в дію
hopper	- завантажувальна воронка, бункер
rear	- задній
overlap	- перекривати, накладати
receive	- одержувати
roller	- каток
self-propelled	- самохідний
spillage	- утриска, втрата
spreader	- укладчик, розкидання
tipper supply truck	- самоскид
tow	- тягнути

Завдання 2. Прочитайте текст.

SELF-PROPELLED CHIPPING SPREADER (COMPACTOR)

This new machine is designed to do two jobs - *spreading and compacting* - in one operation, at a single pass. *Chipping* spreader is a front - *mounted roller geared* to road speed, providing a constant controllable thickness of spreading. The width of spreading is from zero up to the standard roller width of 7 ft 6 in. (2.3 m) adjustable from right or left. Compaction is performed by the smooth-faced rubber-tired wheels mounted on two axles to *overlap* and *compact* the entire width of the spread, even when cornering. The hydraulically driven side-wall belts convey chippings to the spreader from a large-capacity rear receiving *hopper* without *spillage*.

The machine is entirely *self-propelled* and the engine provides enough power for *towing* large *tipper supply trucks*, which is the usual method of continuous operation for large-scale work. The up-front driver's position gives perfect control by one man. All the controls are operated from the driving set.

Завдання 3. Виправте речення, які не відповідають змісту тексту.

1. This new machine is designed to do two jobs - spreading and compacting - in two operations.
2. The smooth-faced rubber-tired wheels mounted on two axles perform compaction of the entire width of spreading, except the corners.
3. The side-wall belts to convey chippings to the spreader from a large-capacity rear receiving hopper are driven manually.
4. All the controls are operated manually.

Завдання 4. Знайдіть відповідне закінчення в правій колонці до початку речень в лівій колонці.

- | | |
|--|---|
| 1. Spreading and compacting are done | a. smooth-faced rubber-tired wheels. |
| 2. Compaction is performed by. | b. from a large-capacity rear receiving hopper without spillage. |
| 3. The smooth-faced rubber-tired wheels are mounted on | c. in one operation, at a single pass. |
| 4. The hydraulically driven side-wall belts convey chippings to the spreader | d. from the driving set. |
| 5. All the controls are operated. | e. two axles to overlap and compact the entire width of the spread. |

Завдання 5. Дайте відповіді на запитання.

1. What is the main feature of the self-propelled chipping spreader-compactors?
2. What is the advantage of the driver's up-front position?
3. How is chipping spreading performed?
4. How is compaction performed?

UNIT 17

Завдання І. Прочитайте слова до тексту і запам'ятайте їх.

assist	- допомагати, сприяти
compaction	- ущільнення
dual control	- здвоєне управління
feeding hopper	- завантажувальний бункер
hydrostatic drive	гідропривід
hydraulic power steering	- управління з гідравлічним посиленням
impair	- ослаблювати
mat	- покриття
paver	- бетоноукладач
power (-assisted) steering	- управління з приводом від двигуна
screed	- брус, що вирівнює
steering wheel	- рульове колесо
tyre = tire	- шина
twin screw	- подвійний гвинт

SB- 110 PAVER

The SB-110 paver is a new, fully hydrostatic, rubber-tired machine. The *hydrostatic drive* of the variable speed gives the range of the paving speeds up to 150 ft/m and the travel speeds up to 18 m/h. This permits the machine to move rapidly between job sites.

Besides this high-speed capability it is also an extremely manoeuvrable machine with the turning radius of only 6 ft 6 in, assisted by the *hydraulic power steering*. The SB-110 is equipped with a *hydraulically-powered twin screw* and a *feeder* system which can be operated independently on each other - either manually or automatically. It is fed by an eight-ton capacity feeding hopper.

The machine has a dual control system, except for the *steering wheel* which may be moved to either the right or left hand side. A single lever selects both the paving and travel speeds. The SB-110 paver has a vibratory *screed* driven by a

manually controlled hydraulic motor and it is capable of *imparting* a high initial compaction to the *mat*.

Завдання 3. Знайдіть в тексті еквіваленти для наступних словосполучень.

- | | |
|-----------------------------|--|
| 1. машина з гумовими шинами | 4. гідрооб'ємна передача, |
| 2. радіус повороту | 5. управління з гідравлічним посиленням, |
| 3. гідромотор | 6. контрольований вручну. |

Завдання 4. Виправте речення, що містять інформацію, яка не відповідає тексту.

1. The SB-110 paver has a vibratory screed driven by an automatically controlled hydraulic motor.
2. The SB-110 paver is fed by an eight-ton capacity feeding hopper.
3. A hydraulically-powered twin screw and a feeder system can be operated manually.

Завдання 5. Дайте відповіді на наступні запитання.

1. What does the variable speed hydraulic drive permit?
2. What control system does the machine have?
3. How is the steering wheel operated?
4. What are the paving and travel speeds selected by?

UNIT 18

Завдання I. Прочитайте наступні слова і словосполучення, запам'ятайте їх.

- | | |
|-----------------------|---|
| 1. aquaplaning | - аквапланування (ковзання по шару води на мокрій дорозі) |
| 2. carriage way width | - ширина проїжджої частини |

- | | |
|-------------------------|------------------------------------|
| 3. concrete slab | - бетонна плита |
| 4. dismount | - демонтувати |
| 5. groover | - пристрій для утворення канавок |
| 6. handle | - справлятися з чим-небудь |
| 7. plastic concrete | - пластичний (незатверділий) бетон |
| 8. reliable | - надійний |
| 9. ribbed plate | - рифлена пластина |
| 10. skidding resistance | - опір заносу (автомобіля) |
| 11. transverse | - поперечний |

Завдання 2. Прочитайте текст.

PLASTIC CONCRETE GROOVER

The *plastic concrete* groover produces deep grooves in concrete roads and runways during construction, improving high-speed *skidding resistance* and reducing *aquaplaning* risks providing routes for surface water. The grooves of 1/4 -in (6 mm) width and 1/4 in (6 mm) depth are recommended. The method is to pass a vibrating *ribbed plate* across the surface of the freshly laid *concrete slab* in the transverse direction. The machine itself is now arranged for all hydraulic operation. It is easy adjusted to suit a varying *carriage way width*. It can be dismounted to comparatively easily *handled* units for transportation.

Завдання 3. Прочитайте і виправте речення, які не відповідають змісту тексту.

1. The plastic concrete groover produces deep grooves in concrete roads and runways during road construction and maintenance work.
2. The grooves are recommended to be of 1/4 -in (6 mm) width and 1/4 in (6 mm) depth.
3. The method is to pass a vibrating ribbed plate across the surface of the freshly laid concrete slab in the forward direction.

4. Sometimes it is difficult to adjust it to suit a varying carriage way width.
5. It is very convenient for transportation because it can be dismantled to comparatively easily handled units

Завдання 4. Знайдіть відповідне закінчення в правій колонці до початку речень в лівій колонці.

- | | |
|---|---|
| 1. The plastic concrete groover produces deep grooves in | a. to comparatively easily handled units for transportation. |
| 2 .It helps to improve high-speed skidding resistance and reduces | b. the surface of the freshly laid concrete slab in the transverse direction. |
| 3 A vibrating ribbed plate is passed across | c. concrete roads and runways during construction. |
| 4. It is easy adjusted to suit | d. aquaplaning risks because it provides routes for surface water. |
| 5. It can be dismantled | e. a varying carriage way width. |

Завдання 5. Дайте відповіді на наступні запитання.

1. What is the plastic concrete groover used for?
2. What dimentions of the grooves are recommended?
3. How does it work?
4. Why is it easy to transport it?

UNIT 19

Завдання I. Прочитайте наступні слова і словосполучення, запам'ятайте їх.

- | | |
|---------|--|
| 1. belt | - ремінь |
| 2. bind | - зв'язувати, тут: змочувати, щоб з'єднати |

3. broom	- дорожня щітка
4. chamber	- камера
5. debris	- уламки, продукти зносу
6. draw	- втягувати, залучати
7. either or both	- кожний(з двох) або обидва
8. exclusive	винятковий
9. executing blower	- нагнітач, вентилятор
10. fine dust	- тонкодисперсний пил
11. flick	- змахувати (пил), змити
12. float	- плавати
13. forward	- вперед
14. overthrow	- перекидати
15. paving	- дорожнє покриття
16. pick-up system	- система прибирання (сміття), система захвату
17. power	- приводити в дію
18. precinct	- територія, приміщення
19. reverse	- назад
20. self-dumping dirt hopper	- бункер з саморозвантажуванням сміття
21. shaft	- вал, вісь
22. shock- resistant	- удароміцний
23. standing	- стоянка
24. sweeper	- підмітальна машина
25. thoroughly	- ретельно, до кінця
26. tight	- щільний, компактний, точний
27. top-loading dirt hopper	- бункер, який завантажується сміттям зверху
28. view	- огляд, поле зору
29. water spray system	- система розбризкування води
30. weather-proofed cab	- закрита кабіна
31. wear	- знос

Завдання 2. Прочитайте текст

NEW POWER SWEEPER

The 5024 paving power *sweeper* has been introduced. It is a hydraulically driven road vehicle designed to provide economic mechanized cleaning streets, car parks, airport *standings*. It is claimed to be suitable for cleaning large areas at speed. Powered by the Volkswagen petrol engine, the 5024 Sweeper has a three-wheel geometry and single front-wheel steering to give a *tight* turning radius and close manoeuvrability on corners. It is capable of collecting any debris, from fine dust to stones and bottles.

Designed to give faster sweeping rates and to sweep more *thoroughly* than the comparable machines, the 5024 Sweeper is equipped with a especial high-speed *pick-up system*, a *self-dumping dirt hopper*, a *weather-proofed cab*, a *waterspray* system and an exclusive *vacuum-filter* arrangement that avoids the need for larger volumes of water to *bind* and collect *fine dust*.

To eliminate the gears, *belts* and transmission *shafts*, the 5024 Sweeper is driven by heavy-duty hydraulic motors. The infinitely variable sweeping speed range is available up to the maximum of 10 mile/hr. The direction of the travel-*forward or reverse* - is controlled by a single foot pedal.

As the sweeper is driven, the *main broom* contrarotates to the direction of travel and *flicks debris* into a *overthrow* elevator which revolves at the speed synchronised with the main broom. The hydraulically powered elevator ejects the debris into a *top-loading dirt hopper* at the rear of the vehicle. Simultaneously, *fine dust* particles circulating in the broom *chamber* are *drawn* upwards the *evaculating blower* into the exclusive filter system, where they are separated from the air stream. The dust collected in the filters is periodically shaken off to settle in the hopper.

In addition to the main broom, the sweeper can have two fully *floating shock-resistant side brooms* placed so that they are in the constant view from the driver's cab. They can be retracted without driver's having to stop or leave his seat. The

main and side brooms are driven by hydraulic motors and the main broom is automatically adjusted for the height as *wear* takes place.

Завдання 3. Знайдіть в тексті еквіваленти для наступних словосполучень:

- | | |
|-------------------------------------|--|
| 1. точний радіус повороту | 5. гідродвигун для важкого режиму роботи |
| 2. приводити в дію | 6. закрита кабіна |
| 3. триколісна схема установки коліс | 7. управління переднім колесом |
| 4. система розбризкування води | 8. тонкодисперсний пил |

Завдання 4. Дайте відповіді на наступні запитання.

1. What is the 5024 paving power sweeper intended for?
2. What is the 5024 Sweeper powered by?
3. What are the distinguished features of the 5024 Ssweeper that give faster sweeping rates and sweep more thoroughly?
4. How is the direction of the travel controlled?
5. How does the sweeper operate?

Завдання 5. Переведіть письмово абзац, в якому йдеться про роботу підмітальної машини.

UNIT 20

Завдання I. Прочитайте наступні слова і словосполучення, запам'ятайте їх.

- | | |
|-------------------------------|--------------------------------|
| 1. airline | - повітропровід |
| 2. air receiver | - воздухоприймач |
| 3. PTO - power take-off shaft | - вал відбору потужності |
| 4. wet-type clutch | - зчеплення, що працює в маслі |

Завдання 2. Прочитайте текст.

AIRMOBILE COMPRESSOR

This compressor is used exclusively with and close-coupled to a tractor. It is of the Duplex type and is driven from an independent *PTO shaft* of the tractor which rotates at 1000 rpm. Being hydraulically operated, the *wet-type clutch* gives a smooth progressive engagement. The compressor unit has a free *air delivery* of 170 cubic feet per minute. It has twin *air receivers* and is capable of operating three airlines.

Завдання 3. Дайте відповіді на наступні запитання.

1. What is the engine speed of the airmobile compressor?
2. Is the airmobile compressor self-propelled or is it used with a tractor?

UNIT 21

Завдання 1. Прочитайте міжнародні слова і перекладіть їх.

formula	physical	material
economical	per cent	engineer
electric motor	efficiency	operation
phase	lift	final
introduction	principle	distance
modern	industry	fix
machine	conveyor	process

Завдання 2. Прочитайте наступні слова і запам'ятайте їх. Перекладіть приклади їх використання.

to apply - застосовувати, використовувати

To apply a principle; to apply equipment

to convey - перевозити, транспортувати

To convey materials, to convey passengers

to cover - охоплювати, включати

To cover various processes; to cover the lifting and storage of materials

to depend (on) - залежати
 To depend on somebody; to depend on the temperature.
 It depends on you.

design - конструкція; модель, проект
 The design of the machine; to improve the design of the equipment.

to develop - розвивати(ся), вдосконалювати
 To develop industry; to develop high speeds.
 The country (trade, industry) developed rapidly.

equipment - устаткування
 Automatic equipment; new equipment; electrical equipment;
 the equipment for transportation; materials handling equipment

to handle - 1) обробляти;
 2).перевозити, транспортувати
 To handle materials; to handle goods (товари).

to harness - приборкувати, підкоряти (річку, водоспад)
 To harness a water-fall; to harness rivers

to increase - рости, зростати, збільшувати (ся), підвищувати (ся)
 To increase in the size; to increase the speed

manual - ручний
 manually - вручну
 To do work manually; to perform materials handling operations manually; manual labour.

to multiply - збільшувати (ся), множити
 To multiply two numbers together.

to multiply - наводити все більше прикладів
 examples

power - 1) сила; 2). енергія
 Power lifting; electric power; mechanical power; atomic power; to increase power

productivity - продуктивність
 Labour productivity; the productivity of a plant.

to raise (to lift) - піднімати
 To raise a hand; to raise water; to raise materials

storage - зберігання

The storage of materials.

strength - сила, міцність, опір

Physical (moral) strength; strength of materials

variable - змінна величина

At various distances; at various times; the various types of equipment; various technological processes

various - різний

wheel - колесо

A front wheel; an iron wheel; a wheeled tractor; the power of the wheel.

Завдання 3. Заповніть пропуски відповідними за значенням словами, наведеними в таблиці.

1. increased	2. depends	3. develops
4. various	5. design	6. handles
7. harness	8. multiply	

1. There are _____. ways of solving the question.
2. To _____. the laboratory took much time.
3. The belt conveyor _____. materials.
4. The length of various conveyors _____. upon the strength of the chain.
5. The industry _____. rapidly.
6. The production of road building equipment has _____.
7. _____.-ing the rivers increased man's power.
8. Please _____. the two numbers together.

Завдання 4. Знайдіть значення наступних термінів у спеціальному словнику:

1. horse power
2. prime mover
3. steam engine
4. fixed variable
5. fixed weight

Завдання 5.

I. Вкажіть відповідний переклад словосполучень.

2. Перекладіть словосполучення в режимі прямого і зворотнього перекладу.

I

- | | |
|--|--|
| 1. construction materials | 1. операція виконується вручну |
| 2. harnessing the mechanical force | 2. вантажно-транспортне устаткування |
| 3. materials handling equipment | 3. підкорення (освоєння) механічної сили |
| 4. the operation is performed manually | 4. конструкційні матеріали |

II

- | | |
|------------------------------|--|
| 1. to do work requires power | 1. задана вага |
| 2. the fixed weight | 2. щоб виконати роботу, потрібна енергія |
| 3. the branches of industry | 3. електродвигун |
| 4. an electric motor | 4. галузі промисловості |

Завдання 6. Прочитайте наступні речення. Опираючись на граматичні ознаки дієслова-присудка, перекладіть речення.

1. In the book which is on the table you can find the picture that shows the construction of the lift.
2. In the early days of civilization when man had poor knowledge of nature he also tried to use some materials handling equipment.
3. A special device used by the engineer helped him to show the physical characteristics of the material.
4. When we worked in the shop we used different instruments.
5. The assistant showed the professor the list of the temperature changes which they had got during the experiment.
6. The plants provided with modern machinery have a higher labour productivity.

Завдання 7. Утворіть від наступних дієслів віддієслівні іменники, які означають назву операцій і процесів, і перекладіть їх за зразком:

to build	building
будувати	будівництво

- | | |
|----------------|-----------------|
| 1. to increase | 5. to shift |
| 2. to develop | 6. to convey |
| 3. to harness | 7. to transport |
| 4. to lift | 8. to fix |

Завдання 8. Прочитайте текст, знайдіть відповідь на наступне питання:

What are the synonyms to the term "materials handling"?

FROM THE HISTORY OF MATERIALS HANDLING

Materials handling is not a new subject. Man has always tried to increase his own strength. Man's first prime mover was his own arm. Its power is only one tenth of a *horse power*². But when man used it to drive a horse he increased his own power by 900 per cent. Using the wheel and harnessing rivers again increased the man's power. Later man developed the *steam engine*¹ and the electric motor which also shortened his time of doing work. So we see that harnessing the mechanical forces and using the mechanical equipment *made it possible for man*³ to shorten time necessary for lifting and shifting various materials.

Some of the basic principles of many modern materials - handling machines were applied many centuries ago. For example, *Archimedes*⁴ in developing a device for raising water made practically one of the first mechanical devices for handling materials, and the same principle is applied today. *The most we can do*⁵ is to improve the design and the variety of the equipment for fuller use of new construction materials and to apply the equipment for today's production operations.

The term "materials handling" is new. Until about 30 years ago people used such terms as conveying, lifting, transporting, shifting, mechanical handling and many others. However, finally they chose materials handling because it really covers handling materials in transportation, in storage, in the raw and finished state, whether the operation is performed manually or mechanically.

As we know engineers base economical materials handling on work, time and space. Handling materials is work, especially in the lift phase. To do work requires power, and the power of lifting materials depends on the standard physical formula:

$$Power = \frac{(weight) \times (resistance)}{time}$$

The material for lifting always has the fixed weight. The distance is also fixed. So, there are two variables. Fixing one of them fixes the other. We may economize on power *at the expense*⁶ of time, or on time at the expense of power.

In developing our industry and production efficiency great attention is paid to wide introduction of materials handling equipment into all branches of industry.

Commentary

1. horse power	кінська сила
2. a steam engine	паровий двигун
3. made it possible for man	надало людині можливість
4. Archimedes	Архімед
5. the most we can do is...	все, що ми можемо зробити, полягає в...
6. at the expense	за рахунок

Завдання 9. Прочитайте речення і вкажіть, які з них відповідають змісту тексту, які ні і виправте їх.

1. Materials handling is a new subject.
2. Some of the basic principles of many modern materials handling machines were suggested many centuries ago.
3. About 50 years ago people used other terms.

4. The power of lifting materials depends on the standard physical formula.
5. We may have an economic effect shortening on power at the expense of time and vice versa.
6. Great attention is paid to wide introduction of strength of materials into all branches of industry.
7. Engineers base economical materials handling on power, time and distance.
8. Our only task is fuller using new construction materials in designing the equipment for today's needs.

Завдання 10. Знайдіть відповідне закінчення в правій колонці до речень в лівій колонці.

I

- | | |
|--|---------------------------------------|
| 1. Man's arm power is | a. helped Man make doing work easier. |
| 2. Using the wheel and harnessing rivers | b. by using mechanical equipment. |
| 3. The developed steam engine and electric motor also | c. only one tenth of a horse power. |
| 4. You may shorten the time for various materials lifting and shifting | d. increased the man's power. |

II

- | | |
|---|--|
| 1. Many centuries ago people applied some of the basic principles | a. to express the notion "handling materials". |
| 2. One of the first mechanical devices for handling materials | b. to improve the design and the variety of the equipment applied for today's production operations. |
| 3. The main task is | c. was developed by Archimedes. |
| 4. Earlier people used different terms | d. of many modern materials - handling machines |

III

- | | |
|---|---|
| 1. Economical materials handling is based on | a. work, especially in the lift phase. |
| 2. Handling materials is | b. work, time and space |
| 3. To do work | c. is paid to materials handling equipment. |
| 4. In developing our industry and production efficiency great attention | d. requires power. |

Завдання 11. Дайте відповіді на наступні запитання.

1. How much more is the horse power than the man's arm power?
2. How could Man in earlier times increase his power?
3. What technical achievements helped Man to shorten the time of doing work and make it easier?
4. What is the economical materials handling based on?
5. What does lifting as work require?
6. What is the dependence between power and time?
7. What is the task facing our designers of material-handling equipment?

Завдання 12. Прочитайте текст ще раз і складіть план тексту.

Завдання 13. Сформулюйте основну ідею кожної частини тексту (1-2 речення).

Завдання 14. Зробіть письмовий переклад, починаючи з 3-го абзацу (зі слів term "materials handling ...") і до кінця.

UNIT 22

Завдання 1. Прочитайте і перекладіть:

а) наступні слова:

horizontal	distance	machine	nature
vertical	physical	conveyor	limit
reason	operation	characteristic	model
limit	fix	fixed	transmission
autoclave	lift	crane	conservation

б) словосполучення:

physical characteristics	physical reason
physical nature	an electric lift
to lift materials	lifting materials
machine industry	the fixed distance
fixed limits	the distance of 25 metres

в)

the principles of physics	the principle of universal gravitation
a man of principles	a man of no principles
the first principles of geometry	to work on the principle of

Завдання 2. Прочитайте наступні слова і запам'ятайте їх. Перекладіть приклади їх використання.

belt - стрічка, ремінь

A wide belt; a belt of a conveyor

At plants belts can transport materials over long distances.

The belt is 25 metres long.

to carry - нести, перевозити

To carry materials; to carry by air; to carry by train; to carry by a conveyor

hoist - підйомник, лебідка

air hoist - пневматичний підйомник

an electric hoist -електричний підйомник.

intermittent - періодичний

level - рівень, вирівнювати

. To level the conveyor belt.

load

- вантажити,
навантажувати

To load a conveyor; to load goods; heavy loads; the loads of different weight; the loading point.

operation

-процес, робота,
функціонування

An operation of lifting; an automatic operation.

A machine of intermittent operation; an intermittent action.

proper

-правильний, належний,
відповідний

The proper choice; at the proper distance.

This is the proper instrument for this operation.

The car is running at the proper speed.

repair

- ремонт

The machine is under repair; the repair of the conveyor; to repair a machine, the equipment for repairing.

The autoclave needs repairing.

The plant is closed for repairing

tractor trains

-електрокари

A tractor train is of 10 trailers.

trailer

- причіп

A trailer to a car.

width

- ширина

A road of great width; 10 metres in width; various widths; the width of a belt.

truck

- візок, вагонетка

Завдання 3. Заповніть пропуски відповідними за значенням словами, наведеними в таблиці. . Речення перекладіть.

1. handle	2. loads	3. lifting	4. repairing	5. continuous
6. handling	7. belts	8. hoist	9. travel	10. belt

1. In every branch of industry various machines _____ the goods of any size and weight.
2. The branch of science which studies the principles of movement of various materials is called materials_____

3. Conveyors can transport _____ over long and short distances.
4. The lines of _____ of materials from one point to another may be straight or curved
5. We know two types of movement of materials: the intermittent and _____.
6. A hoist is the type of the equipment of _____. operation.
7. There are many conveyors with various _____. at our plant.
8. The workers are _____.the conveyor.
9. A _____. is the type of the equipment which lifts heavy materials.
10. What is the length of the _____of this new conveyor?

Завдання 4. Прочитайте наступні речення. Знайдіть в реченнях присудки, опираючись на граматичні ознаки. Перекладіть речення.

1. Belts handle materials in continuous movement and hoists handle materials intermittently.
2. Do the conveyor belts find a wide application in materials handling?
3. This crane lifts up to 2 tons.
4. When transporting materials over long distances connect the two lengths of the conveyor belt.
5. Usually engineers group loads into two groups.
6. When operating the crane follow its instruction.
7. Before the test examine the sections of the conveyor.
8. Engineers spend much time and energy in developing materials handling equipment.

Завдання 5. Перекладіть наступні речення, звертаючи увагу на виділені слова.

1. The hoist handles heavy machine parts.
2. The truck handles put the truck in the vertical position.
3. The conveyor turns two ways: right and left.
4. The conveyor turns occur in two places of the line.

5. After this group the loads as to their properties.
6. After this group loads change their properties.
7. The crane travels on the tracks of various lengths.
8. The crane travels are of various lengths.
9. For such operations use air hoist.
10. For such operations the use of the air hoist is not proper.

Завдання 6. Поставте слова в дужках у відповідну часову форму.

1. Figure 2 _____. a standard conveyor (to show).
2. Tractor trains and mobile trucks _____. materials to any part of the construction site (to carry).
3. For transporting materials in the horizontal direction engineers _____. conveyors (to apply).
4. The arrows (стрілки) in the picture _____. what way the conveyor _____. and which way it _____.the goods (to show, to turn, to convey).
5. At the loading point special devices _____.the material along the conveyor belt (to level).

Завдання 7. Визначте граматичну форму виділених слів, опираючись на граматичні ознаки.

1. Operate the hoist manually.
2. Within the building transport the materials continuously.
3. Materials can be moved intermittently.

Завдання 8. Перекладіть наступні словосполучення і речення.

at a plant	to a plant
within area	by a conveyor
its height	their limits
these lines	over long distances
another type of equipment	between the lines

Apply this or that conveyor.

What is the length of the conveyor?

It is 10 metres long.

Завдання 9. Прочитайте текст. Знайдіть відповіді на наступні запитання.

1. What factors influence the choice of the materials-handling equipment?
2. What do engineers base on the classification of materials-handling operations?

TYPES AND APPLICATION OF MATERIALS HANDLING EQUIPMENT

In every branch of industry various machines lift, shift and transport materials of any size, form and weight. Engineers name these actions one term "handling of materials". *Under this special term*¹ they understand all the conveying, lifting and transporting operations which are indispensable in any branch of industry. We cannot find a mill, a factory or a *construction site*² which *can do without them*.³ For this reason material handling machines are often called the hands of production.

Engineers and technicians base their choice of materials handling equipment on three considerations: work, time, and space. The proper choice of equipment for any given operation is very important, the numerous factors influence it. The main of them are the nature of the materials which must be handled and physical characteristics of the building or area in which the equipment must operate. *Out of the*⁴ area's physical characteristics we can take the classification that *puts* all the material handling operations *into*⁵:

I. The movement of materials continuously from point A to point B. This line of the travel from A to B can be straight or curved in the horizontal and vertical planes. The important thing is the continuous movement.

For the operations *falling with*⁶ this category, conveyors should ordinarily be used. Conveyors are widely used in construction.

II. The movement of materials intermittently within the area limited in the length, width and height.

For the operations falling with the second category cranes and hoists should usually be used. Cranes are widely used in construction and in mechanical repair shops for lifting heavy machine parts. In these shops cranes and hoists operate either manually or electrically.

III. The movement of materials intermittently between many points *with no*⁷ limitations as to area or distance.

For the operations falling with the third category *mobile trucks*⁸ and tractor trains should ordinarily be used.

Commentary

1.under this special term	під цим спеціальним терміном
2.construction site	будівельний майданчик
3.can do without them	обійтися без них
4.out of	з
5.to put into...	розподіляти на...
6.to fall with.	відноситися до
7.with no	без яких-небудь
8. mobile truck	самохідний візок

Завдання 10. Назвіть номери речень, які відповідають змісту тексту. Виправіть помилкові твердження.

1. Space, time and work are the factors of great importance for the proper choice of materials handling equipment.
2. Engineers base the classification of the materials-handling operations on such characteristics as work, space and time.
3. The continuous movement of materials can take place both along the straight and curved lines.
4. Various types of conveyors can move continuously.
5. Hoists are widely used on construction sites.
6. Mobile trucks and tractor trains move materials intermittently between many points on a construction site.
7. In these shops cranes and hoists operate either manually or electrically.
8. Cranes are used only in construction and in mechanical repair shops for lifting heavy machine parts.

Завдання 11. Знайдіть відповідне закінчення в правій колонці до речень в лівій колонці.

I

- | | |
|---|--|
| 1. Engineers name the operations of lifting, shifting and transporting materials of any size, form and weight | a. are often called the hands of production. |
| 2. All the conveying, lifting and transporting operations. | b. when engineers and technicians make their choice of materials handling equipment. |
| 3. Material handling machines. | c. one term "handling of materials". |
| 4. Work, time, and space are taken into account | d. are indispensable in any branch of industry. |

II

- | | |
|---|---|
| 1. Numerous factors influence | a. straight or curved in the horizontal and vertical planes. |
| 2. The choice of the handling equipment. | b. the proper choice of equipment for any given operation. |
| 3. The line of the conveyor travel from A to B can be | c. widely used in construction. |
| 4. Conveyors are | d. depends on the nature of the handled materials and the physical characteristics of a building or area. |

III

- | | |
|---|---|
| 1. Cranes and hoists should usually be used for | a. manually or electrically. |
| 2. Cranes are widely used | b. handling materials intermittently within the limited area, length, width and height. |

3. Cranes and hoists operate either
 - c. between many points with no limitations as to area or distance.
4. Mobile trucks and tractor trains should ordinarily be used to move materials intermittently
 - d. for lifting heavy machine parts in construction and in mechanical repair shops.

Завдання 12. Знайдіть в тексті переклад наступних словосполучень і речень, прочитайте їх:

1. Визначення значення терміну "транспортування матеріалів".
2. Характеристика безперервного переміщення матеріалів.
3. Два абзаци, в яких йде мова про періодичне переміщення матеріалів.
4. Чи помітили ви відмінності в змісті цих абзаців? Якщо так, то поясніть, які.

Завдання 13. Знайдіть в тексті відповіді на наступні запитання:

1. How do engineers often call material handling machines?
Explain why they call these machines so.
2. What are cranes applied for?
3. What are conveyors applied for?
4. When are mobile trucks and tractor trains applied?

Завдання 14. Знайдіть в тексті інформацію про чинники, що впливають на вибір підйомно-транспортного устаткування.

Завдання 15. Накресліть схему класифікації підйомно-транспортного устаткування.

UNIT 23

Завдання 1. Прочитайте наступні слова і перекладіть їх.

mobile	magnet	crane
type	form	motor
horizontally	position	track
vertical	combination	radius
construction	stability	moment
balance	stationary	to lift
system	lifting magnet	electric motors

Завдання 2. Прочитайте і запам'ятайте наступні терміни, назви деталей крана.

hook	крюк
boom	стріла
bucket	ківш
crab	кішка (пристрій для підвішування талів)
girder	балка
grab	грейфер, ківш
jib	стріла
pivot	опора
skip	скип, підйомний ящик
tongs	кліщі
trolley crab	візок, кішка (крана)
wire rope	трос
truck	вантажівка
winch	лебідка

Завдання 3. Знайдіть в спеціальному словнику значення наступних термінів і запам'ятайте їх.

- | | |
|---------------------|---------------------|
| 1. scrap iron | 2. overhead track |
| 3. bridge crane | 4. transverse track |
| 5. jib crane | 6. hoist drums |
| 7. travelling crane | 8. pulley system |
| 9. tower crane | |

Завдання 4. Прочитайте і перекладіть наступні слова і приклади, що ілюструють вживання цих слів.

to attach - прикріплювати

To attach a device to a crane; to attach a detail

attachment - додатковий пристрій

Various lifting attachments; a special attachment for handling scrap iron

to be intended for, to be - призначатися

designed for

Cranes are intended for various purposes.

The attachment is intended for lifting scrap iron.

The attachment is designed for handling individual loads.

boom (=jib) - стріла (крана)

bulk - сипкий

Bulk materials; to use buckets or skips for lifting bulk materials; the attachments are designed for handling bulk materials.

by means of - за допомогою

By means of special devices; to lift scrap iron by means of lifting magnets; to attach a detail by means of a bolt.

to discharge - розвантажувати,
вивантажувати

to discharge bulk materials by means of a grab

enable - дозволяти, робити можливим

to install - встановлювати, вмонтовувати

To install new equipment

girder - перекладина; балочна ферма

A transverse track is installed on the girders.

to luff - змінювати ухил крана

luffing motion.

magnitude - величина, розмір

The magnitude of the load; to depend on the magnitude of the loads to be handled; to move an attachment by means of a wire rope.

to mount - вмонтовувати;

прикріплювати; навішувати

overhead - верхній

to pick up

- піднімати, збирати,
підхоплювати

To pick up the load; to discharge bulk materials.

The grab can open and close to pick up the load and discharge it.

pivot

- вісь обертання

purpose

- мета

The purpose of the crane; the purpose of the attachment; to use the attachment depending on the purpose.

slewing

- поворотний, той, що
обертається

A slewing motion of the boom; to perform a slewing motion.

to suspend

- підвішувати

The attachments are suspended by the wire ropes.

to and fro

- назад і вперед

To travel to and fro; the crab moves to and fro on the transverse track.

to wind (wound, wound)

- намотувати, накручувати,
навивати

Завдання 5. Заповніть пропуски відповідними за значенням словами.

magnitude, wound, are intended, bulk, discharged, attached, by means of, attachments

1. The cranes are classified depending on the purpose for which they _____. and on the _____ the loads to be handled to.
2. To lift different kinds of loads we use special _____.
3. _____. materials are picked up and _____. means a grab.
4. Scrap iron is usually handled _____ the lifting magnet.
5. A variety of lifting and handling devices can be _____. to cranes.
6. Wire ropes are _____ on hoist drums.

Завдання 6. Визначте функцію Participle I (IV – ing), перекладіть речення.

1. A special lifting attachment is the lifting magnet.
2. A bridge crane usually consists of the "bridge", comprising two girders.
3. It can be raised or lowered varying its angle of inclination.
4. There are cranes of many different kinds, depending on the purpose for which they are intended.
5. A jib or boom can usually perform a "slewing motion", i.e. rotate horizontally about the vertical pivot.
6. The jib is often able to perform a "luffing motion", i.e. it can be raised or lowered varying its angle of inclination.

Завдання 7. Визначте форму і стан дієслів у наступних реченнях. Речення перекладіть.

1. The load is picked up by means of such attachment as hooks or tongs.
2. These attachments are usually suspended from the wire ropes which pass round various pulley systems.
3. The major distinction can be made between bridge cranes and jib cranes.
4. A variety of lifting and handling devices can be attached to cranes.
5. The type of the jib crane used on construction sites for tall buildings is the tower crane.

Завдання 8. Прочитайте текст і розкажіть про відмінності двох типів кранів.

CRANES

There are cranes of many different kinds, depending on the purpose for which they are intended and on the magnitude to which the loads are to be handled. They may be mobile or stationary. The load is picked up by means of such attachments as hooks or tongs (for individual loads) or by means of buckets, skips or grabs (for bulk materials). A special lifting attachment, used mainly for handling scrap iron, is the lifting magnet. These attachments are usually suspended from the wire ropes

which pass round various pulley systems and are wound on the hoist drums which are driven by electric motors.

There are two main types of cranes: the bridge cranes and jib cranes. The crane of the bridge type has a trolley, or crab, which travels along the track and carries the winch that lifts the load. The commonest form of the bridge crane is the overhead travelling crane used in factories, workshops, etc. Such a crane usually consists of the "bridge", comprising two girders, each end of which is mounted on the truck which travels on the overhead track along the length of the building. The crab can travel to and fro on the transverse track installed on these girders. The combined movements of the crab and crane as a whole enable the lifting hook to be brought into the position at any desired point in the building.

The jib crane has an arm called a jib or boom which can usually perform a "slewing motion", i.e. rotate horizontally about the vertical pivot mounted in the substructure of the crane. In addition, the jib is often able to perform a "luffing motion", i.e. it can be raised or lowered varying its angle of inclination. The combination of these two motions enables the hook to be brought into the position at any desired point within the certain radius. The type of the jib crane used on construction sites for tall buildings is the tower crane.

Besides hooks, a variety of lifting and handling devices can be attached to cranes. An important device for picking up bulk materials such as coal, ore, etc., is the grab. It can open and close to pick up the load and discharge it. These movements are produced by working the holding and closing ropes.

Завдання 9. Прочитайте речення і вкажіть, які відповідають змісту тексту, які ні і виправте їх.

1. An important device for picking up bulk materials such as coal, ore, etc. is the boom.
2. There are cranes of many different kinds depending on the purpose for which they are intended.
3. The jib crane has an arm called the jib or boom.

4. The crane of the bridge type has a trolley, or crab which travels along the track and carries the winch that lifts the load.
5. Individual loads are lifted in buckets.
6. Individual loads are handled by means of hooks or tongs.
7. The attachment used for picking up bulk loads is called the jib.
8. The important device used for picking up the bulk loads is called the grab.

Завдання 10. Знайдіть відповідне закінчення в правій колонці до речень в лівій колонці.

I

- | | |
|--|---|
| 1. The choice of the crane to be used depends on the purpose of work and | a. or stationary. |
| 2. They may be mobile | is the lifting magnet. |
| 3. Different attachments are used. | c. magnitude to which the loads to be handled. |
| 4. The attachment, used for handling scrap iron | d. depending on the kind of the load to be lifted |

II

- | | |
|--|--|
| 1. The wire ropes pass round various pulley systems and. | a. and jib cranes. |
| 2. There are two main types of cranes: the bridge cranes | b. of the bridge crane used in factories, workshops, etc. |
| 3. A trolley, or crab of the bridge crane travels | c. are wound on the hoist drums |
| 4. The overhead travelling crane is the most common type | d. along the track and carries the winch lifting the load. |

III

- | | |
|--|--|
| 1. The bridge crane consists of the "bridge", made from two girders, mounted on the truck, | a. on the transverse track installed on the girders. |
| 2. The crab can travel to and fro | b. which travels on the overhead track along the length of the building. |

- | | |
|--|---|
| 3. The jib crane has a jib or boom which can | c. be raised or lowered varying its angle of inclination. |
| 4. The jib can also | d. rotate horizontally about the vertical pivot mounted in the substructure of the crane. |

IV

- | | |
|--|---|
| 1. The tower crane is | a. close to discharge it. |
| 2. The grab. is an important device for | b. by electric motors |
| 3. The grab can open to pick up the load and | c. picking up bulk materials such as coal, ore, etc... |
| 4. The hoist drums are driven. | d. the jib crane used for tall buildings on construction sites. |

Завдання 11. Дайте відповіді на наступні запитання до тексту.

1. What are the two main types of cranes?
2. What attachments are used for picking up different types of loads?
3. What kind of load is handled by means of hooks (skips; lifting magnet)?
4. What kind of the crane is usually used in factories and workshops?
5. What parts does the bridge crane consist of?
6. What purposes is the jib crane used for?
7. What is main part of the jib crane?
8. What motions can the jib perform?

Завдання 12. Складіть план тексту.

Завдання 13. Зробіть письмовий переклад 2-го і 3-го абзаців тексту.

UNIT 24

Завдання 1.

а) Прочитайте і перекладіть наступні слова.

a section	a diameter	physical
a standard	horizontal	an interval
nature	an aggregate	production
to press	individual	construct

в) Прочитайте і перекладіть наступні словосполучення:

to press metal details	to press bolts
a double roller	steel rollers
metal rollers	conical rollers
an individual aggregate	individual sections
to press tubes of various diameters	
to adapt the equipment for this purpose	
to adapt the machine for handling materials	

Завдання 2. Прочитайте наступні слова і запам'ятайте

їх. Перекладіть приклади їх використання.

axle - вісь (деталь машини)

The axle of a roller; the axle of a wheel.

cup - втулка

A steel cup; a glass cup; a tube with the cups for bearings (підшипники).

to employ - використовувати

To employ new methods; to employ the right motor; to employ a pen for writing.

to fasten - кріпити, закріплювати

To fasten the conveyor on the floor;

to fasten a machine with bolts.

frame - каркас, корпус

The frame of a building; the frame of a car.

mobile - рухомий, переносний

A mobile library; a mobile radio set; mobile field stations.

to mount - вмонтовувати, насадити, вставляти в оправу

To mount the roller on a rod; to mount an engine.

to propel - надавати руху, просувати

вперед, рухати

To propel a steam engine; to propel materials by gravity (самоплив); to propel goods along the conveyor belt.

to set

- встановлювати

To set a roller; to set a crane in the proper position; to set glass into a window frame; to set limits; to set the length of the conveyor.

to space

- розставляти з проміжком

To space the rollers with 5 mm intervals;

to space equipment in a shop.

to space the loads on the conveyor

strand

- ланка

A strand of the chain; a steel strand.

Завдання 3. Опираючись на граматичні ознаки пасивного стану (одна з форм дієслова to be + III форма смислового дієслова), вкажіть номери речень з дієсловом-присудком в пасивному стані. Дайте можливі способи перекладу.

1. In solid rollers bearings are mounted in cups.
2. The most of gravity conveyors are constructed with metal frames of different types.
3. The discharging sections of the conveyor are operated either manually or mechanically.
4. The apron conveyor mounted in the movable frame is called a portable apron conveyor.

Завдання 4. Прочитайте наступні речення. Вкажіть, яку функцію в реченні виконують слова з суфіксом -ed. Перекладіть речення.

1. The word “cup” used in technical texts has many meanings.
2. He was asked to show the machine in operation.
3. The control of this industrial process is automatized.
4. The roller spiral conveyor is used for transporting materials from one floor to another.
5. The gravity roller conveyor is constructed with metal frames.

Завдання 5. Прочитайте наступний текст і розкажіть про будову гравітаційного роликового транспортера.

GRAVITY ROLLER CONVEYOR

Definition. It is the type of the material-carrying conveyor which supports loads on the rollers, turning in fixed *bearings*¹ and spaced at the distances depending upon the size of the load.

Description. The rollers in the gravity conveyor are of several types. One is known as a solid roller, which consists of one piece of tubing with the cups at the ends in which the bearings are mounted. Another type is known as a double roller in which two individual rollers are mounted on the same axle but each turns independently on the other. The third type is a conical roller which can either be single or double depending upon the purpose for which it is used.

Most of gravity conveyors are constructed with metal frames supporting the roller axles and are built in the standard length of 5 and 10 feet. They are built in the curved sections of 45 and 90 degrees and with the *switch sections*² and discharging sections which can be operated manually or mechanically.

Application. The gravity roller conveyors can be used for transporting materials both for short and long distances. These conveyors can be used in various branches of industry.

Commentary

1. fixed bearings - нерухомі опори
2. witch section - привідна секція

Завдання 6. Прочитайте речення і вкажіть, які відповідають змісту тексту, а які ні і виправте їх.

1. The rollers in the gravity conveyor are of several types.
2. Concave rollers are sometimes used for handling special objects.
3. The gravity roller conveyor is generally used for lowing materials.

4. The conical roller can be either single or double.
5. Metal frames are built depending on the size of the material to be handled.

Завдання 7. Прочитайте наступний текст і вкажіть, чим відрізняється пластинчатий конвеєр від гравітаційного роликового транспортера.

Apron Conveyor

Definition. The *apron conveyor*¹ is a continuous carrying surface made of wood or steel *slats*² propelled by one or more strands of the chain and supported either by the chain or one of the rollers.

Description. The continuous wooden apron conveyor is made up of slats set close together. The slats are usually fastened to the roller chains which run in the *steel guides*³. The apron conveyors for handling materials are generally of wood-and-chain construction. In some apron conveyors the wood slats can be fastened to the iron or steel chain which is not fitted with rollers.

When this type of a conveyor is mounted on a movable frame it is called a *portable apron conveyor*⁴. The length of the conveyor depends upon the strength of the chain and the size of the driving motor

Application. The apron conveyors are very widely employed for handling heavy materials and are used as mobile floors for continuous transportation. A great many of different styles and modifications of the apron conveyors are used in various industrial operations. The apron conveyors made of steel are especially useful for carrying heavy materials

Commentary

1. an apron conveyor - пластинчатий конвеєр
2. a slat - пластина
3. steel guides - пази
4. a portable apron conveyor - пересувний пластинчатий конвеєр

Завдання 8. Знайдіть відповідне закінчення в правій колонці до речень в лівій колонці.

I

- | | |
|--|---|
| 1. The carrying surface of the apron conveyor is | a. are especially useful for carrying heavy materials |
| 2. Steel apron conveyors | b. made of wood or steel slats. |
| 3. The roller chains are | c. run in the steel guides. |
| 4. The roller chains | d. used to fasten the slats. |

II

- | | |
|---|---|
| 1. A portable apron conveyor | a. determine the length of the conveyor. |
| 2. The power of the driving motor and the strength of the chain | b. is mounted on a movable frame. |
| 3. To handle heavy materials | c. as mobile floors for continuous transportation |
| 4. The apron conveyors are sometimes used. | d. apron conveyors are widely used. |

Завдання 9. Знайдіть в тексті речення, які є відповідями на дані питання.

1. What type of the conveyor do we call a portable apron conveyor?
2. What is the .apron conveyor?
3. What does the length of this conveyor depend upon?
4. What slats are used in the apron conveyor?

Contents

Unit 1	5
Unit 2	10
Unit 3	15
Unit 4	22
Unit 5	28
Unit 6	34
Unit 7	37
Unit 8	39
Unit 9	40
Unit 10	44
Unit 11	51
Unit 12	55
Unit 13	57
Unit 14	60
Unit 15	64
Unit 16	68
Unit 17	71
Unit 18	72
Unit 19	74
Unit 20	77
Unit 21	78
Unit 22	86
Unit 23	94
Unit 24	101

Навчальний посібник з англійської мови
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