

МИНИСТЕРСТВО СЕЛЬСКОГО ХОЗЯЙСТВА  
И ПРОДОВОЛЬСТВИЯ РЕСПУБЛИКИ БЕЛАРУСЬ

ГЛАВНОЕ УПРАВЛЕНИЕ ОБРАЗОВАНИЯ,  
НАУКИ И КАДРОВОЙ ПОЛИТИКИ

Учреждение образования  
«БЕЛОРУССКАЯ ГОСУДАРСТВЕННАЯ  
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И ТРУДОВОГО КРАСНОГО ЗНАМЕНИ  
СЕЛЬСКОХОЗЯЙСТВЕННАЯ АКАДЕМИЯ»

Ю. Ч. Михальчя

# АНГЛИЙСКИЙ ЯЗЫК

## MECHANIZATION IN AGRICULTURE

*Рекомендовано Учебно-методическим объединением  
по аграрному техническому образованию в качестве  
учебно-методического пособия для студентов учреждений высшего  
образования по специальностям 6-05-0812-01 Техническое  
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6-05-0812-03 Технический сервис в агропромышленном комплексе*

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Автор:  
старший преподаватель *Ю. Ч. Михальчя*

Рецензенты:  
кандидат педагогических наук, доцент,  
доцент кафедры современных технологий перевода  
УО «Минский государственный лингвистический университет»  
*В. Г. Бричикова;*  
старший преподаватель кафедры межкультурных  
коммуникаций и технического перевода  
УО «Белорусский государственный технологический университет»  
*С. Н. Шпановская*

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Для студентов учреждений высшего образования по специальностям 6-05-0812-01 Техническое обеспечение производства сельско-хозяйственной продукции, 6-05-0812-03 Технический сервис в агропромышленном комплексе.

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## **ВВЕДЕНИЕ**

Учебное пособие предназначено для студентов технических специальностей вузов. Цель пособия заключается в формировании лексических и грамматических навыков чтения, создании внутреннего профессионального лексикона и потенциального словаря обучаемых, а также развития умений чтения профессионально значимой литературы.

Пособие состоит из 29 уроков (Units), включающих в себя разделы, посвященные словообразовательной работе, разделы, содержащие краткие сведения о грамматическом материале, который активизируется в комплексе упражнений, лексические словари, тексты для чтения и упражнения на проверку понимания содержания и смысла прочитанного.

Текстовый материал позаимствован из зарубежных источников, его тематика определена программой подготовки специалистов технического профиля. Комплекс упражнений направлен на формирование компетентной личности инженера средствами иностранного языка.

Учебное пособие может быть рекомендовано для аудиторной работы и для самостоятельного изучения языка.

## Unit 1

### DEVELOPMENT OF FARM IMPLEMENTS

#### Словообразование

Суффиксы **-er/-or**, прибавляемые к основе глагола, обозначают орудие действия, лицо, производящее действие, или профессию:

to generate (генерировать) – a generator (генератор);

to read (читать) – a reader (читатель);

to edit (редактировать) – an editor (редактор).

**Exercise 1. Form the nouns using the suffixes -er/-or. Translate the nouns into Russian.**

**Model:** to listen – a listener

To tell, to subscribe, to lead, to defend, to advise, to make, to sing, to write, to produce.

**Model:** to visit – a visitor

To create, to initiate, to possess, to dictate, to inspect, to construct, to decorate, to narrate.

#### The Plural Nouns

#### (Множественное число имен существительных)

Тип окончания	Множественное число
Существительные образуют множественное число, прибавляя к форме единственного числа окончание <b>-s</b> .	book – books
Существительные, оканчивающиеся на -o, -ss, -sh, -x, -ch + -es	potato – potatoes, boss – bosses, brush – brushes, match – matches, box – boxes
-f, -fe переходят в v + -es	wolf – wolves, knife – knives
-y (перед ней стоит согласная) переходит в i + -es	lady – ladies
-y (перед ней стоит гласная) – + -s	day – days
Составные существительные: schoolboy (пишется слитно)	schoolboy – schoolboys copybook – copybooks
Составные существительные: sister-in-law (пишется через дефис)	<u>sister</u> -in-law – <u>sisters</u> -in-law (форму множественного числа принимает слово, несущее основной смысл)
Исключения	man – men, woman – women, foot – feet, tooth – teeth, goose – geese, mouse – mice, louse – lice, child – children, deer – deer, sheep – sheep, swine – swine

Слова латинского или греческого происхождения	on – a	phenomenon – phenomena
	um – a	datum – data, medium – media
	us – i	radius – radii, stimulus – stimuli
	is – es	crisis – crises, basis – bases
	a – ae	antenna – antennae, formula – formulae

### Exercise 2. Put the following nouns in the Plural.

A belt, a light, a disc, a man, a woman, a feeler, a reel, a master, a tractor, a truck, a differential, a cultivator, a foot, a stroke, a brake, a plough, a mouse, a knife, a header, a bus, a negro, a furrow, a shaft, a datum, a wolf.

### Exercise 3. Put the following nouns in the Singular.

Transmissions, clutches, crises, tedders, radii, separators, chains, media, rollers, sheep, teeth, children, Germans, deer, materials, peoples, trucks, cars, windows, wheels, potatoes, cereals, heroes, radios, photos, teachers.

## The Cardinal Numerals

### (Количественные числительные)

1 – 12	13 – 19	20 – 90	100 и более
1 one	13 thirteen	20 twenty	100 a (one) hundred
2 two	14 fourteen	21 twenty-one	101 a (one) hundred and one
3 three	15 fifteen	22 twenty-two	102 a (one) hundred and two
4 four	16 sixteen	и т. д.	и т. д.
5 five	17 seventeen	30 thirty	200 two hundred
6 six	18 eighteen	40 forty	300 three hundred
7 seven	19 nineteen	50 fifty	400 four hundred
8 eight		60 sixty	и т. д.
9 nine		70 seventy	1,000 a (one) thousand
10 ten		80 eighty	1,001 a (one) thousand and one
11 eleven		90 ninety	1,250 a (one) thousand two hundred and fifty
12 twelve			2,000 two thousand
			2,001 two thousand and one
			2,235 two thousand two hundred and thirty-five
			3,000 three thousand
			4,000 four thousand
			100,000 a (one) hundred thousand
			1,000,000 a (one) million
			1,000,000,000 a (one) billion

1. Числительные от 13 до 19 включительно образуются от соответствующих числительных первого десятка посредством суффикса **-teen**:

four + teen – **fourteen**

При этом числительные **three** и **five** видоизменяются:

three – **thirteen**

five – **fifteen**

Числительные, оканчивающиеся на **-teen**, могут иметь ударение как на первом, так и на втором слоге:

thirteen [θɜ:ˈti:n]

Когда такие числительные определяют существительные (относятся к существительным), они имеют ударение на первом слоге:

fifteen ['fifti:n] books

2. Числительные, обозначающие десятки, образуются от соответствующих числительных первого десятка посредством суффикса **-ty**:

seven + ty – **seventy**

При этом числительные **two**, **three**, **four** и **five** видоизменяются:

two – **twenty**

three – **thirty**

four – **forty**

five – **fifty**

Числительные, обозначающие десятки, имеют ударение на первом слоге:

forty ['fɔ:ti]

fifty ['fifti]

3. Между десятками и следующими за ними единицами ставится дефис (черточка):

twenty-one

4. Перед числительными **hundred**, **thousand**, **million** и **billion** ставится неопределенный артикль **a** или числительное **one**:

a (one) hundred

5. Числительные **hundred**, **thousand**, **million** и **billion** не принимают окончания **-s**, когда перед ними стоит числительное **two**, **three**, **four**, **five** и т. д.:

two hundred

three thousand

four million

five billion

Числительные **hundred, thousand, million** и **billion** могут принимать окончание **-s**, когда они выражают неопределенное количество *сотен, тысяч, миллионов, миллиардов*. В этом случае они превращаются в существительные и после них употребляется существительное с предлогом **of**:

*Hundreds of students* were present at the meeting. – Сотни студентов присутствовали на собрании.

6. В составных числительных в пределах каждого трех разрядов перед десятками (а если их нет, то перед единицами) ставится союз **and**:

305 – three hundred *and* five

675 – six hundred *and* seventy-five

2,075 – two thousand *and* seventy-five

2,005 – two thousand *and* five

1,225,375 – one million two hundred and twenty-five thousand three hundred and seventy-five.

7. При обозначении количественных числительных при помощи цифр каждые три разряда (справа налево) отделяются запятой:

3,734; 2,720,000

**Exercise 4. Read the following Cardinal numerals.**

A) 14; 20; 21; 25; 3; 1; 11; 13; 12; 100; 145; 378; 478; 567; 692; 704; 803; 958; 1,450; 2,000; 2,981; 4,995; 5,946; 10,005; 11,036; 15,637; 38,482; 59,303; 102,386; 176,986; 274,748; 829,549; 583,087; 684,276; 1,000,001; 1,765,765; 4,888,797; 68,876,389.

B) 28 books; 45 days; 84 trees; 158 computers; 483 people; 753 carpets; 809 wheels; 1,003 harrows; 3,083 students; 25,985 pages; 185,382 cups; 593,432 engines; 678,808 bytes; 1,858,004 films; 2,234,458,916 trees.

## **The Demonstrative Pronouns**

### **(Указательные местоимения)**

Английские указательные местоимения **this** *этот, эта, это* и **that** *тот, та, то* имеют формы множественного числа (**this – these, that – those**) и согласуются в числе с существительными, которые они определяют, например: **this** book – **these** books, **that** student – **those** students.

Местоимения **this** и **these** употребляются для указания на предметы, которые находятся в непосредственной близости к

говорящему, а местоимения **that** и **those** – для указания на предметы, находящиеся на удалении, например:

1. *This* is a door – *Эта* дверь.

*That* is a window. – *Это* (*то, там*) окно.

2. *These* magazines are in Russian. – *Эти* журналы на русском.

*Those* magazines are in English. – *Те* журналы на английском.

**Exercise 5. Translate the following sentences into Russian.**

1. This door is locked. 2. That deer is young. 3. Is this a pencil? 4. That house is not large. 5. Are these books on the table? 6. Where are the those students? 7. These lights are not red. 8. Are those doors brown? 9. Our teachers are not in that corridor. 10. Are these windows small?

**Exercise 6. Make the right choice of the given pronouns.**

1. *This / These* is a funny dog. 2. *That / Those* are my toys. 3. *This / These* are clever animals. 4. *That / Those* is a red juicy apple. 5. *That / Those* are big houses. 6. *This / These* is a happy girl. 7. *That / Those* are our parents. 8. *This / These* are interesting books. 9. *That / Those* is my teddy bear. 10) *This / These* are nice flowers.

**Exercise 7. Read and memorize the following words and word combinations.**

break up ['breɪk ʌp] – распахать

implement ['ɪmplɪmənt] – орудие

advance [əd'vɑ:ns] – достижение

landmark ['lændmɑ:k] – поворотный пункт

harness ['hɑ:nɪs] – использовать, приспособлять

progress [prə'gres] – прогрессировать, совершенствоваться

tillage tool ['tɪlɪdʒ tu:l] – почвообрабатывающее орудие

threshing machine ['θreʃɪŋ mə'ʃi:n] – молотилка

chaff-cutter ['tʃɑ:f,klətə] – соломорезка

root-cutter ['ru:t,klətə] – машина для резки корнеплодов

corn-mill ['kɔ:n,mɪl] – кукурузная мельница, кукурузодробилка

barn [bɑ:n] – амбар

steam engine ['sti:m,ɛndʒɪn] – паровой двигатель

internal-combustion engine [ɪn'tɜ:nəl kəm,bʌstʃən,ɛndʒɪn] – двигатель

внутреннего сгорания

stationary ['steɪʃənəri] – стационарный

mover ['mu:və] – двигатель, движитель

roller ['rəʊlə] – каток

self-binder ['self baɪndə] – жнейка-сноповязалка

supplementary [,sʌplɪ'mentəri] – дополнительный

fertilizer distributor [ˈfɜːtɪlaɪzə dɪˈstrɪbjʊtə] – туковсевающий аппарат  
sprinkling installation [ˈsprɪŋklɪŋ ɪnstəˈleɪʃən] – дождевальная установка

sprayer [ˈspreɪə] – опрыскиватель

feed-preparing machine [fiːd prɪˈpeəriŋ məʃiːn] – кормоприготовительная машина

grinding-mill [ˈgraɪndɪŋ mɪl] – мельница, дробилка

manure-scraper [məˈnjuəˈskreɪpə] – скребковый конвейер для удаления навоза

distributing belt [dɪˈstrɪbjʊtɪŋ belt] – раздаточный ремень

milking machine [ˈmɪlkiŋməʃiːn] – доильный аппарат

churn [tʃɜːn] – маслобойка

sheep-shearing unit [ˈʃiːpʃiəriŋ ˈjuːnɪt] – секция для стрижки овец

rearing chamber [ˈriəriŋ ʃeɪmbə] – помещение для молодняка

repair shop [rɪˈpeəʃɒp] – ремонтная мастерская

### **Exercise 8. Read and translate the following text.**

1. Agriculture is the world's most important industry. It provides us with almost all our food. It also supplies materials for two other basic human needs – clothing and shelter. In addition, agriculture provides materials used in making many industrial products, such as paints and medicines. About half the world's workers are employed in agriculture – far more than in any other industry. From the early ages man tried to cultivate soil using the most elementary method of modifying soil conditions. He broke up the surface and prepared the seed-bed with the most primitive cultivating device, a digging implement – a hoe. The greatest mechanical advance in the early days of agriculture was the evolution of the plough from the primitive hoe. The use of the plough replaced manual labour by labour of animal power. This is one of the landmarks of agricultural process. It began thousands years ago with simple devices for harnessing the power of man himself; then progressed with the construction of implements and machines designed to make use of the greater power of domesticated animals, mostly horses and oxen.

2. The plough still rests to be the most important tillage tool. It has been changed and improved during the centuries. In the 18<sup>th</sup> century there was an attempt to improve agricultural implements. New methods and inventions were applied to farming operations. By the 19<sup>th</sup> century a variety of agricultural implements appeared, which were now called “agricultural machinery”. In agriculture, the use of water-power and then of steam greatly stimulated the invention of machinery, replacing manual labour.

A threshing machine was invented in the second half of 1700s, and productively used in the 19<sup>th</sup> century. It was driven by water and wind, sometimes by horses, and later by steam. Later on, in 1860, the internal-combustion engine was invented. It was used to drive stationary machines, as chaff-cutters, root-cutters and corn-mills in the barn. Steam engines, though widely used on the road, suffered from the disadvantage in the use on the land. Then the internal-combustion engine was perfected, and agricultural tractors appeared. But a still newer source of power on the farm is electricity. It was firstly used for lighting. When it became available at low cost, it came into use on the farm.

3. Agricultural implements are now very numerous. They are subdivided into six groups:

- 1) machinery and equipment movers: engines of all kinds, tractors, etc.;
- 2) cultivating machinery: ploughs of all sorts, harrows, rollers, cultivators, etc.;
- 3) harvesting machinery, such as mowers, self-binders, threshing machines, combines, elevators, potato-diggers, etc.;
- 4) field supplementary equipment: manure and fertilizer distributors, sprinkling installations, sprayers and many others.;
- 5) stationary equipment, including such feed-preparing machines as chaff-cutters, grinding-mills, root-cutters, manure-scrapers, distributing belts, etc.;
- 6) dairy-machinery including milking machines, separators, churns, sterilizing equipment, etc.;

In addition, there is a number of other machines and devices that find intensive use in agricultural production, and sheep-shearing units, rearing chambers, grain conveyers, farm repair shop mechanized equipment, lifting and loading machines being among them.

**Exercise 9. Say whether the following statements are true or false. Correct the false ones using the text.**

1. The agriculture provides people only with two basic human needs – clothing and shelter. 2. For years man cultivated soil using the most sophisticated methods of modifying soil conditions. 3. The greatest mechanical advance in agriculture led to the evolution of the hoe from plough. 4. The use of water-power and then of steam replaced manual labour in agriculture. 5. A threshing machine was invented in the second half of the 1800s, and productively used in the 20<sup>th</sup> century. 6. The farm implements are subdivided into 6 operational divisions.

**Exercise 10. Translate the following words and word combinations into Russian.**

The world's industry; tractors; basic human need; paints and medicines; world's workers; cultivators; the most elementary method; prepare the seed-bed; mechanical advance; threshing machines; manual labour; landmark of agricultural process; fertilizer distributors; simple devices; construction of implements; grinding-mills; power of domesticated animals; important tillage tool; change during the centuries; milking machine; grain conveyers.

**Exercise 11. Make up word combinations using the text and translate them into Russian.**

- |                 |                               |
|-----------------|-------------------------------|
| 1) to drive     | a) in agriculture             |
| 2) to become    | b) manual labour              |
| 3) to come      | c) intensive use              |
| 4) to stimulate | d) agricultural implements    |
| 5) to improve   | e) many industrial products   |
| 6) to find      | f) the power of man himself   |
| 7) to make      | g) into use on the farm       |
| 8) to harness   | h) the invention of machinery |
| 9) to employ    | i) stationary machines        |
| 10) to replace  | j) available at low cost      |

**Exercise 12. Translate the following words and word combinations into English using the text.**

Сельскохозяйственное орудие; изобретение техники; энергия воды; новая разработка; сельскохозяйственная операция; ручной труд; двигатель внутреннего сгорания; неподвижная техника; паровой двигатель; страдать от недостатка; источник энергии; по низкой цене; движитель оборудования; дополнительное оборудование; техника для культивации; картофелекопатель; оборудование для стерилизации; уборочная техника; интенсивное применение; погрузочные машины.

**Exercise 13. Translate the words and word combination in brackets into English using the text.**

1. Agriculture (снабжает материалами) used in making many (промышленные товары), such as paints and (лекарства). 2. Agriculture progressed with the (производством орудий и машин) designed to make use of (большую силу домашних животных), mostly horses and (быки). 3. It was driven by (водой и ветром), sometimes by (лошадьми), and later by (паром). 4. (Паровые двигатели), though widely used (на дорогах), suffered from the disadvantage in the use (на земле). 5. There is a number

of other (машин и устройств) that find (интенсивное применение) in agricultural (производстве).

**Exercise 14. Answer the following questions.**

1. How many people are employed in agriculture? 2. What was the greatest mechanical advance in the early days of agriculture? 3. What stimulated the invention of machinery in agriculture? 4. How was a threshing machine driven? 5. How many groups of agricultural implements are used in agricultural production today? Speak about them in brief.

**Exercise 15. Read and translate the given sentences paying attention to the words in italics.**

1. The *basic technology of agricultural machines* has changed little in the last century. 2. The *power for agricultural machinery* was originally supplied by horses or other animals. 3. In modern times, powered machinery has replaced many farm jobs *formerly carried out by manual labour or by working animals*. 4. Current mechanized agriculture includes the use of *tractors, trucks, combine harvesters and other farm implements*. 5. The entire history of agriculture contains many examples of the *use of tools, such as the hoe and the plough*.

**Exercise 16. Choose the correct preposition.**

1. It also supplies materials *for/about* two other basic human needs – clothing and shelter. 2. A threshing machine was invented *in/on* the second half *of/in* 1700s, and productively used *in/of* the 19<sup>th</sup> century. 3. But a still newer source *of/from* power *on/with* the farm is electricity. 4. *In/to* addition, agriculture provides materials used *in/over* making many industrial products. 5. The use *of/to* the plough replaced manual labour *by/in* labour *of/into* animal power. 6. *By/to* the 19th century a variety *of/under* agricultural implements appeared, which were now called “agricultural machinery”

## Unit 2

### FARM MECHANIZATION

#### Словообразование

Суффиксы *-ness* и *-(i)ty* прибавляемые к прилагательному, образуют существительное и обозначают качество или состояние:

soft (мягкий) – **softness** (мягкость);

legal (законный) – **legality** (законность).

**Exercise 1. Express in one word using the suffixes *-ness and -(i)ty*.  
Translate the nouns into Russian.**

**Model:** kind – kindness.

White, yellow, black, happy, weary, glad, joyful.

**Model:** hostile – hostility

Stupid, timid, responsible, rare, equal, fatal, neutral, public.

### The Possessive Case

#### (Притяжательный падеж)

единственное число существительного + 's (знак апострофа и буквы s)	farmer's house – дом фермера
составные существительные	my mother-in-law's house – дом моей тещи
к существительному в форме множественного числа с окончанием -s, (-es) присоединяется только апостроф.	Countries' export – экспорт стран <b>Но:</b> men's jobs – профессии мужчин

С апострофом могут употребляться существительные, обозначающие:

1) время (*year, month, day, hour, – one minute's talk*), части дня (*morning, afternoon, evening, – night's travel*), времена года (*spring, summer, autumn, – winter's cold*), расстояние (*metre, kilometre, – a mile's walk*), стоимость (*five dollars' worth*), такие наречия времени, как *today, yesterday, tomorrow*. Например: *today's newspaper*.

2) понятия: *world, earth, nature; continent, ocean, sea, river* и их названия; *country, town, city* и их названия; *ship, train, plane* и другие средства передвижения и их названия; *названия газет* и др.

Например: *Africa's future, Canada's population, London's museums, the ship's crew*;

3) сообщества людей: *party, army, family, crew, society, nation, government* и др. Например: *the society's members, the nation's wealth*;

4) *звезды, планеты, спутники*, например: *the moon's surface, the sun's rays*;

5) притяжательный падеж могут иметь местоимения, заменяющие одушевленные существительные: *somebody, someone, anybody, anyone, everyone, everybody, nobody, no one* и др. Например: *It's nobody's business*.

**Exercise 3. Translate the following sentences paying attention to the Possessive Case.**

1. The cat's eyes are green.
2. The children's toys are in a big box.
3. My father's birthday is in May.
4. What is that man's name?
5. He showed me his sister's letter.
6. Give me your pupils' exercise books.
7. Bring the children's things.
8. Yesterday the children found a bird's nest.
9. Whose bag is this? – It is Tom's.
10. Whose dictionaries are these? – They are the students' dictionaries.
11. We watched TV at my friend's house last night.
12. My husband knows a lot about Agatha Christie's detective novels.

**Exercise 4. Make the right choice.**

1. My aunt is my ... sister.  
a) aunt's; b) grandfather's; c) mother's; d) brother's.
2. My cousin is my ... daughter.  
a) aunt's; b) mother's; c) sister's; d) brother's; e) father's.
3. My mother has a sister, her son is my... nephew.  
a) mother's; b) aunt's; c) sister's; d) brother's.
4. My father has a brother, his daughter is my ... niece.  
a) father's; b) uncle's; c) brother's; d) grandmother's.
5. My ... parents are my grandparents.  
a) niece's; b) brother's; c) sister's; d) friend's; e) mother's.
6. My ... children are my grandchildren.  
a) mother's; b) daughter's; c) father's.
7. ... was amazing! I am happy for them.  
a) Paola's and Frank's wedding;  
b) Paola and Frank's wedding;  
c) Paola and Frank' wedding.
8. Linda is... now. Do you want me to call her?  
a) at Paul's; b) at Paul'; c) house of Paul.

Конструкция **существительное + of + существительное** выражает отношение принадлежности. Существительное после предлога при переводе на русский язык обычно имеет форму родительного падежа, например:

the house **of** my friend – дом моего друга

**Exercise 5. Transform the sentences using the noun + of + noun construction.**

**Model:** My neighbour's farm. – The farm of my neighbour.

1. My friend's house.
2. Our government's policy.
3. Three hour's conversation.
4. Tom's teacher.
5. Japan's economy.
6. These boys' new

pens. 7. The children's room. 8. Jack and Sue's car. 9. Mark's keys.  
10. Five mile's walk. 11. Jane's notebook. 12. Our guests' suitcases.

## The Ordinal Numerals

### (Порядковые числительные)

Порядковые числительные образуются путем прибавления окончания **-th** к количественному числительному:

four – the **fourth** (четыре – четвертый)

eleven – the **eleventh** (одиннадцать – одиннадцатый)

#### Исключения:

one – the **first** (один – первый)

two – the **second** (два – второй)

three – the **third** (три – третий)

five – the **fifth** (пять – пятый)

eight – the **eighth** (восемь – восьмой)

nine – the **ninth** (девять – девятый)

twelve – the **twelfth** (двенадцать – двенадцатый)

При образовании порядковых числительных, которые оканчиваются на **-y** (т. е. все числительные, обозначающие десятки, начиная с 20), конечная **y** меняется на **i**, и перед окончанием **-th** добавляется **e**:

eighty – the **eightieth** ['eitiəθ] – (восемьдесят – восьмидесятый)

ninety – the **ninetieth** ['naintiəθ] – (девяносто – девяностый)

При образовании составных порядковых числительных последний разряд выражается порядковым числительным с окончанием **-th**, а предшествующие разряды – количественными числительными (как и в русском языке):

21st – the **twenty-first**

142nd – the **one hundred and forty-second**

3,665th – the **three thousand six hundred and sixty-fifth**

421st – the **four hundred and twenty-first**

5,111th – the **five thousand, one hundred and eleventh**

Когда порядковые числительные пишутся в виде числа, обычно к числу добавляются последние две буквы соответствующего порядкового числительного:

the first = **1st**

the second = **2nd**

the third = **3rd**

the fourth = **4th**

the twenty sixth = **26th**

the one hundred and first = **101st**

**Exercise 6. Match the pairs of the Ordinal numbers.**

- |                          |                                  |
|--------------------------|----------------------------------|
| 1. the 30 <sup>th</sup>  | a) the forty-ninth               |
| 2. the 2 <sup>nd</sup>   | b) the sixty-eighth              |
| 3. the 17 <sup>th</sup>  | c) the thirtieth                 |
| 4. the 81 <sup>st</sup>  | d) the fifth                     |
| 5. the 5 <sup>th</sup>   | e) the second                    |
| 6. the 23 <sup>rd</sup>  | f) the eighty-first              |
| 7. the 49 <sup>th</sup>  | g) the seventy-fourth            |
| 8. the 116 <sup>th</sup> | h) the twenty-third              |
| 9. the 74 <sup>th</sup>  | i) the seventeenth               |
| 10. the 68 <sup>th</sup> | j) the one hundred and sixteenth |

**Exercise 7. Complete the following sentences.**

1. ... is the first month of the year.
2. ... is the second month of autumn.
3. ... is the third month of summer.
4. ... is the fourth month of the year.
5. May is the ... month of the year.
6. June is the ... month of the year.
7. December is the ... month of year.
8. November is the ... month of the year.

**Exercise 8. Read and memorize the following words and word combinations.**

worn-out [wɔ:n'au't] – изношенный

pest control [pest kən'trəʊl] – борьба с вредителями

overhead costs ['əʊvehed,kɒsts] – накладные расходы

grain drill ['greɪndrɪl] – зерновая сеялка

trip [trɪp] – проход, пробег

seedbed ['si:dbed] – почва

markedly ['mɑ:kɪdli] – заметно, явно

inevitable [ɪ'nevɪtəbl] – неизбежный

acreage ['eɪkəriːdʒ] – площадь земли (*в акрах*)

substantially [səb'stænjəlɪ] – в значительной степени

adjusted [ə'dʒʌstɪd] – отрегулированный

complete overhaul [kəm'pli:t,əʊvə'hɔ:l] – капитальный ремонт

neglect [nɪ'glekt] – игнорировать, пренебрегать

### **Exercise 9. Read and translate the following text.**

1. A wide range of tractors and implements in the world are available from farm machinery producers. Most of the larger machines and equipment are predominantly sold in the developed countries, while many of the smaller tractors – particularly diesel ones – are exported to the developing states. Garden tractors are designed primarily for light tillage operations and are not intended for continuous heavy services. It is important to manage equipment properly. This includes planning the use of machinery for timely and productive operations, selecting proper types and sizes, replacing worn-out machinery at the right time. Improvements in farm machinery are continually being made to increase their efficiency and to reduce manual labour. These changes are coming so rapidly that innovations may become common practice in a remarkably short time.

2. Most operations involve cultivating several different crops with specific tillage, pest control and harvesting requirements. Ideally, each crop should have its own set of specialized implements to produce maximum yields. Lack of adequate equipment can delay crops' planting or harvesting in time, reducing yields and product quality. Thus, the most crucial progress, now seen on many farms, is in combining various operations and universal crop-species treatments in one machine. For instance, this has been done in the combine for harvesting and threshing wheat and other grains. The grain drill in one trip over the field does the work of preparing the seedbed, planting seed and applying fertilizers and herbicides.

3. Among the advantages of farm mechanization we might mention first, that the production and income per person engaged in farming have been markedly increased. The farm tasks can be done more rapidly and with better quality when weather and soil conditions are the least favourable. Modern machinery enables crops to be planted, cultivated and harvested in a considerably shorter time than in the past, and the same is largely true in case of livestock. If we turn to the disadvantages of the replacement of manual labour with machines and automated equipment now, we will surely note the following factors. First of all, farmers must have more capital in disposal to be engaged in farming because of the inevitable need in large investments in farm machines and other equipment. Second, farmers must have a larger and more stable income to have electricity and fuel bills paid. Finally, small farms are destined to disappearing, for larger ones are of apparent advantage today.

4. Using larger machines reduces labour costs since they complete the job faster. But while larger tractors can cover more acreage than smaller

ones, they also have higher overhead costs. Smaller tractors have less capacity and may cause delay in key field operations, resulting in a lower crop yields. Some of the time lost in doing field work cannot be cut, prevented or eliminated. Other lost time can be substantially reduced by careful planning and good management. Keeping farm machinery in top mechanical condition is one of the best ways to improve field working efficiency. Machines should be technically maintained properly, i.e. serviced regularly and adjusted correctly. Neglecting this can result in expensive repair procedures or cause complete overhauls.

**Exercise 10. Translate the following words and word combinations into English using the text.**

Широкий модельный ряд тракторов; легкая обработка почвы; длительная эксплуатация при больших нагрузках; производители сельскохозяйственной техники; производственные операции; замена изношенной техники; сократить объемы ручного труда; специальная обработка почвы; борьба с вредителями; специализированные орудия; качество продукции; жизненно важное развитие; универсальная обработка видов культур; комбинирование уборки и обмолота; внесение удобрений и гербицидов.

**Exercise 11. Translate the words and word combination in brackets into English using the text.**

1. Among the (преимущества механизации сельского хозяйства) we might mention first, that the (производство и доход) per person engaged in farming (заметно возрос). 2. (Современная техника) enables crops to be planted, (возделываться и убираться) in a considerably (более короткое время) than in the past, and the same is largely true (в случае с домашним скотом). 3. (Прежде всего), farmers must have (больше капитала в наличии) to be engaged in farming because of the inevitable (потребность в больших вложениях) in farm machines and (другое оборудование).

**Exercise 12. Translate the words in chains.**

Mechanical condition; field working efficiency; labour costs reduction; summer field work; automated equipment; soil condition, grain drill repair; farm machinery producers; fuel tank capacity; diesel tractors; key tillage operation; pest control activity; livestock feeding system; yield quality increase; seedbed preparation technology.

**Exercise 13. Complete the sentences using the text.**

1. Second, farmers must have a larger and more\_\_\_\_\_.
2. Machines should be technically maintained properly, i.e.\_\_\_\_\_.
3. For instance, this has been done in the combine \_\_\_\_\_.

4. Garden tractors are designed primarily for \_\_\_\_.
5. Ideally, each crop should have its own set of specialized \_\_\_\_.
6. Other lost time can be substantially \_\_\_\_.

**Exercise 14. Answer the following questions.**

1. How are tractors and implements distributed in the world? 2. What does the proper management of equipment include? 3. What does the crucial progress on the farms mean? 4. What advantages of farm mechanization can you mention? 5. Are there any disadvantages of the replacement of manual labour in agriculture today? 6. The roles of larger and smaller tractors are different, aren't they? 7. How should the farming machines be kept to improve field working efficiency.

**Exercise 15. Complete the sentences. Choose the suitable words from the box.**

Driver, wheels, soils, superior, engine, models, tractor.

The classic farm \_\_\_\_ is a simple open vehicle, with two very large driving \_\_\_\_ and the engine in front of the \_\_\_\_, with two steerable wheels below the \_\_\_\_\_. This basic design has remained unchanged but enclosed cabs are fitted on almost all modern \_\_\_\_, for an operator's safety and comfort. In some localities with heavy or wet \_\_\_\_ the track-type of tractor became popular in the 1930s, due to \_\_\_\_ traction.

### Unit 3

## APPLICATION OF FARM MACHINERY

### Словообразование

Суффикс *-ment*, прибавляемый к глаголу, обозначает процесс, результат действия или состояние:

to settle (поселиться) – settlement (поселение);

**Exercise 1. Form the nouns using the suffix *-ment*. Translate them into Russian.**

**Model:** to pay – payment

To resent, to assign, to employ, to develop, to astonish, to achieve, to amuse, to enlarge, to enrich, to attain, to acknowledge, to amaze.

Суффиксы *-hood* и *-ship*, прибавляемые к существительным, обозначают состояние:

child (ребенок) – **childhood** (детство);

owner (собственник) – **ownership** (собственность).

**Exercise 2. Form the nouns using the suffix *-hood* and *-ship*. Translate them into Russian.**

**Model:** brother – brotherhood

Lady, woman, mother, man, baby, boy, father, parent, sister, girl.

**Model:** leader – leadership

Comrade, relation, professor, citizen, member, friend, author, editor.

### The Degrees of Comparison of Adjectives

(Степени сравнения прилагательных)

Группа	Положительная	Сравнительная	Превосходная
1) односложные 2) двухсложные прилагательные, оканчивающиеся на -y, -er, -ow, -le.	big happy clever simple narrow	bigger happier cleverer simpler narrower	the biggest the happiest the cleverest the simplest the narrowest
3) многосложные прилагательные	famous successful interesting	more famous more successful more interesting	the most famous the most successful the most interesting
4) исключения	good bad little many, much far	better worse less more farther, further	the best the worst the least the most the farthest, the furthest

**Exercise 3. Supply the comparative and superlative forms of adjectives.**

Big, wide, easy, brave, good, active, nervous, fine, powerful, efficient, dirty, beautiful, old, long, little, new, much, many, high, comfortable, deep, cold, large, short, interesting, possible, warm, young, far, happy, low, tall.

### The Constructions of Comparison

(Сравнительные конструкции)

than – <i>чем</i>	Minsk is larger <b>than</b> Mogilev.
as ... as – <i>такой(-ая) же ... как и</i>	Mogilev is <b>as</b> large <b>as</b> Brest.
not so ... as – <i>не такой(-ая) ... как</i>	Vitebsk is <b>not so</b> large <b>as</b> Minsk.
the + <i>прилагательное в сравнительной степени</i> , the + <i>прилагательное в сравнительной степени</i> – <i>чем ... , тем.</i>	<b>The more</b> we want, <b>the less</b> we get.

#### **Exercise 4. Translate the following sentences into Russian.**

1. Tony is taller than Colin. 2. Gold is more expensive than silver. 3. It's more comfortable to go by car than by train. 4. I feel better today. 5. These shoes are much nicer than those ones. 6. The movie is worse than the book. 7. It was warmer yesterday. 8. France is bigger than Britain. 9. I'm far more interested in computers than in art. 10. The more implements a new tractor can trail, the more work can be done during one pass.

#### **Exercise 5. Put the adjectives in brackets into the necessary degree of comparison.**

1. The indicating devices are (perfect) than they were previously. 2. My automobile is (powerful) than yours. 3. That ignition system was (good) than this we have just bought. 4. Subsoil plow is (big) of all. 5. The lights, radio, heater will be (modern) in future than they are now. 6. One loader is (efficient) than one man with a spade. 7. This tractor is as (economical) as that one. 8. That combine is not so (productive) as this one. 9. The disk plow we bought yesterday is (heavy) we have ever had. 10. The (little) we forget, the (much) we know. 11. Velvet is slightly (soft) than denim.

#### **Exercise 6. Choose the right variant.**

1. My girlfriend is (taller, the tallest) than me.
2. I'm (younger, the youngest) of the family.
3. Can you show me (shorter, the shortest) way to the post-office?
4. It's (more expensive, the most expensive) house I've ever seen.
5. What is (larger, the largest) city in your country?
6. My mother is (older, the oldest) than my father.
7. Mr. Solihin is much (older, the oldest) than I expected.
8. Surabaya is (bigger, the biggest) than Bandung.
9. Love is (more valuable, the most valuable) thing in our life.
10. She's (more beautiful, the most beautiful) girl in our class.

### **The Dates in English**

#### **(Чтение дат по-английски)**

1. Годы, в отличие от русского языка, обозначаются количественными числительными следующим образом:

1900 г. – nineteen hundred

1904 г. – nineteen hundred and four

1915 г. – nineteen fifteen (nineteen hundred and fifteen)

1949 г. – nineteen forty-nine (nineteen hundred and forty-nine).

Слово **year** после обозначения года не употребляется, но иногда употребляется перед ним:

в 1915 г. – in the year nineteen fifteen.

2. Даты обозначаются порядковыми числительными:

15 мая 1948 года – the fifteenth of May, nineteen forty-eight или May the fifteenth, nineteen forty-eight.

Даты могут строиться двумя способами: месяц день, год (используется преимущественно в США) и день, месяц, год (стандартно). Обратите внимание, что в первом случае запятая ставится только между днем и годом, а во втором запятые не употребляются. Если дата отвечает на вопрос *когда?*, то перед ней ставится предлог **on**:

April 1, 2000 (April the first, two thousand) – первое апреля 2000 года

1 April 2000 (the first of April, two thousand) – первое апреля 2000 года

on 1 April 2000 (on the first of April, two thousand) – первого апреля 2000 года

Если в дате отсутствует число, то между названием месяца и годом запятая не ставится, а перед месяцем употребляется предлог **in**:

in March 2003 – в марте 2003 года

3. Века, как правило, прописываются полностью и с маленькой буквы:

the nineteenth century – девятнадцатый век

the seventh and eighth centuries – седьмой и восьмой века

### **Exercise 7. Read in English the following sentences.**

1. My son was born on \_\_ (02.12.2000). 2. Our dog was born on \_\_ (21.08.2008). 3. My granddad was born on \_\_ (23.06.1900). 4. My granny was born on \_\_ (18.02.1910). 5. The Women's Day is on \_\_ (08.03). 6. Victory Day is on \_\_ (09.05). 7. Christmas in Russia is on \_\_ (06.01). 8. Christmas in America is on \_\_ (25.12). 9. Epiphany [i'pɪfəni] in Russia is on (19.01). 10. The Defender of Fatherland Day is on \_\_ (23.02).

### **Exercise 8. Read and memorize the following words and word combinations.**

labour intensive [ˈleɪbə m'tensɪv] – трудоемкий

machine intensive [məʃiːn m'tensɪv] – машиноёмкий

concerned [kən'sɜːnd] – рассматриваемый, данный

commissioned [kə'mɪʃənd] – укомплектованный

finance demanding [ˈfaɪnæns dɪ'mɑːndɪŋ] – требующий финансовых затрат

specification [ˌspesəfiˈkeɪʃən] – техническое требование  
 as regards [æzrɪ'gɑːdz] – что касается  
 agricultural business [ˌægrɪˈkʌltʃərəl ˈbɪznɪs] – сельскохозяйственное  
 предприятие  
 general-purpose [ˈdʒenərəl ˈpɜːpəs] – универсальный  
 fall within [fɔːlwiˈðɪn] – соответствовать  
 piece [piːs] – образец  
 narrow down [ˈnærəu daʊn] – сузить, уменьшить  
 unit [ˈjuːnɪt] – агрегат  
 reconditioned [riːkənˈdɪʃənd] – отремонтированный, восстановленный  
 running costs [ˈrʌnɪŋkɔːsts] – эксплуатационные издержки  
 general maintenance [ˈdʒenərəl ˈmeɪntənəns] – общетехническое обслужи-  
 вание  
 have a bearing [ˈbeərɪŋ] – влиять; иметь отношение  
 replacement [rɪˈpleɪsmənt] – ремонт (*замена запасных частей*)  
 shutdown [ˈʃʌtdaʊn] – завершение работы  
 disruption [dɪsˈrʌpʃən] – перерыв  
 sophisticated [səˈfɪstɪkeɪtɪd] – современный, передовой  
 ascertain [ˌæsəˈteɪn] – устанавливать  
 earning capacity [ˈɛːnɪŋ kəˈpæsəti] – рентабельность

**Exercise 9. Read and translate the following text.**

1. What machinery, buildings and equipment will be required and employed by a particular farmer or an agricultural enterprise will depend on a number of different factors: the nature and qualities of the designed products, the method(s) of production applied. Whether the production processes are “labour intensive” (e.g. when labour is abundant and relatively low in cost), or are “machine intensive” in the area concerned, or are finance demanding (some machinery and equipment units are rather expensive). It is, however, possible to give some generalized information for consideration. Machines are broadly of two types, and so the choice in any given situation lies between:

a) **machines** which are designed for specific jobs or for producing a particular type of a product are called “special-purpose machines”. In some cases they may have to be specially commissioned and manufactured to the farm’s specifications; among them we may name specially designed sets of cattle-farm buildings and equipment.

b) **machines** which are not too highly specialized as regards the type of work they can perform, and are not designed to meet the specifications of the one particular agricultural business, are called “general-purpose

machines”. Most items of ‘standard’ equipment fall within this category, e.g. crop harvesting combines.

2. The purposes, for which different pieces of machinery and equipment to be used will, of course, be central to the decision on what will be selected by a particular farming business. The cost of what is required, and financial means available may narrow down the choice. Some units may be available second-hand or “reconditioned”. Not only the initial cost should be considered, but also comparative running costs, the costs of servicing and general maintenance, and depreciation must be studied. Obviously the power necessary to drive different machinery must be available, and the comparative cost of power may have a bearing on what is selected.

3. Maintenance operations need to be carried out on a continuous basis, and they should incorporate not only regular inspections, servicing and repairs, but also ensuring that operators use the machines properly and that management is given adequate warning that any major overhauls, repairs or replacements are necessary. Unexpected shut-downs or interruptions to production must be avoided whenever possible. Operation disruptions for serious repairs, etc., ought to be planned in advance to ensure the minimum of downtime and loss of production.

4. Another factor is the cost of labour. Sophisticated machinery and equipment may require highly skilled and trained- and paid- operators who might be difficult to recruit, whilst simpler machinery may need lower paid workers. Once the “true” cost of a machine has been ascertained, that should be compared with its potential “earning capacity” to determine whether its acquisition is a viable proposition. It can happen that a more expensive machine will prove more economical, as far as operating cost and earning capacity are concerned, in the long-term than cheaper models.

**Exercise 10. Insert the necessary words given below the line.**

1. In some cases they may have to be specially commissioned and \_\_\_ to the farm’s specifications. 2. Most items of ‘standard’ equipment fall within this category, e.g. crop harvesting \_\_\_. 3. The cost of what is required, and \_\_\_ available may narrow down the choice. 4. Unexpected shut-downs or \_\_\_ to production must be avoided whenever possible. 5. It can happen that a more expensive machine will prove more economical, as far as \_\_\_ and earning capacity are concerned. 6. Sophisticated machinery and equipment may require \_\_\_ and trained- and paid- operators.

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*Financial means; manufactured; combines; interruptions; highly skilled; operating costs.*

**Exercise 11. Translate the following words and word combinations into Russian using the text.**

Particular farmer; agricultural enterprise; production process; specific job; specially commissioned; meet the specification; pieces of equipment; agricultural business; cattle-farm building; second-hand unit; costs of servicing; drive different machinery; depreciation; operation disruptions; regular inspection; major overhaul; minimum of downtime; cost of labour; viable proposition; expensive machine; cheaper model.

**Exercise 12. Match these words and expressions with their Russian translation.**

- |                            |                             |
|----------------------------|-----------------------------|
| 1) expensive machine       | a) метод производства       |
| 2) acquisition             | b) снижение производства    |
| 3) simple machinery        | c) дорогой агрегат          |
| 4) sophisticated equipment | d) техническое обслуживание |
| 5) method of production    | e) простые машины           |
| 6) loss of production      | f) приобретение             |
| 7) maintenance operations  | g) регулярное обслуживание  |
| 8) comparative costs       | h) серийное оборудование    |
| 9) regular servicing       | i) передовое оборудование   |
| 10) standard equipment     | j) сравнительные издержки   |

**Exercise 13. Choose the right option to complete the sentences.**

- In some cases ... may be specially commissioned and manufactured to the farm's specifications.  
a) people; b) machines; c) heavy-duty tractors.
- Machines which are not ... as regards the type of work they can perform are called "general-purpose machines".  
a) highly profitable; b) highly qualified; c) highly specialized.
- The decision of using different ... will be made by a particular farming business.  
a) piece of evidence; b) pieces of equipment; c) pieces of mechanism.
- Not only the initial cost should be considered, but also comparative running costs, the ... and general maintenance.  
a) costs of breakdown; b) costs of quality; c) costs of servicing.
- Operation brakes for ... should be planned in advance to ensure the minimum loss of production.  
a) serious remarks; b) serious preparation; c) serious repairs.
- A more expensive machine can prove more ..., as far as operating cost and earning capacity are concerned.  
a) ergonomical; b) econometric; c) economical.

#### **Exercise 14. Answer the following questions.**

1. What factors influence the choice of machinery, buildings and equipment to be employed by farm producers? 2. There two types of machines designed for agricultural production, aren't there? 3. What should maintenance operations incorporate to be carried out on a continuous basis? 4. What should a farmer do to determine whether the acquisition of expensive machinery is a viable necessity?

#### **Exercise 15. Choose the correct preposition.**

1. Most items *off/from* 'standard' equipment fall *within/without* this category, e.g. crop harvesting combines. 2. Machines which are designed *for/in* specific jobs or *for/to* producing a particular type *of/behind* a product are called "special-purpose machines". 3. Once the "true" cost *of/onto* a machine has been ascertained, that should be compared *with/above* its potential "earning capacity" to determine whether its acquisition is a viable proposition. 4. Maintenance operations need to be carried out *on/with* a continuous basis. 5. Another factor is the cost *of/from* labour.

### **Unit 4**

#### **COMBINE**

#### **Словообразование**

Суффиксы *-ance (-ence)*, прибавляемые к глаголу, обозначают действие, состояние или качество:

to disturb (нарушить) – **disturbance** (нарушение);

to refer (ссылаться) – **reference** (ссылка);

to ignore (игнорировать) – **ignorance** (невежественность).

**Exercise 1. Form the nouns using the suffix *-ance (-ence)*. Translate them into Russian.**

**Model:** to allow – allowance

To assist, to resist, to inherit, to appear, to annoy, to avoid, to accept.

**Model:** to differ – difference

To indulge, to interfere, to adhere, to insist, to persist, to correspond.

Суффиксы *-ion (-tion, -ation)*, прибавляемые к глаголу, обозначают состояние, процесс или результат действия:

to oppress (подавлять) – **oppression** (гнёт);

to educate (обучить) – **education** (обучение);

to form (придавать форму) – **formation** (формирование).

**Exercise 2. Form the nouns using the suffix *-ion* (*-tion*, *-ation*). Translate them into Russian.**

**Model:** to exhibit – exhibition

To connect, to limit, to consider, to invent, to express, to impress, to translate, to dedicate, to prevent, to protect, to participate, to activate, to eradicate, to construct, to act.

## The Pronouns

### (Местоимения)

Личные местоимения		Притяжательные местоимения		Возвратные местоимения
Именительный падеж	Объектный падеж	Местоимения прилагательные	Абсолютная форма	
<b>I</b>	<b>me</b>	<b>my</b>	<b>mine</b>	<b>myself</b>
<b>he</b>	<b>him</b>	<b>his</b>	<b>his</b>	<b>himself</b>
<b>she</b>	<b>her</b>	<b>her</b>	<b>hers</b>	<b>herself</b>
<b>it</b>	<b>it</b>	<b>its</b>	<b>its</b>	<b>itself</b>
<b>we</b>	<b>us</b>	<b>our</b>	<b>ours</b>	<b>ourselves</b>
<b>you</b>	<b>you</b>	<b>your</b>	<b>yours</b>	<b>yourself / yourselves</b>
<b>they</b>	<b>them</b>	<b>their</b>	<b>theirs</b>	<b>themselves</b>

**Exercise 3. Read the sentences with the correct pronoun.**

1. Can you help *I/me* with this text? 2. We usually meet *they/them* at the sports-ground. 3 Who told *he/him* this news? 4. They asked *we/us* to come at 3 sharp. 5. I asked *she/her* to help me but *she/her* didn't agree. 6. Ann is leaving tonight. Would you go to see *she/her* off? 7. Those shoes are really nice. I'd like to buy *they/them*. 8. What is he talking about? We can't understand *he/him*. 9. I'm sorry for *she/her*. *She/hers* looks so tired.

**Exercise 4. Put in a suitable pronoun.**

1. She told me of a friend of (*she/her/hers*). 2. It seems to (*me/my/mine*) he is right. 3. They are highly qualified. It is difficult to choose between (*they/them/theirs*). 4. We were rather disappointed in (*him/he/his*). 5. Speak for yourself! It's not business of (*you/your/yours*). 6. The final decision is (*me/my/mine*). 7. I'm sure if I asked (*he/him/his*), he wouldn't object to help. 8. We went on holiday with some friends of (*our/ours*). 9. That's a good idea, but (*he/his/him*) is better. 10. Do you think that most people are happy in (*they/their/theirs*) jobs? 11. This is a new car of (*me/mine/he*).

### Exercise 5. Put in a suitable reflexive pronoun.

1. She cut ... badly and had to go to hospital. 2. Tom, I think you'll enjoy ... at the party. 3. I think they are making fools of ... . 4. He introduced ... to me. 5. She is quite capable, she can do it ... . 6. When we are alone we talk to ... . 7. I'm not angry with you. I'm angry with ... . 8. I don't like people who think only about ... . 9. Did you make it ...? 10. She will be very upset but I have to tell her the news ... . 11. We ... did most of the work. Nobody helped us.

## The Fractional Numerals

### (Дробные числительные)

1. В простых дробях числитель выражается *количественным* числительным, а знаменатель – *порядковым* числительным:

$1/2$  – a (one) half

$1/3$  – a (one) third

$1/4$  – a (one) quarter

Когда числитель больше единицы, знаменатель принимает окончание **-s**:

$2/3$  – two thirds

$3/5$  – three fifths

2. Существительное, следующее за дробью, стоит в единственном числе:

$2/3$  ton (читается: two thirds of a ton)

$3/4$  kilometre (читается: three quarters of a kilometre)

$1/2$  ton (читается: half a ton)

При этом следует обратить внимание на отсутствие артикля перед **half** и на отсутствие предлога **of** перед существительным.

3. Существительное, к которому относится смешанное число, употребляется во множественном числе:

$2\ 1/2$  tons (читается: two and a half tons или two tons and a half).

При чтении смешанного числа, целое число которого равно единице, существительное употребляется во множественном числе, когда оно читается после смешанного числа. Когда же существительное читается между единицей и дробью, оно употребляется в единственном числе:

$1\ 1/2$  hours (читается: one and a half hours или one (an) hour and a half).

4. В десятичных дробях целое число отделяется от дроби точкой (в русском – запятой). При чтении десятичных дробей каждая цифра читается отдельно. Точка, отделяющая целое число от дроби, читается **point**. Ноль читается **nought** [nɔ:t]. Если целое число равно нулю, то оно часто не читается:

0.25 – nought point two five или point two five

14.105 – one four (или fourteen) point one nought five.

Существительное, следующее за десятичной дробью, стоит в единственном числе, когда целое число равно **нулю**:

0.25 ton (читается: nought point two five **of a ton**).

В других случаях существительное стоит во множественном числе:

1.25 tons (читается: one point two five tons)

23.76 tons (читается: two three point seven six tons или twenty-three point seven six tons)

5. Проценты обозначаются следующим образом:

2 % или 2 per cent. или 2 p. c. (читается: two per cent)

Per cent (сокращенно p. c.), В английском языке cent не принимает окончания **-s**. Дробные доли одного процента обозначаются следующим образом:

$3/8$  % или  $3/8$  per cent или  $3/8$  p.c. (читается: three eighths per cent, или three eighths of one per cent.)

$1/2$  % или  $1/2$  per cent или  $1/2$  p.c. (читается: a half per cent, или a half of one per cent.)

0.2 % или 0.2 per cent или 0.2 p.c. (читается: nought point two per cent, или nought point two of one per cent).

#### **Exercise 6. Read the following Fractional numbers.**

$2/3$ ;  $5/16$ ;  $1/4$ ;  $1/10$ ;  $7 1/2$ ;  $2 1/4$ ; 9.2416; 0.54; 0.2; 0.4; 0.02; 0.34; 1.8; 12.99;  $31/7$ ;  $8 1/2$ ;  $3 1/4$ ;  $4/16$ ; 4.254; 0.63; 2.5; 1.11; 12.842; 66.6; 999.209;  $1/8$ ;  $7/8$ ;  $1 2/3$ ;  $9 3/4$ ;  $5 1/2$ .

#### **Exercise 7. Read and memorize the following words and word combinations.**

cutting ['kʌtɪŋ] – скашивание

threshing ['θrefɪŋ] – обмолот

winnowing ['wɪnəʊwɪŋ] – сепарация зерна воздушным потоком

chop [tʃɒp] – измельчать

bale [beɪl] – прессовать в тюки

tractor-drawn ['træktədɹɔ:n] – на тракторной тяге

for a time [fɔ:rə'taɪm] – в течение некоторого времени

shaker ['ʃeɪkə] – вибрационный грохот

straw-walker ['strɔ: 'wɔ:kə] – клавишный соломотряс  
 track [træk] – гусеница  
 deep [di:p] – с высотой в  
 diamond tread ['daɪəmənd 'tred] – ромбовидный рисунок протектора  
 removable [rɪ'mu:vəbl] – съёмный  
 header ['hedə] – жатка  
 reciprocating [rɪ'sɪprəkeɪtɪŋ] – возвратно-поступательный  
 cutter bar ['kʌtə bɑ:] – режущий аппарат  
 reel [ri:l] – мотовило  
 flex header [fleks 'hedə] – жатка с копирующим режущим аппаратом  
 flex over [fleks'əʊvə] – копировать  
 draper header ['dreɪpə 'hedə] – полотенная жатка  
 rubber apron ['rʌbə 'eɪpɹən] – прорезиненный полотенный конвейер  
 cross auger [krɒs'ɔ:gə] – поперечный шнек  
 throughput ['θru:put] – пропускная способность  
 pick-up header ['pɪkʌp 'hedə] – комбайновый подборщик  
 spring-tined pickup ['sprɪŋtaɪnd 'pɪkʌp] – пружинный палец  
 rubber belt ['rʌbə 'belt] – резиновая лента  
 windrow ['wɪndrəʊ] – полоса скошенного хлеба  
 corn header [kɔ:n 'hedə] – кукурузоуборочная жатка  
 snap roll ['snæp 'rɔ:l] – отрывающий валец  
 strip [stri:p] – сдирать  
 ear [ɪə] – початок  
 husk [hʌsk] – листовая обвёртка  
 throat [θrəʊt] – горловина  
 feed elevator [fi:d 'elɪveɪtə] – наклонная камера  
 threshing drum ['θreʃɪŋ drʌm] – молотильный аппарат  
 grooved [gru:vɪd] – рифлёный  
 rasp bar ['rɑ:spbɑ:] – бич молотильного барабана  
 concave [kɔŋ'keɪv] – подбарабанье  
 steel bar ['sti:l bɑ:] – стальной стержень  
 meshed grill ['mesʃgrɪl] – сетчатое решето  
 fore [fɔ:] – впереди  
 aft [ɑ:ft] – сзади  
 shoe [ʃu:] – решетный стан  
 chaffer ['ʃæfə] – решето первой очистки, грохот  
 hillside levelling system ['hɪlsaɪd 'levəlɪŋ 'sɪstəm] – система  
 выравнивания на косогоре  
 levelling technology ['levəlɪŋ tek'nɒlədʒɪ] – технология выравнивания  
 continuously variable transmission [kən'tɪnjuəsli 'veəriəbl trænz'mɪʃən] –  
 бесступенчатая коробка передач

### **Exercise 8. Read and translate the following text.**

1. The combine harvester or simply combine is a machine that harvests grain crops. It combined into a single the three operations – cutting, threshing and winnowing. Among the crops harvested with a combine are wheat, oats, rye, barley, corn (maize), soybeans, and flax. The waste straw left behind on the field is either chopped and spread on the field or baled for feed and bedding for livestock. Early combines were drawn by horse or mule teams to provide power. Tractor-drawn, PTO-powered combines were used for a time. These combines used a shaker to separate the grain from the chaff and straw-walkers to eject the straw while retaining the grain. Today's combines are self-propelled and use diesel engines for power.

2. Self-propelled combines could be fitted with special tracks instead of tires with tread almost 10in deep to assist in harvesting rice. Some combines, have tires with a diamond tread which prevents sinking in mud. Combines are equipped with removable headers that are designed for particular crops. The standard header is equipped with a reciprocating knife cutter bar, and features a revolving reel with metal or plastic teeth to cause the cut crop to fall into the auger once it is cut. A variation of the header, a "flex" header, is similar but has a cutter bar that can flex over contours and ridges to cut crops close to the ground. The "draper" headers use a rubber apron instead of a cross auger. Draper headers allow faster feeding than cross augers, ensuring higher throughputs due to lower power requirements. Pick-up headers feature spring-tined pickups, usually attached to a robust rubber belt. They are used for crops that have already been cut and placed in windrows. The corn header is equipped with snap rolls that strip the stalk and leaf away from the ear, so that only the ear and husk enter the throat of the feed elevator.

3. The cut crop is fed into the threshing mechanism of the combine, consisting of a rotating threshing drum, to which grooved steel bars (rasp bars) are bolted. The rasp bars thresh the grains and chaff from the straw through the action of the cylinder against the concave. It is also fitted with steel bars and a meshed grill, through which grain, chaff and smaller debris may fall. And the straw is carried onto the straw-walkers. This action causes grain to fall rather than "float" from the cylinder/concave to the walkers. The drum speed is variably adjustable on most machines, whilst the distance between the drum and concave is finely adjustable fore, aft and together, to achieve optimum separation and output. After the primary separation at the cylinder, the clean grain falls through the concave and to the shoe, which contains the chaffer and sieves. The shoe is common to both conventional combines and rotary combines.

4. Many current manufactures of combines develop the special equipment that provides leveling while harvesting crops called a hydraulic hillside leveling system. This technology has several advantages. Modern levelling technologies level the combine to the ground around 50% on average so that the threshing can be efficiently conducted. But these combines have added steel that makes them approximately 2–5 feet higher than a usual combine and provide a smooth ride. Another technology that is sometimes used on combines is a continuously variable transmission. This allows the ground speed of the machine to be varied while maintaining a constant engine and threshing speed. It is desirable to keep the threshing speed constant since the machine is adjusted to operate best at a certain speed during the harvesting operation.

**Exercise 9. Translate the following words and word combinations into Russian.**

Chopped and spread straw; combine harvester; drawn by horse or mule teams; separate the grain from the chaff; self-propelled combine; fit with special tracks; tire with a diamond tread; reciprocating knife cutter bar; cutting, threshing, winnowing; revolving reel; flex over contours; higher throughput; spring-tined pickup; threshing mechanism; straw-walker; drum and concave; manufactures of combines; continuously variable transmission; threshing speed; optimum separation and output; strip the stalk and leaf; heavy rubber belt, use diesel engine.

**Exercise 10. Read the text and insert the necessary prepositions.**

1. The waste straw left ... the field is either chopped and spread ... the field or baled ... feed and bedding ... livestock. 2. A variation ... the header, a "flex" header, is similar but has a cutter bar that can flex ... contours and ridges to cut crops close ... the ground. 3. The cut crop is fed ... the threshing mechanism ... the combine, consisting ... a rotating threshing drum, ... which grooved steel bars are bolted. 4. ... the primary separation ... the cylinder, the clean grain falls ... the concave and ... the shoe, which contains the chaffer and sieves.

**Exercise 11. Translate the expressions into Russian paying attention to the prepositions.**

Combined *into* a single operation, crops harvested *with* a combine, a combine drawn *by* horse or mule teams, used *for* a time, use a diesel engine *for* power, prevent sinking *in* mud, equipped *with* removable header, reel *with* metal or plastic teeth, *due to* power requirements, attached *to* a rubber belt, adjustable *on* most machines, level a combine *to* the ground, speed *of* the machine, operate *at* a certain speed.

**Exercise 12. Translate the following words and word combinations into English.**

Скорость обмолота; убирать зерновые культуры; комбайн с приводом от ВОМ; отделить зерно от мякины; самоходный комбайн; съёмная жатка; обеспечивать высокую пропускную способность; режущий аппарат с возвратно-поступательным движением ножа; вращающееся мотовило; скашивать культуры близко к земле; молотильный аппарат; рифлёный бич молотильного барабана; расстояние между барабаном и подбарабаньем; обычные и роторные комбайны; вращающийся молотильный барабан; плавный ход; постоянная скорость работы двигателя; трансмиссия.

**Exercise 13. Find in B the English equivalents to the Russian words in A.**

<i>A</i>	<i>B</i>
1) желательный	a) variable; b) adjustable; c) desirable.
2) выбрасывать	a) to achieve; b) to eject; c) to separate.
3) обычный	a) conventional; b) special; c) several.
4) вращающийся	a) harvesting; b) rotating; c) ensuring.
5) оснащённый	a) designed; b) carried; c) equipped.
6) между	a) between; b) through; c) against.
7) производитель	a) shaker; b) header; c) manufacturer.
8) преимущество	a) requirement; b) advantage; c) windrow.

**Exercise 14. Read and translate the text. Speak about the measures to prevent combine fires.**

Grain combine fires are responsible for millions of dollars of loss each year. Fires usually start near the engine where dust and dry crop debris accumulate. Fires can also start when heat is introduced by bearings or gearboxes that have failed. From 1984 to 2000, 695 major grain combine fires were reported to U.S. local fire departments. *Drag chains*<sup>1</sup> to reduce static electricity was one method employed for preventing harvester fires, but the role of static electricity linked to causing harvester fires is yet to be established. The application of the appropriate synthetic greases will reduce the friction at crucial points, i.e. chains, sprockets and gear boxes compared to petroleum based lubricants. Engines with synthetic lubricants will also remain significantly cooler during operation.

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<sup>1</sup> drag chain – цепь-антистатик

## Unit 5

### FORAGE HARVESTER

#### Словообразование

Суффикс *-ist*, прибавляемый к существительному, обозначает последователя определенного учения, теории или специалиста в какой-либо области:

Michurin – Michurinist (мичуринец);

agronomy (агрономия) – agronomist (агроном).

**Exercise 1. Form the nouns using the suffix *-ist*. Translate them into Russian.**

**Model:** psychology – psychologist

Biology, psychiatry, mineralogy, Latin, science, colony, optimism.

Суффикс *-ism*, прибавляемый к существительному или прилагательному, обозначает учение, качество или особенность речи:

modern (современный) – modernism (модернизм);

hero (герой) – heroism (героизм);

American (американский) – Americanism (американизм).

**Exercise 2. Form the nouns using the suffix *-ism*. Translate them into Russian.**

**Model:** individual – individualism

Classic, Calvin, Darwin, material, ideal, professional, capital, feudal.

#### The Article

#### (Артикль)

Артикль – это служебное слово, являющееся одним из основных формальных признаков существительного. В английском языке есть два артикля – неопределенный и определенный.

1. Неопределенный артикль имеет две формы: a и an.

Форма *a* употребляется перед словами, которые начинаются с согласного звука: *a man, a table*. Форма *an* употребляется перед словами, которые начинаются с гласного звука: *an answer, an old man*.

2. Определенный артикль имеет одну графическую форму the.

Определенный артикль происходит от указательного местоимения *that* – *тот* и употребляется перед существительными в единственном и множественном числе.

## The Indefinite Article

### (Неопределенный артикль)

1) неопределенный артикль употребляется:

1. Для обозначения принадлежности предмета к какому-либо классу предметов (со значением <i>какой-то, один из, любой</i> ).	I am a student. I've read an interesting book.
2. В значении <i>один</i> перед исчисляемыми существительными, обозначающими <i>время, вес, стоимость, расстояние</i> .	once a week, twice a month, in an hour, two pounds a kilo, 70 km. an hour
3. С исчисляемыми существительными, упоминаемыми впервые.	I've bought a coat. The coat is not very expensive.
4. С числительными: a dozen, a hundred, a thousand, a million – в значении <i>один</i> .	If she had a million pounds, she wouldn't work.

## The Definite Article

### (Определенный артикль)

2) определенный артикль употребляется:

1. Перед существительным, обозначающим конкретный предмет, о котором даются или выясняются дополнительные сведения; с существительными, упоминаемыми раньше.	The village is not far from the city. I've bought a flat. The flat is very cozy.
2. Перед существительным, являющимся единственным в своем роде или данной обстановке, а также: the sky, the ground, the country, the environment, the world, the cinema, the theater, the radio (but: television), the government, the weather.	The earth, the moon, the sun, the universe, the equator, the horizon, the atmosphere, the kosmos, the Milky Way.  Open the door, please.
3. Перед существительным, обозначающим вещество в определенном количестве или в определенном месте в данной обстановке.	Pass me the salt, please! Where is the sugar?
4. Перед существительным, имеющим определение, выраженное прилагательным в превосходной степени.	This is the most interesting book I've got.
5. Перед существительными, обозначающими социальные классы людей.	the workers the bourgeoisie
6. Перед существительными в единственном числе, обозначающими целый класс предметов.	The dog is a friend of man. The rose is my favorite flower.
7. Перед существительными: the police, the army, the fire brigade, the bank, the post office, the doctor, the press, the telegraph.	The police are looking for the thief. I am not well. I am going to the doctor.

8. С датами (в устной речи).	On the first of May.
9. Перед названиями организаций, документов, официальных титулов, политических партий, этнических групп, открытий, музыкальных инструментов, танцев.	The Constitution, the United Nations, the Pentagon, the President, the Conservative Party, the Indians, the telephone, the piano, the waltz.

### 3) перед именами собственными

1. Перед именем собственным, обозначающим всю семью.	The Smiths, the Browns.
2. Перед названием стран, которые включают слова republic, union, kingdom, state, а также употребленными во множественном числе, с названием некоторых местностей, исторических событий, эпох.	The USA, the Republic of Belarus, the United Kingdom, The Netherlands, the French Revolution, the Ice Age.
3. Перед названиями океанов, морей, рек, горных цепей, пустынь, каналов, групп островов.	The Atlantic Ocean, the Black Sea, the Thames, the British Isles, the Ontario (but Lake Ontario), the Alps, the Sahara, the Sues Canal.
4. Перед названиями четырех сторон света.	The North, the South, the East, the West.
5. Перед названиями гостиниц, театров, кинотеатров, музеев и галерей, ресторанов и баров, кораблей и английских газет, а также перед названиями с предлогом of.	The Hilton Hotel, the Odeon, The Tate Gallery, the Times, the Queen Elizabeth (корабль), the Titanic, the University of London.

## The Zero Article

### (Нулевой артикль в английском языке)

#### 4) нулевой артикль употребляется:

1. Перед абстрактными существительными; перед названием вещества, если речь не идет о конкретном количестве.	Life is not interesting without love and care. – Tea or coffee? – Tea, please.
2. Перед существительными во множественном числе в общем смысле	Children like ice-cream.
3. Перед именами собственными, с названиями городов, улиц, площадей, парков, вокзалов, аэропортов, мостов, горных вершин, отдельных островов, планет, праздников и видов спорта. Перед названиями университетов, имеющих имя собственное.	Alex, London, Trafalgar square, Downing street, Buckingham Palace, Westminster Abbey, Eiffel Tower, Venus, Victory Day, Elbrus, Madagascar, Hyde Park, Tower Bridge, football. Oxford University, London University
4. С названиями стран, континентов, официальными званиями с именами собственными	Russia, South America, Asia, Queen Elizabeth.

5. Перед названиями наук.	Economics, History.
6. Перед существительными, определяемыми притяжательными (my, his, her, its, our, your, their), указательными (this, that, these, those), вопросительными (what, which, whose) и неопределенными (some, any, each, every, much, many и no) местоимениями.	There is no theater in our town. Take any book you like.
7. Перед названиями магазинов, банков, отелей с именами их основателей (часто в притяжательном падеже)	Barclays Bank, Harrods, McDonald's.

### Exercise 3. Fill in the blanks with *a* or *an*.

1. That flower is ... rose. 2. This is ... English class. 3. I spent ... hour and ... half to fulfill my homework. 4. It takes me half ... hour to get to the station. 5. A football match is ... interesting thing. 6. That is ... hotel. 7. ... apple is ... fruit. 8. This is ... historical monument. 9. My mother has ... headache. 10. ... hotel room in New York is very expensive. 11. This is ... important document. 12. She is ... pretty woman.

### Exercise 4. Insert *the* if necessary.

1. ... youngest boy has just started going to ... school, ... eldest boy is at ... college. 2. She lives on ... top floor of an old house. When ... wind blows, all ... windows rattle. 3. Excuse me, please. Do you know ... time? – Yes, ... clock in ... hall has just struck nine. 4. ... Atlantic Ocean is between ... USA and ...Europe. 5. ... family hotels are ... hotels which welcome ... parents and ... children. 6. Did you come by ... air? – No, I came by ... sea. I had a lovely voyage on ... Queen Elisabeth II. 7. On ... Sundays my father stays in ... bed till eleven o'clock, reading ... Sunday papers. 8. Then he gets up, puts on ... old clothes, has ... breakfast and starts ... work in ... garden.

### Exercise 5. Supply *the, a/an* or *no article*.

1. Who opened ... door? 2. She lives in ... centre of Glasgow. 3. I'd like ... glass of water. 4. ... man in ... next flat is French. 5. He's ... oldest child at ... school. 6. Who's ... girl by ... piano? 7. Today is ... only day that I'm free. 8. Which coat is yours? ... red one. 9. ... Alps are ... highest mountains in ... Europe. 10. ... Madagascar is to ... East of ... Africa. 11. My grandparents live in ... town. 12. ... windows give me ... view of ... garden. 13. My brother Bob lives in ... York. 14. There's ... beautiful carpet on ... floor. 15. My cousin works at ... school. 16. ... Volga is the longest river in ... Russian Federation. 17. ... Browns lived in this house 10 years ago.

**Exercise 6. Read and memorize the following words and word combinations.**

- forage harvester ['fɔ:ri:dʒ 'hɑ:vɪstə] – кормоуборочный комбайн  
silage harvester ['saɪlɪdʒ 'hɑ:vɪstə] – силосоуборочный комбайн  
forager ['fɔ:ri:dʒə] – силосоуборочный комбайн  
chopper ['tʃɒpə] – кормоизмельчитель  
chop [tʃɒp] – измельчать  
compact [kəm'pækt] – плотно уложить  
storage silo ['stɔ:ri:dʒ 'saɪləʊ] – цилиндрическая силосная башня  
silage bag ['saɪlɪdʒ bæɡ] – полиэтиленовый мешок для силоса  
ferment [fə'ment] – ферментировать  
haylage ['heɪlɪdʒ] – сенаж  
configuration [kən'fɪɡjʊ'reɪʃən] – компоновка  
cutterhead ['kʌtəhed] – измельчающий аппарат  
chute [tʃu:t] – жёлоб выброса  
flywheel ['flaɪwi:l] – маховое колесо  
paddle accelerator ['pædl ək'seləreɪtə] – лопастной измельчитель  
wagon ['wæɡən] – прицепная тележка  
silo ['saɪləʊ] – силосная башня  
grass silage [grɑ:s 'saɪlɪdʒ] – силос из злаковых культур  
wilt [wɪlt] – вянуть, сохнуть  
swath [swəθ] – валок (*скошенного сена*)  
windrow pickup ['wɪndrəʊ 'pɪkʌp] – валкоподборщик  
whole crop silage ['həʊlkrɒp 'saɪlɪdʒ] – силос из растительной массы  
kernel processor ['kɜ:nəl 'prəʊsesə] – плющилка зерна  
mill rolls ['mɪlrəʊlz] – дробильные валки  
reciprocating knife [rɪ'sɪprəkeɪtɪŋ naɪf] – нож с возвратно-поступательным движением  
disc mower [dɪsk 'məʊə] – ротационная косилка  
saw-like blade ['sɔ:ləɪk bleɪd] – пилообразный нож  
large factory-farm [lɑ:dʒ 'fæktəri fa:m] – большое специализированное хозяйство  
canola [kə'nəʊlə] – канола (*разновидность рапса*)  
single chop ['sɪŋgl tʃɒp] – силосоуборочный комбайн с однократным измельчением  
double chop ['dʌbl tʃɒp] – силосоуборочный комбайн с двукратным измельчением  
precision chop [prɪ'sɪzjən tʃɒp] – силосоуборочный комбайн с точным регулированием длины среза

mold inhibitor ['məʊld ɪn'hɪbɪtə] – фунгицид

preservative [prɪ'zɜ:vətɪv] – консервант

augment ['ɔ:gmənt] – увеличивать, ускорить

**Exercise 7. Read and translate the following text.**

1. A forage harvester also known as a silage harvester, forager or chopper is a farm implement that harvests forage plants to make silage. Silage is grass, corn or other plant that has been chopped into small pieces, and compacted together in a storage silo or in silage bags. The silage is then fermented to provide feed for livestock. Haylage is a similar process to silage but using grass which has dried. Forage harvesters can be implements attached to a tractor, or they can be self-propelled units. In either configuration, they have either a cutter head or a flywheel with a number of knives fixed to it that chops and blows the silage out a chute of the harvester into a wagon that is either connected to the harvester or to another vehicle driving alongside. Larger machines also have paddle accelerators to increase material speed and improve unloading characteristics.

2. Once a wagon is filled up, the wagon can be detached and taken back to a silo for unloading, and another wagon can be attached. Because corn and grass require different types of cutting equipment, there are different headers for each type of silage, and they can be connected and disconnected from the harvester. Grass silage is usually cut prior to harvesting to allow it to wilt, before being harvested from swathes with a windrow pickup. Maize and whole crop silage are cut directly by the header, using reciprocating knives, disc mowers or large saw-like blades. Kernel processors (KP), modules consisting of two mill rolls with teeth pressed together by powerful springs, are frequently used when harvesting cereal crops like corn and sorghum to crack the kernels of these plant heads. Kernel processors are installed between the cutterhead and accelerator.

3. In most forage harvesters, the KP can be quickly removed and replaced with a grass chute for chopping non-cereal crops. While towed harvesters continue to be used by small family farms, the large factory-farm way of silage making is with a self-propelled machine with a tractor or truck running along with the forager. Today's largest machines have engines producing up to 1,100 horsepower, are fitted with headers able to cut up to a 35-foot (11 m) swath of corn in a single pass, and an output exceeding 400 tons of silage per hour. Silage made from grass, canola, oats or wheat are chopped in pieces 5 to 76 millimeters and treated with additives including bacteria, enzymes, mold inhibitors, and preservatives to accelerate the fermentation process. When silage is made of corn or sorghum additives are

not necessary because of the high sugar and starch levels in the plants. Additives however are frequently added to corn and sorghum to augment their fermentation. Small farms still use towed harvesters, these are either single chop, double chop or precision chop. Older machines are operated by hydraulics and the newer types are operated by electronics.

**Exercise 8. Match the synonyms.**

- |                   |                 |
|-------------------|-----------------|
| 1) forage         | a) self-powered |
| 2) harvester      | b) quicken      |
| 3) implement      | c) pull         |
| 4) self-propelled | d) tool         |
| 5) equipment      | e) motor        |
| 6) powerful       | f) provender    |
| 7) engine         | g) apparatus    |
| 8) machine        | h) strong       |
| 9) accelerate     | i) combine      |
| 10) tow           | j) mechanism    |

**Exercise 9. Translate the following words and word combinations into English.**

Сельскохозяйственное рабочее оборудование; кормовые культуры; производить силос; измельчать и выбрасывать; прицеплять к трактору; измельчать на мелкие куски; снабжать скот кормом; прицепленный к кормоуборочному комбайну; увеличить скорость прохождения скошенной массы; скашивать до уборки; дробильный валик с зубьями; жесткие пружины; давить зерн; прицепной комбайн; за один проход; двигатели мощностью до 1100 лошадиных сил; количество сахара и крахмала; ускорить ферментацию.

**Exercise 10. Insert the necessary words given below the lin.**

1. Small farms use towed harvesters, these are either single chop, double chop or \_\_\_\_\_. 2. Silage made from grass, canola, oats or wheat are chopped in pieces 5 to 76 millimeters and treated with additives to accelerate the \_\_\_\_\_ process. 3. Today's largest machines are fitted with \_\_\_\_\_ able to cut up to a 35-foot (11 m) swath of corn in a single pass. 4. In most forage harvesters, the KP can be quickly removed and replaced with a \_\_\_\_\_ for chopping non-cereal crops. 5. Grass silage is usually cut prior to harvesting to allow it to wilt, before being \_\_\_\_\_ with a windrow pickup. 6. Forage harvesters have either a cutter head or a flywheel with a \_\_\_\_\_ fixed to it that chops and blows the silage out into a wagon.

*Fermentation, harvested from swathes, number of knives, grass chute, headers, precision chop.*

**Exercise 11. Say whether the following statements are true or false. Correct the false ones using the text.**

1. A forage harvester is a farm implement that harvests cereal crops to make silage. 2. Haylage is a similar process to silage. 3. Forage harvesters are produced only as self-propelled units. 4. The self-propelled forager together with a tractor or a truck are used at the factory-farm enterprises to produce silage. 5. Additives are rarely added to corn and sorghum to influence their fermentation.

**Exercise 12. Match the words with their definitions.**

- |               |  |
|---------------|--|
| 1) silage     | a) a four-wheeled trailer for agricultural use       |
| 2) harvester  | b) an elastic device, typically a helical metal coil |
| 3) wagon      | c) grass or other fodder stored in a silo            |
| 4) kernel     | d) hydraulic systems, mechanisms, or forces          |
| 5) mower      | e) vehicle used to transport goods by road           |
| 6) hydraulics | f) a machine which cuts and often collects crops     |
| 7) truck      | g) a machine for cutting the grass on a lawn a       |
| 8) horsepower | h) the necessary items for a particular purpose a    |
| 9) springs    | i) the seed and hard husk of a cereal                |
| 10) equipment | j) measuring unit of engine's power                  |

**Exercise 13. Choose the correct preposition.**

1. The wagon can be detached and taken back *to/from* a silo *for/to* unloading, and another wagon can be attached. 2. Silage made *from/in* grass, canola, oats or wheat are chopped *in/to* pieces 5 *to/without* 76 millimeters. 3. *In/to* most forage harvesters, the KP can be quickly removed and replaced *with/from* a grass chute *for/besides* chopping non-cereal crops. 4. Because corn and grass require different types *of/for* cutting equipment, there are different headers *for/by* each type of silage.

**Exercise 14. Read and translate the given sentences paying attention to the words in italics.**

*Advanced technology* is used to increase the precision needed in modern agriculture. For example, lasers are applied for laying out fields for *surface irrigation systems*, microprocessors for *running intricate operations* such as controlling feed mixtures for dairy cows. Primary and *secondary tillage equipment*, such as plows, disks, and harrows, are designed to prepare the soil for crop production. *Multipurpose machines* are used where a *high degree of precision and specialization* is needed. There are machines that may be used to till the soil, incorporate a herbicide, and plant the seed *in one trip across the field*.

## Unit 6

### POTATO HARVESTING

#### Словообразование

Суффикс *-ly*, прибавляемый к прилагательному, образует наречие:  
happy (счастливый) – happily (счастливо).

Суффикс *-ly*, прибавляемый к существительному, образует прилагательное, указывающее на определенное качество или повторяемость:

friend (друг) – friendly (дружелюбный);

month (месяц) – monthly (ежемесячный);

**Exercise 1. Form the adverbs using the suffix *-ly*. Translate them into Russian.**

**Model:** practical – practically

Soft, ready, attentive, weak, strong, comfortable, slow, skillful, regular.

**Model:** king – kingly

Sloven, time, world, god, heaven, brother, wife, soldier, day, week, year.

Суффикс *-ward*, прибавляемый к существительному и наречию, образует наречие со значением «в направлении»:

north (север) – northward (на север).

**Exercise 2. Form the adverbs using the suffix *-ward*. Translate them into Russian.**

**Model:** west – westward

Earth, home, sky, wind, east, sea, south, in, up, down, back, out.

#### The Present Indefinite Active

(Настоящее неопределенное время в активном залоге)

Утвердительная форма	Отрицательная форма	Вопросительная форма
<b>I work</b>	<b>I do not work</b>	<b>Do I work?</b>
<b>We work</b>	<b>We do not work</b>	<b>Do we work?</b>
<b>You work</b>	<b>You do not work</b>	<b>Do you work?</b>
<b>They work</b>	<b>They do not work</b>	<b>Do they work?</b>
<b>He works</b>	<b>He does not work</b>	<b>Does he work?</b>
<b>She works</b>	<b>She does not work</b>	<b>Does she work?</b>
<b>It works</b>	<b>It does not work</b>	<b>Does it work?</b>

Настоящее неопределенное время в активном залоге (The Present Indefinite Active) употребляется:

1) для выражения обычного повторяющегося действия с такими обстоятельствами времени, как: **never** – никогда, **regularly** – регулярно, **usually** – обычно, **always** – всегда, **daily** – ежедневно, **often** – часто, **seldom** – редко, **sometimes** – иногда, **every day (week, month)** – каждый день (неделю, месяц):

*We drink coffee every morning.* – Мы пьем кофе каждое утро;

2) для передачи общеизвестных фактов, простых истин, действий и состояний:

*The Earth goes round the Sun.* – Земля *вращается* вокруг солнца;

3) для выражения ряда последовательных действий в настоящем:

*I get up at seven, do morning exercises, and then I have breakfast.* – Я *встаю* в семь, *делаю* утреннюю зарядку, а затем *завтракаю*.

В 3-м лице единственного числа форма **Present Indefinite Active** образуется прибавлением к основе глагола окончания **-s** или **-es**:

1) если глагол заканчивается на **-o**, **-ss**, **-sh**, **-ch**, **-x**, в 3-м лице единственного числа к нему прибавляется **-es**: do – does, fix – fixes, watch – watches, wash – washes;

2) в глаголах, оканчивающихся на букву **-y** с предшествующей согласной, **y** переходит в **i** и прибавляется **-es**: cry – cries.

В глаголах, оканчивающихся на букву **-y** с предшествующей гласной, **y** не изменяется: play – plays.

### **Exercise 3. Translate the following sentences into Russian.**

1. My dog Rex often barks. 2. The child prefers to play an interesting game. 3. My friend Peter always tells the truth. 4. We do not go to school on Saturdays. 5. Does Sue take a shower two times a day? 6. I have five delicious apples. 7. Kate does not like to play the guitar. 8. My working day usually begins at eight o'clock. 9. Diana never eats meat. 10. Where do you work? 11. Does your brother read a lot? 12. Successful students always do homework. 13. When does our uncle get up? 14. Helen often washes up.

### **Exercise 4. Put the verbs in brackets in the Present Indefinite.**

1. Children (ask) a lot of questions. 2. They usually (drink) coffee after their evening meal. 3. You always (forget) my birthday. 4. She never (listen) to me. 5. I (love) classical music. 6. She (drive) to work when the weather's cold. 7. Nick (understand) Arabic very well. 8. Tom (learn) two languages at school. 9. My sister (watch) TV most evenings. 10. Lessons (start) at 8.30 every morning. 11. Victor and Sam (come) from school at 5 every day. 12. Our friend (not, like) to listen to pop-music. 13. I (not go) to the cinema very often. 14. You (drink) coffee in the morning?

## The Verb *To Be* in the Present Indefinite

### (Глагол *to be* в настоящем неопределенном времени)

Глагол **to be** может употребляться:

1) как *глагол-связка*:

Mike *is* a driver. – Майк водитель. They *are* English. – Они англичане.

It *is* a big house. – Это большой дом. The floor *is* brown. – Пол коричневый;

2) как смысловой глагол, обозначающий *местонахождение*, например:

The duster *is* on the blackboard. – Тряпка находится на доске.

Утвердительная форма	Отрицательная форма	Вопросительная форма
<b>I am</b>	<b>I am not</b>	<b>Am I?</b>
<b>He is</b>	<b>He is not</b>	<b>Is he?</b>
<b>She is</b>	<b>She is not</b>	<b>Is she?</b>
<b>It is</b>	<b>It is not</b>	<b>Is it?</b>
<b>We are</b>	<b>We are not</b>	<b>Are we?</b>
<b>You are</b>	<b>You are not</b>	<b>Are you?</b>
<b>They are</b>	<b>They are not</b>	<b>Are they?</b>

### Exercise 5. Translate the following sentences into Russian.

1. My brother is from Finland. 2. Their toys are not in the box. 3. Is her friend a driver? 4. Your dog is in the yard now. 5. Her sisters are not seven. 6. Are their books in the bookcase? 7. How old are your friends? 8. Is her grandmother from Mexico or Canada? 9. Their grandfather is not from Polotsk. 10. What is this young man? 11. His parents are pensioners, aren't they? 12. Our mother is not thirty, is she? 13. He is from Wales.

### Exercise 6. Use *to be* in the Present Indefinite.

1. What ... your name? – My name ... Ann. 2. What ... your address? – My address ... 175 Central Way. 3. What ... your phone number? – My phone number ... 718-19-30. 4. Where ... you from? – I ... from Greater London. 5. What ... you? – I ... a student. 6. Who ... your parents? – My parents ... Steve and Nancy. 7. What ... they? – They ... teachers. 8. What ... your uncle? – My uncle ... a doctor. 9. ... your aunt a doctor? – No, she ... not. She ... a housewife. 10. ... they at home? – No, they ... not at home, they ... at work. 11. My brother ... a driver. He ... at work too. 12. ... your family big? – Yes, it .... 13. .... your sister tall? – No, she ... not. She ... a

little girl. She ... five years old. 14. How old ... your brother? – He ... ten.  
 15. ... your brother at school? – No, he ... at home. 16. My brother ... on  
 holiday now. 17. ... you a happy family? – Yes, we.... There ... four of us.

### The Modal Verb *Must*

#### (Модальный глагол *must*)

Модальный глагол **must** – *должен, нужно, надо* – имеет только одну форму. Действие, выраженное инфинитивом в сочетании с **must**, может относиться к *настоящему* и *будущему* времени.

I He She It We You They	must          (must not)	come to the office. finish tillage primary operations on time. study this new tillage operation technique. prepare the tractor by Friday.
Must	I he / she it we you they	mount rotary tillers? use moldboard plough to till that field? put into operation the PTO shaft? prepare the lathes by Tuesday?

Модальный глагол **must** в утвердительной форме имеет следующие значения:

1) *обязанность, приказ* – в этом значении он переводится на русский язык *должен, обязан*:

I *must* go to work at 8 o'clock. – Я *должен* уходить на работу в восемь часов (*обязанность*).

You *must* ...

3) в вопросительном предложении глагол **must** имеет значение *обязательно ли должен*, поскольку вопрос выражает нежелание выполнить данное действие:

*Must I do it now?* – Я *должен* сделать это сейчас?

4) категорический запрет в значении *запрещается, не должен*:

*You must not smoke here!* – Тебе нельзя курить здесь! (*запрет*).

5) уверенное предположение, которое говорящий считает правдоподобным со значением *должно быть*:

*Sandy must remember my address.* Должно быть, Санди помнит мой адрес (*предположение*).

### **Exercise 7. Translate the following sentences into Russian.**

1. You mustn't make a noise, when the child is asleep. 2. Must I attend classes every day? 3. Must we finish our work tomorrow? 4. The room is very dirty. I must clean it. 5. All passengers must pay for a ticket. 6. You mustn't speak loud in the library. 7. You mustn't disturb your grandmother. She is ill. 8. You mustn't talk at the lesson, must you? 9. People must take care of nature. 10. You must come and see us. 11. You mustn't speak to me like this. 12. They must know his address. 13. We mustn't be late.

### **Exercise 8. Put *must* or *must not* in the blanks.**

1. You look pale. I think you ... see the doctor. 2. It's very slippery outside. You ... run there. 3. You ... throw litter on the pavement. 4. Children ... look neat and clean at school. 5. You ... make noise in the library now. 6. You ... brush your teeth before going to bed. 7. You ... fasten your seatbelt in a car. 8. Children ... watch TV a lot. 9. You ... light a fire in the forest. 10. You ... be friendly to other people.

### **Exercise 9. Read and memorize the following words and word combinations.**

elevating digger ['elɪveɪtɪŋ 'dɪgə] – элеваторный картофелекопатель

tuber ['tju:bə] – клубень

vine [vaɪn] – вьющийся стебель,

foreign ['fɔ:ɡɪn] – инородный, примесный

former ['fɔ:mə] – первый (*из двух вариантов*)

conveying mechanism [kən'veɪŋ 'mekənɪzəm] – транспортирующий

механизм

bin [bɪn] – бункер, контейнер

discharging mechanism [dɪs'tʃɑ:ʒɪŋ 'mekənɪzəm] – выгрузной

механизм

power-operated ['paʊə 'ɔ:pəreɪt] – с механическим приводом

shaker chain ['ʃeɪkə ʃeɪn] – встряхивающий цепной транспортёр

sift out ['sɪftaʊt] – просеивать  
debris ['deɪbrɪ:] – мусор  
conveyor [kən'veɪə] – транспортёр  
roller ['rɒlə] – каток  
provision [prə'vɪzən] – оборудование  
linear speed ['lɪniə spi:d] – скорость линейного перемещения  
elevator ['elɪveɪtə] – цепной транспортёр  
furrow ['fʌrəʊ] – борозда  
share [ʃeə] – лемех, сошник  
web [web] – полотно транспортёра  
sieve out ['sɪvaʊt] – просеивать  
sorting unit ['sɔ:tiŋ 'ju:nɪt] – сортировочное устройство  
manned [mænd] – с обслуживающим персоналом  
picking table ['pɪkɪŋ 'teɪbl] – сортировальный стол  
haulm [hɔ:m] – сухие стебли и листья  
side elevator [saɪd 'elɪveɪtə] – поперечный выгрузной транспортёр  
elevator combine ['elɪveɪtə 'kɒmbaɪn] – элеваторный картофеле-

комбайн

riddle combine ['rɪdl 'kɒmbaɪn] – решётный картофелекомбайн  
rod-link elevator [rɒdliŋk 'elɪveɪtə] – прутковый транспортёр  
clod breaker [klɒd 'breɪkə] – каток-глыбодроб, комкодробитель  
vacuum tank ['vækjuə tæŋk] – вакуумная камера  
screen [skri:n] – сито  
top-removing device [tɒpɪ'mu:v dɪ'vaɪs] – ботвоудаляющий механизм  
tops [tɒps] – ботва (*у корнеплодов*)  
catch on [kæʃ ən] – зацепляться  
pressing conveyor ['presɪŋ kən'veɪə] – прессующий транспортер  
clearing rod ['klɪəɪŋ rɒd] – очищающий прут  
stolon ['stəʊlɒn] – стolon (*подземный или стелющийся по земле*

*боковой побег растения*)

drum conveyor [drʌm kən'veɪə] – барабанный конвейер  
sorting conveyor ['sɔ:tiŋ kən'veɪə] – сортировочный конвейер  
waste conveyor ['weɪst kən'veɪə] – конвейер для отходов  
loading elevator ['ləʊdɪŋ 'elɪveɪtə] – загрузочный элеватор  
obstruct [əb'strʌkt] – затруднять проходимость; закупоривать

### **Exercise 10. Read and translate the following text.**

1. Mechanical potato harvesters may be classified as elevating diggers and potato combines. The final separation of the tubers from clods, vines, stones, and other foreign material is done by hand or mechanically.

The former types are available in one-row to two-row sizes. Power for operating the conveying mechanism is generally furnished through the tractor PTO in the case of diggers. But potato combines often have separate engines, automatically adjustable, highly efficient cleaning equipment, bins, discharging mechanisms and ability of harvesting up to six rows.

2. Present-day power-operated diggers have shaker chains that elevate the potatoes and sift out most of the soil, dropping the tubers and remaining debris from the rear of the conveyor onto the ground. The potatoes are then picked up by hand and placed in bags or boxes. Sometimes a roller is mounted beneath the rear of the conveyor to firm and smooth the soil on which the potatoes are to be dropped. Some diggers have provision for changing the linear speed of the elevator to suit the operating conditions. The higher speeds give a better cleaning action, but the potatoes are more likely to be bruised. Potato harvesters are machines that harvest potatoes. They work by lifting the potatoes from the furrow using a share. Soil and crop are transferred onto a series of webs where the loose soil is sieved out. The potatoes are moved towards the back of the harvester on to a sorting unit and then into a bin or (on manned machines) to a picking table where people pick out the stones, clods, and haulms by hand.

3. A usual potato combine is produced in two versions: the elevator type and the riddle type. With the elevator type a stationary share undercuts the layer of soil and the rod-link elevator loosens it and sifts the soil. In the riddle type the share vibrates with the first sieve of the riddle. Most of the soil is sifted by the elevator. The bulk matter coming from the sifting component goes to the clod breaker, whose vacuum tanks break up clods. The pulverized soil is sifted through the screens of the riddle, and the remaining material goes to the rod-link conveyor of the top-removing device.

4. The tubers and small impurities fall between the rods of the conveyor, and the tops, with tubers that have not been broken off, and plant residue catch on the rods and, after passing through a pressing conveyor are thrown into the field behind the combine. While the tops are being pulled between the conveyors, clearing rods cut off the remaining tubers. The tubers and impurities (clods of earth, stolons, and stones) are fed to a table by a drum conveyor and from there to a sorting conveyor where workers remove them manually and place them on the waste conveyor, which throws the stones and clods into the field. From the sorting conveyor the tubers go to the loading elevator, which feeds them into a bin with a moving bottom. When the bin is filled, the tubers are loaded into a dump truck.

5. The potato harvesting combine can be used to harvest potatoes on sandy, sandy loam, and light loam soils that are not stony (stones obstruct the machine). The riddle-type version can also be used on stony soils if the stones are small. The productivity of the combine is 0.2–0.42 hectares per hour; its operating speed is 1.3–4.0 km/hr. It is operated by a tractor driver and four to five workers.

**Exercise 11. Say whether the following statements are true or false. Correct the false ones using the text.**

1. The final separation of the tubers from clods, vines, stones, and other foreign material is done by hand only. 2. Some diggers may change the linear speed of the elevator to suit the conditions of work. 3. The potatoes are moved towards the front part of the harvester on to a sorting unit and then into a bin. 4. The clearing rods cut off the leftover potatoes while the tops are being pulled between the conveyors. 5. When the bin is filled, the tubers are loaded into a high heap nearby in the field.

**Exercise 12. Translate the following words and word combinations into Russian.**

Mechanical harvester; separation is done mechanically; two-row digger; sift out most of the soil; give a better cleaning action; lift the potatoes from the furrow; a series of webs; the back of the harvester; sorting unit; picking table; potato combine; stationary share; go to the clod breaker; break up clods; pulverize soil; top-removing device; fall between the rods of the conveyor; after passing through; to throw into the field behind the combine; cut off the remaining tubers; drum conveyor; sorting conveyor; loading elevator; light loam soil; productivity of the combine.

**Exercise 13. Translate the following words and word combinations into English using the text.**

Картофелеуборочный комбайн; изготавливаться; окончательное разделение; вручную или механически; ВОМ трактора; отдельный двигатель; регулируемый автоматически; возможность убирать; картофелекопатель с механическим приводом; оставшийся мусор; уплотнить и пригладить; оборудование для изменения линейной скорости; с помощью лемеха; двигаться в заднюю часть комбайна; удалять камни; машина с обслуживающим персоналом; производится в двух модификациях; просеивать сквозь сито; бросать камни и комья на землю; самосвал; песчанистый суглино; рабочая скорость.

**Exercise 14. Make up word combinations using the text and translate them.**

- |               |               |
|---------------|---------------|
| 1) elevating  | a) bottom     |
| 2) conveying  | b) conveyor   |
| 3) cleaning   | c) soil       |
| 4) remaining  | d) machines   |
| 5) operating  | e) residue    |
| 6) manned     | f) debris     |
| 7) pulverized | g) equipment  |
| 8) plant      | h) conditions |
| 9) sorting    | i) mechanism  |
| 10) moving    | j) diggers    |

**Exercise 15. Answer the following questions.**

1. How can mechanical potato harvesters be classified? 2. How are the diggers and potato combines put into operation? 3. How do the present-day power-operated diggers work? 4. Can you describe the way the potato combines harvest potatoes? 5. How many versions of potato combines are available now? 6. Give some details of potato combines operation. 7. What soils can the potatoes harvesters be used on?

## Unit 7

### HA Y BALER

#### Словообразование

Суффикс **-ant(-ent)**, прибавляемый к глаголу, образует существительное, которое указывает на деятеля или профессию:

to assist (помогать) – **assistant** (помощник);

to correspond (переписываться) – **correspondent** (корреспондент).

**Exercise 1. Form the nouns using the suffix -ant(-ent). Translate them into Russian.**

**Model:** to attend – attendant

**-ant:** inhabit, serve, combat, inform, resist, ignore, append, emigrate.

**-ent:** preside, reside, superintend, depend, insist, differ, oppose.

Суффикс **-ee**, прибавляемый к глаголу, образует существительное, которое указывает на человека, причем данный суффикс является ударным:

employ (нанимать) – **employee** (работающий по найму).

**Exercise 2. Form the nouns using the suffix -ee. Translate them into Russian.**

**Model:** to address – addressee

To assign, to trust, to present, to grant, to promise, to train, to abandon to pay, to interview, to adopt, to absent.

**The Past Indefinite Active**

**(Прошедшее неопределенное время в активном залоге)**

В английском языке существуют две группы глаголов: правильные (стандартные) и неправильные (нестандартные). Поэтому утвердительные формы в прошедшем неопределенном времени активного залога (The Past Indefinite Active) образуется двумя способами:

1. Правильные глаголы образуют утвердительную форму в прошедшем неопределенном времени (The Past Indefinite Active) посредством добавления к инфинитиву окончания **-ed**: to work – **worked**, to like – **liked**.

Утвердительная форма	Отрицательная форма	Вопросительная форма
<b>I worked</b>	<b>I did not work</b>	<b>Did I work?</b>
<b>We worked</b>	<b>We did not work</b>	<b>Did we work?</b>
<b>You worked</b>	<b>You did not work</b>	<b>Did you work?</b>
<b>They worked</b>	<b>They did not work</b>	<b>Did they work?</b>
<b>He worked</b>	<b>He did not work</b>	<b>Did he work?</b>
<b>She worked</b>	<b>She did not work</b>	<b>Did she work?</b>
<b>It worked</b>	<b>It did not work</b>	<b>Did it work?</b>

2. Неправильные глаголы образуют утвердительную форму в прошедшем неопределенном времени не по правилу, так как являются исключениями, и все их формы, собранные в таблицу (смотри страницу 241 данного пособия), нужно заучивать наизусть.

В прошедшем неопределенном времени (The Past Indefinite Active) неправильные глаголы употребляется во второй форме, например: to drink – **drank** – drunk.

Утвердительная форма	Отрицательная форма	Вопросительная форма
<b>I drank</b>	<b>I did not drink</b>	<b>Did I drink?</b>
<b>We drank</b>	<b>We did not drink</b>	<b>Did we drink?</b>
<b>You drank</b>	<b>You did not drink</b>	<b>Did you drink?</b>
<b>They drank</b>	<b>They did not drink</b>	<b>Did they drink?</b>
<b>He drank</b>	<b>He did not drink</b>	<b>Did he drink?</b>
<b>She drank</b>	<b>She did not drink</b>	<b>Did she drink?</b>
<b>It drank</b>	<b>It did not drink</b>	<b>Did it drink?</b>

Прошедшее неопределенное время в активном залоге (The Past Indefinite Active) употребляется:

1) для выражения *единичных действий*, совершенных в прошлом, где момент совершения действия обозначается обстоятельствами времени, такими, как: **yesterday** – вчера, **a year/a month/a week ago** – год/месяц/неделю назад, **last year/month/week** – в прошлом году/месяце/на прошлой неделе, **last night** – вчера вечером, **last Thursday** – в прошлый четверг, **the other day** – на днях, **just now** – только что, **at 8 o'clock, in June, in 2003**:

*We lived in the country last month.* – Мы жили за городом в прошлом месяце;

2) для выражения *действий обычных, повторяющихся или постоянных*, при этом часто употребляются обстоятельства, например: **usually, sometimes, every day**.

*He always came to the university on time.* – Он всегда приходил в университет вовремя;

3) для выражения *цепи последовательных действий* в прошлом:

*John took a book, opened it and began reading it.* – Джон взял книгу, открыл ее, и начал читать.

### **Exercise 3. Translate the following sentences into Russian.**

1. Tom always believed his father. 2. Did Mary go to Central Asia last month? 3. We all visited Mike's party, didn't we? 4. Did the children go to the seaside last week? 5. The university had a good basketball team. 6. Mary didn't sleep at home that evening, did she? 7. When did John run a long distance? 8. Did Peter and Sue meet in York two weeks ago? 9. Sandra got up at 8 yesterday. 10. This sportsman won the World Cup last season.

### **Exercise 4. Put the verbs in brackets in the Past Indefinite.**

1. Alice (have) a sister. 2. She (go) to bed at 11 p. m. 3. Ann (take) a shower before going to bed. 4. When they (return)? 5. She (go) to the

institute in the morning. 6. Jane (watch) the new movie? 7. When you (begin) to learn English? 8. Who (close) all the windows in the classroom? 9. After breakfast she (go) to the institute. 10. Pete (come) in time yesterday? 11. Who (invent) the computer? 12. Her friends usually (call) her at about 8 o'clock. 13. He (forget) her birthday? 14. When your parents (get) married? 15. She (do) her morning exercises yesterday. 16. Why did you (return) home last Wednesday? 17. She (smile) when she saw me.

### The Verb *To Be* in the Past Indefinite

(Глагол *to be* в прошедшем неопределенном времени)

Утвердительная форма	Отрицательная форма	Вопросительная форма
I was	I was not	Was I?
He was	He was not	Was he?
She was	She was not	Was she?
It was	It was not	Was it?
We were	We were not	Were we?
You were	You were not	Were you?
They were	They were not	Were they?

#### Exercise 5. Translate the following sentences into Russian.

1. It was very sunny last week. 2. My dog was very angry yesterday morning. 3. I was not in the garden. 4. Was Mark glad to meet Anna yesterday? 5. Pupils were late for school, weren't they? 6. We were at the museum last month. 7. Tim was not here a year ago, was he? 8. Were you glad to meet us? 9. Wasn't this boy ill a week ago? 10. Who was tired yesterday? 11. They were in Finland last winter. 12. Were Peter and Josh at the children's camp last summer? 13. I was not tired yesterday night.

#### Exercise 6. Make the right choice.

1. My English (was/were) very well ten years ago. 2. He (was/were) very sad yesterday. 3. I (was/were) in the park two hours ago. 4. They (was/were) best friends two years ago. 5. It (was/were) very hot yesterday afternoon. 6. My parents (was/were) in the garden last week.

#### Exercise 7. Use the verb to be.

1. Harry ... at school yesterday. 2. John and Tina ... in the museum last week. 3. I ... at the station an hour ago. 4. This man ... a farmer the day before yesterday. 5. Who ... in Moscow last Tuesday? 6. Mary ... sick three

days ago. 7. He ... at the cinema last night. 8. It ... very hot yesterday. 9. I ... a schoolboy last year. 10. We ... in Dublin last year. 11. My friend ... in the garden yesterday. 12. We ... in town the other day. 13. My father ... a tractor driver a week ago. 14. The pupils ... in the classroom an hour ago. 15. She ... an engineer in 1999. 16. I ... busy all day yesterday. 17. Our teacher ... young 20 years ago. 18. They ... in the park on Sunday.

### The Modal Verbs *Should, Ought to*

#### (Модальные глаголы *should, ought to*)

Модальный глагол **should** – *следует, стоит, нужно, должен* используется в предложениях для выражения *совета, обязательства, вероятности* в настоящем и будущем времени. Частица **to** после **should** не употребляется.

Модальный глагол **ought to** – *следует, необходимо, быть должным* используется в тех случаях, когда человек «*должен*» что-то сделать, исходя из моральных норм поведения, а не потому, что имеется какое-то обязательство.

I We You They He She It	should should (not)  ought to ought (not) to	cool this car's engine. rotate this shaft. lower the pressure. stall the engine.
Should	I we you they	visit the agricultural Show? observe the crank angle? come the meeting on time?
Ought	he she it	to adjust the ignition system? to put the engine into operation? to fuel the tank?

Модальный глагол **should** может употребляться:

1) для выражения *совета*:

You *should* sleep – Тебе *следует* спать;

2) для выражения *обязательства*:

I *should* be at work in an hour. – Я *должен* быть на работе через час;

3) для выражения *вероятности, ожидания*:

By now, they *should* be in Moscow. – К этому времени они уже *должны* быть в Москве (*вероятно*, они уже в Москве).

4) Модальный глагол *should* в сочетании с перфектным инфинитивом употребляется для выражения невыполненного необходимого действия, другими словами, того, что следовало бы сделать, но сделано не было:

I *should have stayed* home. – Мне следовало бы остаться дома.

Модальный глагол **ought to** может употребляться:

1) для выражения *рекомендации, морального долга, совета*:

You *ought to* be more polite with that old lady. – Тебе *следует* быть повежливей с той пожилой дамой;

2) для выражения *мнения*, что именно данное действие будет правильным в той или иной ситуации.

She *ought to* ask her parents for advice first and only then go to the forest. – Ей *следовало бы* сначала спросить совета у своих родителей, а потом уже идти в лес;

3) для выражения *предположения с оттенком уверенности* в значении «*пожалуй*», «*наверное*»:

He *ought to* be able to do everything. – Он, *пожалуй*, сможет сделать все.

4) модальный глагол *ought to* в сочетании с перфектным инфинитивом выражает *порицание, упрек* за то, что не было сделано или было сделано неправильно:

You *ought to have done* it previously. – Тебе следовало сделать это ранее.

### **Exercise 8. Translate the given sentences into Russian:**

**A.** 1. I think the government should help homeless people. 2. We should think twice before buying that yacht. 3. You shouldn't stay up too late. You'll be tired tomorrow. 4. A real lady should be delicate in her words and doings. 5. She should be very glad to see you. 6. The nights should be cold up there in the mountains. 7. Why should I stay here? 8. Potatoes should grow well here. 9. When is he going back? – How should I know? 10. Do you think I should buy the red or the blue dress? 11. My friends don't think I should go to Britain next year. 12. Your secretary should have answered the last phone call yesterday.

**B.** 1. You ought to say a word or two about yourself. 2. I don't think we ought to grumble. 3. Kings ought to be kings in all things. 4. Oughtn't you to be more careful? 5. A liar ought to have a good memory. 6. I think we

ought to go now. 7. We pass our lives in doing what we ought not, and leaving undone what we ought to. 8. Molly hesitated. Ought she to accept this present from a stranger? 9. You ought to remember the rule, it has been explained so many times before. 10. He ought to have done what I told him. – Ought I to speak to him? 11. I really ought to find something to take my mind off my troubles.

**Exercise 9. Read and memorize the following words and word combinations.**

hay baler [heɪ 'beɪlə] – пресс-подборщик (*сена, соломы*)  
piece [pi:ɪs] – образец  
bale [beɪl] – тюк  
bind [baɪnd] (bound, bound [baʊnd]) – вязать  
twine [twɑɪn] – шпагат  
netting ['netɪŋ] – сетчатый материал  
wire ['waɪə] – проволока  
pickup ['pɪkʌp] – подборщик  
metal band ['metəl bænd] – металлическая лента  
spool [spu:l] – барабан  
swath [swəθ] – валок (*скошенного сена*)  
tine [taɪn] – палец  
freely-floating ['fri:lɪ 'fləʊtɪŋ] – свободно плавающий  
spring-loaded guide [sprɪŋ'ləʊdɪd gaɪd] – подпружиненная направляющая  
bale chamber ['beɪl 'tʃeɪmbə] – прессовальная камера  
obstruction [əb'strʌkʃən] – помеха  
combination [ˌkɒmbɪ'neɪʃən] – комбинированное устройство  
plunger ['plʌndʒə] – поршень  
asymmetrical [ˌeɪsɪ'metrɪkəl] – асимметричный  
measuring device ['meʒərɪŋ dɪ'vaɪs] – измерительное устройство  
spiked wheel ['spaɪkt wi:l] – гребенчатое колесо  
trigger ['trɪɡə] – приводить в действие  
knotter ['nɒtə] – узловязатель  
wrap [ræp] – обёртывать  
tie off ['taɪ ɒf] – завязать узел  
flat-bed ['flætbed] – безбортовой  
solid ['sɒlɪd] – сплошной, цельный  
slab [slæb] – слой  
stack [stæk] – уложить  
sheeting ['ʃi:tɪŋ] – защитное покрытие  
bale wrapper [beɪl 'ræpə] – устройство для обертки тюков

**Exercise 10. Read and translate the following text.**

1. A hay baler is a piece of farm machinery used to compress a cut and raked crop (such as hay, straw, or silage) into compact bales that are easy to handle, transport and store. Several different types of balers are commonly used, each producing a different type of bales – rectangular or cylindrical, of various sizes, bound with twine, netting, or wire. The baler is as a rule attached to and powered by the tractor through its PTO. A hay baler is designed to turn fresh hay into bales. In general, a hay baler uses a device called a pickup to harvest the hay. This is a series of metal bands on a spool that rotates as it passes over the hay in the field. The pickup of a baler should be wide enough to deal with a heavy crop; preferably able to take a swath of over 1.5 m width. A combination of narrowly spaced pickup tines, a freely-floating pickup wheel and a spring-loaded guide is most likely to pick up cleanly. The flow of the crop from pickup to bale chamber must be free of obstructions. The hay is packed into the bale chamber, which runs the length of one side of the baler (normally the right hand side when viewed from the front).

2. The combination plunger and knife move back and forth in the front of this chamber, with the knife closing the door into the bale chamber as it moves backwards. The plunger and knife are attached to a heavy asymmetrical flywheel to provide extra force as they pack the bales. A measuring device – normally a spiked wheel that is turned by the emerging bales – measures the amount of material that is being compressed and, at the appropriate length it triggers the knotters that wrap the twine around the bale and tie it off. As the next bale is formed the tied one is driven out of the rear of the baling chamber onto the ground or onto a special wagon. This process continues as long as there is material to be baled, and twine to tie it with. The bales emerge with four sides. The twine runs, in two parallel loops, around the wider sides. The baler that produces small rectangular bales was once the most prevalent form of baler, but is less common today. Each bale is 15×18×40 in. or (40×45×100 cm). Rectangular bales are easier to transport than round bales, since there is little risk of the bale rolling off the back of a flatbed trailer. The rectangular shape also saves space and allows stacking a complete solid slab of hay for transport and storage.

3. The most frequently used type of baler in industrialized countries is the large round baler. It produces cylindrically shaped "round" or "rolled" bales. Grass is rolled-up inside the baler using rubberized belts, fixed rollers, or a combination of the two. When the bale reaches a predetermined size, either netting or twine is wrapped around it to hold its shape. The back

of the baler swings open, and the bale is discharged. The bales are complete at this stage, but they may also be wrapped in plastic sheeting by a bale wrapper, to keep hay dry when stored outside. Variable-chamber balers typically produce bales from 48 to 72 inches (120 to 180 cm) in diameter and up to 60 inches (150 cm) in width. The bales can weigh from 1,100 to 2,200 pounds (500 to 1,000 kg), depending upon size, material, and moisture content.

**Exercise 11. Translate the words and word combination in brackets into English.**

1. Several (различные типы пресс-подборщиков) are used, each producing a different type of bales – (прямоугольные или цилиндрические), bound with (шпагатом, сетчатым материалом или проволокой). 2. This is a series of (металлических лент на барабане), that (вращается по мере его движения на сеном) in the field. 3. This (процесс продолжается) as long as there is (масса, которую нужно спрессовать), and (шпагат) to tie it with. 4. The (задняя часть пресс-подборщика) swings open, and the (тюк выгружается).

**Exercise 12. Find in B the English equivalents to the Russian words in A.**

А	В
1) зависящий	a) baling; b) netting; c) depending.
2) предназначенный	a) wrapped; b) designed; c) viewed.
3) производит	a) runs; b) triggers; c) produces.
4) прямоугольный	a) rectangular; b) cylindrical; c) conical.
5) комбинация	a) obstruction; b) compression; c) combination.
6) предпочтительно	a) preferably; b) narrowly; c) commonly.
7) поршень	a) chamber; b) plunger; c) trailer.
8) устройство	a) spool; b) plunger; c) device.
9) достигать	a) reach; b) saves; c) take.
10) форма	a) transport; b) tractor; c) shape.

**Exercise 13. Translate the following words and word combinations into English using the text.**

Образец сельскохозяйственной техники; скошенное и сгребённое сено; перевозить; производить разные типы тюков; получать привод от ВОМ трактора; широко расположенные пальцы подборщика; колесо подборщика; комбинированное устройство, состоящее из поршня и ножа; асимметричный маховик; дозирующее устройство; приводить в действие узловязатели; промышленно развитые страны; сворачиваться в рулон внутри пресс-подборщика; заранее установленный размер;

пластиковое защитное покрытие; пресс-подборщик с прессовальной камерой с регулируемым объемом.

**Exercise 14. Translate the following words and word combinations into Russian.**

Moisture content; bale wrapper; predetermined size; large round baler; plastic sheeting; rubberized belt; rectangular shape; little risk; prevalent type of baler; rectangular shape; material to be baled; baling chamber; appropriate length; amount of material; provide extra force; heavy asymmetrical flywheel; right hand side; pick up cleanly; take a swath of over 1.5m width; harvest the hay; pickup tine; powered by the tractor; different type of bales; compact bales; cut and rake straw; spiked wheel; flow of hay; free of obstructions; compressed.

**Exercise 15. Choose the correct preposition.**

1. Several different types *of/with* balers are commonly used, each producing a different type *of/to* bales – rectangular or cylindrical. 2. The most frequently used type *of/around* baler *in/among* industrialized countries is the large round baler. 3. This is a series *of/during* metal bands *on/after* a spool that rotates as it passes *over/with* the hay in the field. 4. The bales are complete *at/of* this stage, but they may also be wrapped *in/near* plastic sheeting *by/from* a bale wrapper. 5. The hay is packed *into/onto* the bale chamber, which runs the length *of/to* one side *of/with* the baler.

**Exercise 16. Answer the following questions.**

1. What is the purpose of a hay baler as farming machinery? 2. What kinds of bales do the modern balers produce? 3. How does the hay get into the baling chamber? 4. What can you tell about a pickup? 5. How does the combination plunger and knife work? 6. What is the measuring device designed for? 7. What is the size of a rectangular bale? 8. How are the “round” or “rolled” bales shaped? 9. What is the diameter of the cylindrically formed bales?

## Unit 8

### MOWERS

#### Словообразование

Приставка **anti-**, прибавляемая к существительным или прилагательным, образует слова с отрицательным значением: social (общественный) – **antisocial** (антиобщественный).

**Exercise 1. Form the new words using prefix *anti*. Translate them into Russian.**

**Model:** league – anti-league

Body, national, clerical, war, slavery, cyclone, thesis, aircraft, toxin.

Приставка **counter-**, прибавляемая к существительным, образует слова с отрицательным значением:

attack (атака) – **counterattack** (контратака).

**Exercise 2. Form the new nouns using prefix *counter-*. Translate them into Russian.**

**Model:** espionage – counterespionage

Weight, agent, threat, blast, blow, offensive, revolution, plot, statement.

### The Future Indefinite Active

(Будущее неопределенное время в активном залоге)

Будущее неопределенное время в активном залоге (The Future Indefinite Active) образуется при помощи вспомогательных глаголов **shall** (для первого лица единственного и множественного числа), **will** (для второго и третьего лица единственного и множественного числа) и основы смыслового глагола. Вспомогательный глагол **shall** используется для обращения с просьбой о совете: What **shall I do?**, чтобы выразить готовность выполнить какое-либо распоряжение: **Shall I help you?** и выразить предложение: **Shall we go out this evening?**

Утвердительная форма	Отрицательная форма	Вопросительная форма
<b>I shall work</b>	<b>I shall not work</b>	<b>Shall I work?</b>
<b>We shall work</b>	<b>We shall not work</b>	<b>Shall we work?</b>
<b>You will work</b>	<b>You will not work</b>	<b>Will you work?</b>
<b>They will work</b>	<b>They will not work</b>	<b>Will they work?</b>
<b>He will work</b>	<b>He will not work</b>	<b>Will he work?</b>
<b>She will work</b>	<b>She will not work</b>	<b>Will she work?</b>
<b>It will work</b>	<b>It will not work</b>	<b>Will it work?</b>

Будущее неопределенное время в активном залоге (The Future Indefinite Active) употребляется для выражения:

1) *предсказаний* в будущем:

It looks as if Jack *will lose* his job. – Похоже, Джек *потеряет* свою работу;

2) *цепи последовательных действий* в будущем:

Phil *will ring* you up and *tell* you everything. – Фил *позвонит* тебе и все тебе *расскажет*;

3) *однократного действия* в будущем:

The factory *will open* in July. – Фабрика *откроется* в июле;

4) *просьб*:

Will you *give* me your pencil? – *Дай* мне, пожалуйста, свой карандаш;

5) *обещаний*:

I promise, you *will not lose* your job. – Я обещаю, ты не *потеряешь* свою работу.

При выражении будущих действий часто употребляются следующие обстоятельства времени: **tomorrow** – *завтра*, **tonight** – *сегодня вечером*, **next week/month/year** – *на следующей неделе/в следующем месяце/году*, **in two days** – *через два дня*, **in a week/an hour** – *через неделю/через час*, **the day after tomorrow** – *послезавтра*, **soon** – *скоро*.

### Exercise 3. Translate the following sentences into Russian.

1. It won't rain tomorrow. 2. Daniel will attend language courses next year, won't he? 3. His cousin will buy the tickets in two days. 4. Will Nora plant flowers tomorrow? 5. I will do the ironing after dinner. 6. Whose report will you read soon? 7. Who will have a picnic in the park? 8. You will write the invitations for tomorrow's party. 9. Will Mark not go to the swimming-pool next Tuesday? 10. Monica and Sam won't clean the flat tomorrow, will they? 11. When will the postman deliver fresh newspapers? 12. Where will Alex come at seven o'clock?

### Exercise 4. Put the verbs in brackets in the Future Indefinite Active.

I. I (play) baseball tomorrow in the evening. 2. Grandparents (not, watch) TV the day after tomorrow. 3. Nick (go) to the cinema in two days? 4. Nick (fly) to Japan next month. 5. Tom and Mike (come) to my place in an hour? 6. You (buy) this book soon? 7. What you (do) in three days? 8. What your friend (do) tomorrow? 9. You (show) me the way to the theatre tomorrow? 10. They (not, take) care of the garden next summer. 11. We (go) to the zoo tomorrow? 12. What we (read) tomorrow?

6) В английском языке имеются случаи, когда будущее время для выражения будущих действий не употребляется, что имеет место в придаточных предложениях *условия и времени*.

6.1) Условие, содержащееся в условном придаточном предложении, рассматривается говорящим как реально предполагаемый факт,

относящийся к будущему времени. В этом случае сказуемые главного предложения выражаются в *Future Indefinite*, а сказуемые придаточного в *Present Indefinite*. Союдами, посредством которых придаточные предложения присоединяются к главным, являются: **if** – *если*, **in case** – *в случае если*, **suppose (that) /supposing** – *предположим, что*, **unless** – *если не*, **provided (that) /providing** – *при условии, что*:

If + Present Indefinite,	Future Indefinite.
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If the weather *is* good, we *will go* skiing. – Если погода будет хорошей, мы пойдем кататься на лыжах.

**Exercise 5. Translate the following sentences into Russian.**

1. I will buy a dog if you give me money. 2. In case you help me, I will finish homework in time. 3. If you have time, will you watch this movie with me? 4. If you do not have much work today, will you come? 5. If you leave, turn off the light, please. 6. Will I feel better if I drink this juice?

**Exercise 6. Put the verbs in brackets in the correct forms.**

1. Suppose I (go) to bed late, I (feel) bad in the morning. 2. If you (see) him, you (give) him my letter? 3. We (watch) a movie if you (come) home early. 4. You (come) to the party if she (invite) you? 5. Providing I (have) enough money, I (buy) a car. 6. You (not find) a good job unless you (study) well. 7. Supposing she (work) well, she (get) promoted.

6.2) В придаточных предложениях *времени* сказуемые главного предложения употребляются в *Future Indefinite*, а сказуемые придаточного в *Present Indefinite*. Союдами, посредством которых придаточные предложения присоединяются к главным, являются: **when** – *когда*, **before** – *перед тем как*, **after** – *после того как*, **while** – *в то время как*, **till** – *пока, до тех пор пока (не)*, **until** – *(до тех пор) пока (не)*, **as soon as** – *как только*:

Jasmin will answer *when* she is ready. – Жасмин ответит, когда будет готова.

**Exercise 7. Translate the following sentences into Russian.**

1. When the rain stops, we shall go out. 2. I shall send you a postcard when I am on holiday. 3. Wait here until I come back. 4. Before you leave, you must visit the gallery. 5. Before you leave, don't forget to shut the window. 6. Nick will phone you as soon as he arrives in London.

### Exercise 8. Put the verbs in brackets in the correct forms.

1. Before John (start) for London, he (come) to my place. 2. You (invite) Tom to our party when you (see) him? 3. You (not, go) until I (know) the truth. 4. You (phone) me as soon as you arrive in London? 5. Henry (be busy) when we (return) home? 6. Don't get off the bus until it (stop).

### The Verb *To Be* in the Future Indefinite

(Глагол *to be* в будущем неопределенном времени)

Утвердительная форма	Отрицательная форма	Вопросительная форма
I <b>shall be</b>	I <b>shall not be</b>	<b>Shall I be?</b>
We <b>shall be</b>	We <b>shall not be</b>	<b>Shall we be?</b>
He <b>will be</b>	He <b>will not be</b>	<b>Will he be?</b>
She <b>will be</b>	She <b>will not be</b>	<b>Will she be?</b>
You <b>will be</b>	You <b>will not be</b>	<b>Will you be?</b>
They <b>will be</b>	They <b>will not be</b>	<b>Will they be?</b>
It <b>will be</b>	It <b>will not be</b>	<b>Will it be?</b>

### Exercise 9. Put the verb *to be* in the Present, Past or Future Indefinite.

1. My father ... a farmer. 2. He ... a student twenty years ago. 3. I ... a construction worker when I grow up. 4. My sister ... not ... at home tomorrow. 5. She ... at assembly shop in an hour. 6. ... you ... at home tomorrow? 7. ... your father at work yesterday? 8. My sister ... ill last week. 9. She ... not in the cowshed now. 10. Yesterday we ... at the milking parlour. 11. Where ... your pen now? 12. When I come home tomorrow, all my family ... at the broiler rearing plant.

### The Modal Verb *Can*

(Модальный глагол *can*)

Модальный глагол **can** (*мочь, уметь*) имеет две формы: настоящее время **can** и прошедшее время **could**. Для выражения действия в будущем времени вместо глагола **can** используется эквивалент **shall/will be able to**.

I We He It She You They	can  cannot / (can't)  could could not / couldn't	adjust pumping systems. open the engine casing. repair a machine-tool. bring new spare parts.	
Can Could	I he /she /it we /you /they	sharpen blades? solve this problem?	
I We He She It You They	shall  will	(not) be able	to plant potatoes. to operate a grinding machine. to mount the plough. to harvest sugar beet.
Shall  Will	I we he she it you they		
		be able	to repair the fuel system? to fix the pump? to bring a spare part? to press the brake pedal?

Модальный глагол **can** имеет значение возможности или способности как физической, так и умственной. Он может использоваться для выражения просьбы, разрешения или запрещения, а также вероятности или невероятности, например:

1) выражает *физическую способность*:

*I can ride a horse.* – Я умею ездить на лошади;

2) выражает *умственную способность*:

*Tom could read French.* – Том умел читать по-французски;

3) выражает *общепринятые утверждения* в настоящем времени:

*Flowers can grow faster if they get a lot of sunshine.* – Цветы могут расти быстрее, если они получают много солнечного света;

4) выражает *запрещение* (в отрицательной форме) и *разрешение*:  
She *cannot* stay out after 10 pm. – Она *не может* гулять после 10 вечера.

You *can* use dictionaries. Ты *можешь* пользоваться словарями;

5) выражает *просьбу*:

Can you hand me the stapler? – Не можешь передать мне степлер?

6) выражает *вероятность*:

Any student *can* become a professor. – Любой студент может стать профессором;

7) выражает значение *малой, сомнительной вероятности*, а также *досады и недоумения* в отрицательной и вопросительной форме:

It *can't* cost more than a dollar. – *Не может быть*, чтобы это стоило дороже доллара.

Can she *be* working now? – *Неужели* она сейчас *работает*?

8) модальный глагол **can** в сочетании с перфектным инфинитивом выражает *сомнение в прошлом*:

He *can't* have fallen asleep at the meeting. – Он *не мог* уснуть во время встречи (= *Не может быть*, чтобы он уснул во время встречи).

Can she *have* said this? – *Неужели* (*Разве*) она сказала это?

#### **Exercise 10. Translate the following sentences into Russian.**

1. Mike can run very fast. 2. They cannot understand French. 3. Can Kate speak English well? 4. My brother will be able to come and help you in the garden. 5. What language could you speak last year? 6. Who can help me with mathematics? 7. His little sister can walk already, can't she? 8. The children couldn't carry this box yesterday, could they? 9. Why can't your friend come in time? 10. This woman won't be able to sleep at night. 11. They can't have played football very well. 12. Can he have done it?

#### **Exercise 11. Choose the correct variant.**

1. *Can / Could* Sally learn a long poem by heart when she was four?  
2. When Mrs. Rover was a teenager she *couldn't / can't* play the piano.  
3. John says he *could / can* speak French perfectly well.  
4. What *can / could* Melody do when she was nine?  
5. Tomorrow Molly *couldn't / will not be able to* borrow a book from the local library because she hasn't returned another one.  
6. Rita said she *couldn't / can't* learn that because she was busy.

#### **Exercise 12. Translate the words in bracket using *can* or *be able to* in the correct tense form.**

1. Children (нельзя) discuss such things. 2. Certainly, Nick (мог) translate that article. 3. (мог бы) Nick show me that? (*polite*) 4. Molly (не

могла) wait for us. 5. You (можете) get there in 10 minutes. 6. The swimmer (смор) reach the sea shore. 7. Steven (мор) work fifteen hours a day before his illness. 8. Tom (не может быть, чтобы) smoke so much!

**Exercise 13. Read and memorize the following words and word combinations.**

mower ['məʊə] – косилка  
lawn mower [lɔ:n 'məʊə] – газонокосилка  
self-powered [self 'paʊəd] – с автономным приводом  
rotary cutter ['rəʊtəri 'kʌtə] – дисковый режущий аппарат  
windrower ['wɪndrəʊə] – валковая жатка  
mower-conditioner ['məʊə kən'dɪʃənə] – косилка-плющилка  
gang [gæŋ] – агрегатировать  
mount [maʊnt] – монтировать  
sickle mower ['sɪkl 'məʊə] – балочная косилка  
bar [bɑ:] – ножевой брус, балка  
guard plate ['gɑ:d pleɪt] – предохранительная планка  
reciprocating sickle [rɪ'sɪprəkeɪtɪŋ 'sɪkl] – пальцево-ножевой режущий аппарат с возвратно-поступательным движением  
sickle ['sɪkl] – серповидный нож  
sickle bar ['sɪkl bɑ:] – режущий аппарат  
finger-plate ['fɪŋgəpleɪt] – пальцевая пластина  
skid [skɪd] – опорный башмак  
tilt [tɪlt] – наклонять  
spring-loaded board [sprɪŋ'ləʊdɪd bɔ:d] – подпружиненная полевой делитель  
rotary mower ['rəʊtəri 'məʊə] – ротационная косилка  
drum mower [drʌm 'məʊə] – ротационная косилка с аппаратом барабанного типа  
swivel ['swɪvəl] – поворачиваться на шарнире  
edge [edʒ] – режущая кромка, лезвие  
reel mower [ri:l 'məʊə] – ротационная косилка  
reel [ri:l] – барабан  
helical ['helɪkəl] – спиральный, спиралевидный  
cutter-bar ['kʌtə bɑ:] – режущий аппарат; режущий механизм  
bowling green ['bəʊlɪŋ grɪ:n] – лужайка для игры в боулинг / шары  
flail mower [fleɪl 'məʊə] – косилка с цеповым режущим аппаратом  
end of chain [,endʊv 'ʃeɪn] – коренной конец цепи  
ax-like blade ['æksləɪk 'bleɪd] – топорообразный ударный нож  
foul [faʊl] – загрязняться, засоряться  
tough [tʌf] – жёсткий, плотный

**Exercise 14. Read and translate the following text.**

1. A mower is a machine for cutting crops or plants that grow on the ground. A smaller mower used for lawns and sports grounds is called a lawn mower or grounds mower, which is often self-powered, or may also be small enough to be pushed by the operator. Grounds mowers have rotary cutters. Larger mowers are used to cut hay or other crops and place the cut material into windrows. Often, such mowers are called windrowers or mower-conditioners. Larger mowers are usually ganged (equipped with a number of similar cutting units), so they can adapt individually to ground contours. They may be powered and drawn by a tractor. The cutting units can be mounted underneath the tractor between the front and rear wheels, mounted on the back with a three-point hitch or pulled behind the tractor.

2. Sickle mowers have a long (typically six to seven and a half feet) bar on which are mounted fingers with stationary guard plates. In a channel on the bar there is a reciprocating sickle with very sharp sickle sections (triangular blades). The sickle bar is driven back and forth along the channel. The grass, or other plant matter, is cut between the sharp edges of the sickle sections and the finger-plates. The bar rides on the ground, supported on a skid at the inner end, and it can be tilted to adjust the height of the cut. A spring-loaded board at the outer end of the bar guides the cut hay away from the uncut hay. Rotary mowers, also called drum mowers, have a rapidly rotating disks mounted on a bar, with sharpened edges that cut the crop. When these mowers are tractor-mounted they are easily capable of mowing grass at up to 20 miles per hour (32 km/h). Some models are designed to be mounted in double and triple sets on a tractor, one in the front and one at each side, thus able to cut up to 20 foot (6 metres) swaths. In cutting on rough terrain, the blades attached to the disks are swivelled to absorb blows from obstructions.

3. Reel mowers have a horizontally rotating cylindrical reel composed of helical blades. Each blade runs past a horizontal cutter-bar, producing a continuous scissor action. The bar is held at an adjustable level just above the ground and the reel runs at a speed dependent on the forward movement speed of the machine. This type of mower is used to produce consistently short and even grass on bowling greens, lawns, parks and sports grounds. Flail mowers have a number of small blades on the end of chains attached to a horizontal shaft. The cutting is carried out by the ax-like blades striking the grass at high speed. These types are used on rough ground, where the blades may frequently be fouled by other objects, or on tougher vegetation than grass, such as brush. Due to the length of the chains and to the higher

weight of the blades, they are better at cutting thick brush than other mowers, because of the relatively high inertia of the blades.

**Exercise 15. Point out the best answers to the questions.**

1. How can a lawn mower be moved along the ground?
  - a) a lawn mower can be self-propelled only;
  - b) a lawn mower must be pushed by the operator only;
  - c) a lawn mower may be self-propelled or pushed.
2. How do the larger mowers handle the cut material?
  - a) the larger mowers place the cut material onto trailers;
  - b) the larger mowers place the cut material into big tanks;
  - c) the larger mowers are used to place the cut material into windrows.
3. What parts of the tractor are the larger mowers mounted on?
  - a) underneath the tractor between the front and rear wheels only;
  - b) on the three-point hitch at the back of a tractor or between the front and rear wheels;
  - c) between the front and rear wheels, on the three-point hitch at the back of a tractor or pulled behind the tractor.
4. How does the sickle mower cut the grass or other plant matter?
  - a) by the sharp edges of the sections and the finger-plates;
  - b) between the sharp edges of the sickle sections and the finger-plates;
  - c) behind the sharp edges of the finger-plates.
5. How can the rotary mowers be mounted?
  - a) one in the front and one at the right side
  - b) one in the front and one at the left side
  - c) one in the front and two at both sides
6. Why are the flail mowers better at cutting thick brush than other mowers?
  - a) because they are very productive and powerful;
  - b) because they are very heavy and powerful;
  - c) because they possess high inertia in the blades.

**Exercise 16. Match the beginning of each sentence with its end.**

- |                                |  |
|--------------------------------|--|
| 1. Grounds mowers              | a) back and forth along the channel.     |
| 2. Larger mowers are called    | b) by the ax-like blades.                |
| 3. Larger mowers may be        | c) disks are swivelled to absorb blows.  |
| 4. The sickle bar is driven    | d) supported on a skid at the inner end. |
| 5. The blades attached to the  | e) powered and drawn by a tractor.       |
| 6. The cutting is carried out  | f) windrows or mower-conditioners.       |
| 7. The bar rides on the ground | g) have rotary cutters.                  |

**Exercise 17. Choose the right translation for the underlined part of the sentence.**

1. Larger mowers are usually ganged, so they can adapt individually to ground contours.

- a) могут адаптироваться индивидуально;
- b) могут настраиваться независимо.

2. Sickle mowers have a long bar on which are mounted fingers with stationary guard plates.

- a) владеют длинным брусом;
- b) оснащаются длинным брусом.

3. A spring-loaded board at the outer end of the bar guides the cut hay away from the uncut hay.

- a) брасует скошенное сено;
- b) отводит скошенное сено.

4. When these mowers are tractor-mounted they are easily capable of mowing grass at up to 20 miles per hour (32 km/h).

- a) скашивать траву на скорости в 20 миль в час;
- b) скашивать траву в 20 миль в час.

5. Each blade runs past a horizontal cutter-bar, producing a continuous scissor action.

- a) непрерывное режущее действие;
- b) длительное отсекающее действие.

6. Flail mowers have a number of small blades on the end of chains attached to a horizontal shaft.

- a) закреплённые на горизонтальном валу;
- b) приставленные к горизонтальной оси.

7. A mower is a machine for cutting crops or plants that grow on the ground.

- a) механизм для скашивания сельскохозяйственных посевов и растений;
- b) машина для скашивания сельскохозяйственных культур и растений.

**Exercise 18. Translate the following words and word combinations into Russian.**

Cut crops or plants; small enough; rotary cutter; place the cut hay into a windrow; mower-conditioner; equip with a similar cutting unit; ground contour; powered and drawn by a tractor; three-point hitch; mounted finger; triangular blade; drive back and forth, adjust the height of the cut, rapidly rotating disk, sharpened edge; double and triple set; horizontally rotating

cylindrical reel; adjustable level; tougher vegetation than grass; length of the chain; thick brush; high inertia of the blade.

**Exercise 19. Translate the expressions into Russian paying attention to the prepositions.**

Better *at* cutting thick brush; weight *of* the blades; may be fouled *by* objects; types used *on* rough ground; type *of* mower; a number *of* small blades; grass *on* bowling green; dependent *on* the movement; just *above* the ground; attached *to* the disk; absorb blows *from* obstructions; outer end *of* the bar; edge *of* the sickle; channel *on* the bar.

**Exercise 20. Translate the following words and word combinations into English using the text.**

Газонокосилка; косилка меньшего размера; спортивные площадки и газоны; дисковый режущий аппарат; иметь привод от трактора; самоходный; стационарная предохранительная планка; опёртая на опорный башмак; быстро вращающийся диск; скашивать культуру; косилка, навешиваемая на трактор; поворачиваться на шарнире для гашения удара; проходить за горизонтальным режущим бруском; спиралевидное лезвие; закрепляться на регулируемом уровне; горизонтальный вал; относительно высокая инерция.

**Exercise 21. Read the text and answer the question: Why are most modern farm tractors considered “all purpose”?**

Most modern farm tractors today are very efficient. For example, *Case Steiger 9390* and *Valtra Valmet 8150 HiTech* can operate a range of mounted, semi-mounted, and trailed implements and machines, and have hydraulic devices to provide easy and accurate control of the equipment from the tractor driver's seat. Among the typical operations performed by the latest tractors there are plowing, cultivating, harrowing, sowing, harvesting and transporting agricultural crops, livestock and poultry feeds distribution, barn cleansing and others.

## Unit 9

### HAЙMAKING IMPLEMENTS

#### Словообразование

Приставка *de-*, прибавляемая к глаголам или существительным, образует слова с отрицательным значением:

to militarize (милитаризировать) – demilitarize (демилитаризовать).

**Exercise 1. Form the new words using prefix *de*. Translate them into Russian.**

**Model:** to civilize – to decivilize

To colonize, to throne, to compose, to mobilize, to moralize, to gasify, to electrify, to code.

Приставка *dis-*, прибавляемая к глаголам, существительным и прилагательным, образует слова с отрицательным значением:

to appear (показываться) – to **dis**appear (исчезать);

advantage (преимущество) – **dis**advantage (неудобство);

loyal (верный) – **dis**loyal (нелояльный).

**Exercise 2. Form the new words using prefix *dis*. Translate them into Russian.**

**Model:** to please – to displease

To arrange, honesty, similar, union, to connect, to like, to agree, to allow, to approve, to colour, to comfort, to obey, to place, to engage, to join, to order, to satisfy, to regard.

## The Word Order

### (Порядок слов)

Предложения в английском языке имеют твердый порядок слов и выстраиваются по определенной схеме, элементы которой нельзя менять местами.

1. Подлежащее	2. Сказуемое	3. Дополнение			4. Обстоятельство		
		беспредложное косвенное	прямое	предложное косвенное	образа действия	места	времени
The buyers	chartered		a steamer				
We	sent	the buyers	the documents				
We	sent		the documents	to the buyers			
The sellers	received		a telegram	from the buyers			
I	met		him		by chance	at the theatre	a few days ago

Иногда обстоятельства времени и места могут стоять перед подлежащим:

*Last night* he talked to her. – *Прошлой ночью* он говорил с ней.

*In the quietness of the flat* the telephone rang softly. – В тишине квартиры тихо зазвонил телефон.

Обстоятельства времени стоят обычно после дополнений, а если дополнения нет, то после глагола-сказуемого:

I had a letter *this morning*. – *Сегодня утром* я получил письмо.

Robert will return *in half an hour*. – Роберт вернется *через полчаса*.

Если в предложении есть другие обстоятельства, то обстоятельства образа действия стоят перед обстоятельствами места и времени, например:

They worked *hard at home yesterday*. – Они *усердно* работали *дома* *вчера*.

Обстоятельства образа действия, выраженные наречиями, ставятся после глагола-сказуемого и его дополнения (если оно есть в наличии); они могут также стоять перед сказуемым, но после глагола **to be**, после вспомогательных и модальных глаголов

I am going to speak to Peter *seriously*. – Я собираюсь поговорить с Питером *серьезно*.

Maggie *quietly* entered the room. – Мэгги *тихо* вошла в комнату.

The boy was *thoughtfully* looking at the picture. – Мальчик *задумчиво* смотрел на картину.

Boris can *quickly* read and write. – Борис может *быстро* читать и писать.

Если в предложении есть несколько обстоятельств времени, то обстоятельство, которое указывает более точное, время ставится перед обстоятельством, которое указывает время в более обобщенном виде:

I was there *at eight this evening*. – Я был там *в восемь* *сегодня вечером*.

Обстоятельства, выраженные наречиями **always** – *всегда*, **often** – *часто*, **sometimes** – *иногда*, **seldom** – *редко*, **never** – *никогда*, **already** – *уже*, **usually** – *обычно* и др., ставятся между подлежащим и сказуемым, но если в составе сказуемого есть глагол **to be**, вспомогательные или модальные глаголы, то после них:

I *never* heard her name. – Я *никогда* не слышал ее имя.

Gerald will *never* forget this. – Джеральд *никогда* этого не забудет.

Max was *always* alone. – Макс *всегда* был один.

**Exercise 3. Put the words in the correct order to make sentences.**

1. I drive (every morning, to work).
2. She goes (by train, to Moscow, every month).
3. He studied (last year, a lot, at university).
4. The quartet performed (at the recital, magnificently, last night).
5. They walked (through the park, home, this afternoon).
6. He travels (by train, home, every day).

**Exercise 4. Make the right choice.**

1. Often/the cinema/the Milnes/to/go:
  - a) The Milnes go to the cinema often;
  - b) The Milnes often go to the cinema.
2. Cigarettes/his/give/him:
  - a) Give his cigarettes him;
  - b) Give him his cigarettes.
3. The theatre/go/often/very/we/to:
  - a) We go to the theatre very often;
  - b) We very often go to the theatre;
  - c) Very often we go to the theatre.
4. Him/give/to/cigarettes/his:
  - a) Give to him his cigarettes;
  - b) Give his cigarettes to him.
5. The news/yesterday/saw/television/I/on:
  - a) I yesterday saw the news on television;
  - b) I saw on television the news yesterday;
  - c) Yesterday I saw the news on television.
6. The novel/much/I/very/liked:
  - a) I very much liked the novel;
  - b) I liked very much the novel;
  - c) I liked the novel very much.
7. To/came/the office/he/yesterday/taxi/by:
  - a) He came by taxi to the office yesterday;
  - b) He came to the office by taxi yesterday;
  - c) Yesterday he came by taxi to the office.
8. The table/and/on/is/there/two/a book/pens:
  - a) There is a book and two pens on the table;
  - b) There is two pens and a book on the table;
  - c) On the table there is a book and two pens.

## The Construction *There + be*

### (Конструкция *there + be*)

Если необходимо в предложении выразить мысль о предмете и его местонахождении, то она передается в английском языке двумя разными способами:

1) если мы строим предложение на русском языке, начиная с обстоятельства места, и ведем речь о том предмете, который нам известен, то на английском языке необходимо употреблять конструкцию **there + be**, например:

*На столе находится ручка. – **There is** a pen on the table;*

2) если мы строим предложение на русском языке, начиная с предмета, и хотим сообщить о его местонахождении, то сам предмет в предложении находится на месте подлежащего, например:

*Ручка находится на столе. – **The pen is** on the table.*

Синтаксическая конструкция **there + be** используется следующим образом:

утвердительная и отрицательная формы:

There	is (not)	a pencil chalk	on the table.
	are (not)	books	
	was (not)	a pen coffee	
	were (not)	pictures	
	will (not) be	a journal boxes tea	

вопросительная форма:

Is	there	a pencil chalk	on the table?
Are		books	
Was	there	a pen coffee	
Were		pictures	
Will	there be	a journal boxes tea	

**Exercise 5. Fill in the blanks in the following sentences with the appropriate forms of the verb *to be*.**

1. There ... books on the table now. 2. There ... an armchair in the corner yesterday. 3. There ... two men in the living room tomorrow. 4. There ... children at the table in half an hour. 5. There ... no newspapers on the shelf the day before yesterday. 6. There ... two men and several women in the shop next Saturday. 7. There ... no wardrobe in my room soon. 8. There ... a lot of furniture in the living room today. 9. There ... plenty of people in the park tomorrow. 10. There ... five combines in the field the other day.

**The Verb *To Have* in the Present, Past, Future Indefinite**

**(Глагол *to have* в настоящем, прошедшем, будущем неопределенном времени)**

Глагол **to have** означает *иметь, обладать* и выражает отношение принадлежности.

*I have* a good car. – У меня *есть* хороший автомобиль.

He *had* a big house. – У него *был* большой дом.

They *will have* a small office. – У них *будет* небольшой офис.

Утвердительная форма	Отрицательная форма	Вопросительная форма
<b>I have</b> We <b>have</b> You <b>have</b> They <b>have</b> He <b>has</b> She <b>has</b> It <b>has</b>	<b>I have not</b> We <b>have not</b> You <b>have not</b> They <b>have not</b> He <b>has not</b> She <b>has not</b> It <b>has not</b>	<b>Have I?</b> <b>Have we?</b> <b>Have you?</b> <b>Have they?</b> <b>Has he?</b> <b>Has she?</b> <b>Has it?</b>
<b>I had</b> We <b>had</b> You <b>had</b> They <b>had</b> He <b>had</b> She <b>had</b> It <b>had</b>	<b>I had not</b> We <b>had not</b> You <b>had not</b> They <b>had not</b> He <b>had not</b> She <b>had not</b> It <b>had not</b>	<b>Had I?</b> <b>Had we?</b> <b>Had you?</b> <b>Had they?</b> <b>Had he?</b> <b>Had she?</b> <b>Had it?</b>
<b>I shall have</b> We <b>shall have</b> You <b>will have</b> They <b>will have</b> He <b>will have</b> She <b>will have</b> It <b>will have</b>	<b>I shall not have</b> We <b>shall not have</b> You <b>will not have</b> They <b>will not have</b> He <b>will not have</b> She <b>will not have</b> It <b>will not have</b>	<b>Shall I have?</b> <b>Shall we have?</b> <b>Will you have?</b> <b>Will they have?</b> <b>Will he have?</b> <b>Will she have?</b> <b>Will it have?</b>

**Exercise 6. Use the right form of the verb *to have*.**

1. Peter ... a tape recorder last year.
2. You ... many relatives there now.
3. My sister ... music lessons next week.
4. The children ... many toys in a week.
5. We ... coffee every day in the afternoon.
6. Her daughter ... a piano last year.
7. The children ... lunch in an hour and a half.
8. Jane ... a bookshelf the day after tomorrow.
9. I ... a bath once a week.
10. I ... his textbook on physics last year.
11. We ... a lot of snow this winter.
12. They ... breakfast an hour ago.
13. His uncle ... a garden now.
14. I ... paper to write three letters soon.
15. I ... a collection of Shakespeare's plays last month.
16. He ... a new bicycle when he was a schoolboy.

**Exercise 7. Read and memorize the following words and word combinations.**

- hay tedder [heɪ 'tedə] – сеноворошилка  
fork [fɔ:k] – вилы  
stir [stɜ:] – перемешивать  
scatter ['skætə] – разбрасывать  
snatch [snætʃ] – хватать  
toss [tɒs] – бросать  
trail [treɪl] – шлейф  
hay rake ['heɪ reɪk] – сенные грабли  
windrow ['wɪndrəʊ] – валок  
windrower ['wɪndrəʊə] – валковая жатка  
fluff up ['flʌf ʌp] – встряхивать  
side delivery rake [saɪd dɪ'lɪvəri reɪk] – боковые грабли  
gear-driven [gɪə 'drɪvən] – приводимый в движение зубчатым механизмом  
chain-driven [tʃeɪn 'drɪvən] – приводимый в движение цепным приводом  
reel [ri:l] – зд. сгребальное колесо  
swather ['swɔ:θə] – валкоукладчик  
sickle bar ['sɪkl bɑ:] – пальцево-ножевой режущий аппарат  
reel [ri:l] – мотовило  
severe transverse angle [sɪ'vɪə trænz'vɜ:s 'æŋɡl] – острый поперечный угол  
auger conveyor ['ɔ:gə kən'veɪə] – шнековый конвейер  
hay conditioner [heɪ kən'dɪʃənə] – сенная плющилка  
crimp [krɪmp] – гофрировать  
crush [krʌʃ] – плющить  
grooved [gru:vd] – гофрированный, рифлёный

roller ['rəʊlə] – валец  
split [splɪt] – раскалываться, трескаться  
cell wall ['selwɔ:l] – оболочка клетки  
rubber-roller ['rʌbə'rəʊlə] – обрешиненный валец  
steel-roller [sti:l'rəʊlə] [kən'dɪʃənə] – стальной валец  
flail conditioner [fleɪl kən'dɪʃənə] – цеповая плющилка  
interlocking [ˌɪntə'lɒkɪŋ] – плотно прилегающий  
raised [reɪzɪd] – рельефный  
pattern ['pætən] – узор  
main shaft ['meɪn 'ʃɑ:ft] – главный вал привода  
loading-wagon ['ləʊdɪŋ 'wæɡən] – телега-подборщик  
receptacle [rɪ'septəkl] – приёмный контейнер  
open-top trailer ['əʊpəntɒp 'treɪlə] – открытый прицеп  
head [hed] – жатка  
tow [təʊ] – отбуксировать  
quite a bit [kwaɪt ə bɪt] – довольно много

**Exercise 8. Read and translate the following text.**

1. The **hay tedder** is a machine used in haying. It uses moving forks to stir or scatter cut hay in the field. The use of a tedder allows the hay to dry better, which results in improved aroma and color. The way of application of the tedder is quite simple. It is dragged over the field; the rotating forks snatch the grass and toss it around, spreading it out in the sun. The sun then dries the grass more effectively. Tedders will only interact with mowed grass. This means that a grass field must first be processed with a mower, which will turn the standing stalks of grass into long trails lying on the ground. The tedder can then pass over these trails.

2. The **hay rake** is an agricultural rake used to collect cut hay or straw into windrows for later collection by a baler. It is also designed to fluff up the hay and turn it over so that it may dry. It is also used in the evening to protect the hay from morning dew. The next day a tedder is used to spread it again, so that the hay dries more quickly. The hay rake may be mechanized, drawn by a tractor and is known as the side delivery rake. This usually has a gear-driven or chain-driven reel mounted roughly at a 45-degree angle to the windrow, so the hay is gathered and pushed to one side of the rake as it moves across the field. Modern versions of the side delivery rake use a more severe transverse angle.

3. The **swather** is a farm implement that cuts hay or small grain crops and forms them into a windrow. This tool is also called a "windrower" and may be self-propelled via an internal combustion engine, or may be drawn

by a tractor and powered through a power take-off shaft. A swather uses a sickle bar to cut the stems of the crop. A reel helps the cut crop fall neatly onto an auger conveyor which moves it and deposits it into a windrow, with all stems oriented in the same direction.

4. The **hay conditioner** is a farm implement that crimps and crushes newly cut hay to promote faster and more even drying. A conditioner is made up of two grooved rollers which the hay is forced through, causing the stalks to split, thus allowing the liquid trapped behind cell walls to leak out and also giving more surface area for evaporation. Conditioners come in three main types: rubber-roller, steel-roller and flail conditioners. The roller conditioners consist of two opposing rolls that have a raised, interlocking pattern. The rollers have either a rubber or steel pattern and a steel main shaft. Nowadays the developers of farm machinery have created mower-conditioners which combine the mower and conditioner into a single machine. It ensures very fast drying of hay.

5. The **loading wagon** is an open receptacle on wheels, which can be filled with grass, straw or chaff directly from the field. Loading wagons consist of an open-top trailer on wheels. This trailer can carry a large amount of forage. The loading wagon has a small collecting head at the front, which is capable of collecting grass or straw from the field, left behind by a mower. When the loading wagon is properly activated, it will collect any such material it passes over. Once the material has been collected, the loading wagon can be towed to its destination, where it can be unloaded. Loading wagons are pretty heavy and even heavier when full with cargo. They also require quite a bit of power when operating, and will usually need to be connected to powerful tractors.

**Exercise 9. Say whether the following statements are true or false. Correct the false ones using the text.**

1. The use of a tedder allows improving the quality hay. 2. The hay rake cannot be mechanized, drawn by a horse and delivers hay backward. 3. The swather is a farm implement that forms a windrow of the cut hay or small grain crops. 4. Conditioners come in two main types: rubber-roller and flail conditioners. 5. Loading wagons are connected to powerful tractors while operating. 6. The hay tedder is self-propelled so it can rotate forks, snatch the grass and toss it around to dry in the sun.

**Exercise 10. Translate the following words and word combinations into Russian.**

Stir or scatter cut hay; way of application; dries the grass effectively; interact with mowed grass; standing stalks of grass; collect cut hay or straw;

fluff up and turn hay over; protect the hay from morning dew; gear-driven or chain-driven reel; at a 45-degree angle to the windrow; more severe transverse angle; self-propelled via an internal combustion engine; through a power take-off shaft; stems oriented in the same direction; surface area for evaporation; steel main shaft; open receptacle on wheel; fill with grass; straw or chaff, pretty heavy; two opposing rolls; developers of farm machinery; connect to a powerful tractor; modern version; auger conveyor.

**Exercise 11. Make up word combinations using the text and translate them.**

- |              |                          |
|--------------|--------------------------|
| 1) machine   | a) may be mechanized     |
| 2) process   | b) of two opposing rolls |
| 3) pass      | c) on wheels             |
| 4) cut       | d) drying of hay         |
| 5) use       | e) newly cut hay         |
| 6) crush     | f) a sickle bar          |
| 7) fast      | g) the stems of the crop |
| 8) trailer   | h) over the trail        |
| 9) consist   | i) with a mower          |
| 10) hay rake | j) used in haying        |

**Exercise 12. Translate the words and word combination in brackets into English using the text.**

1. (Телеги-подборщики) are (довольно тяжелый) and even heavier when (наполнен грузом). 2. When the loading wagon (полностью приведен в рабочее положение), it will collect (любой такой материал) it passes over. 3. (Этот прицеп) can carry a (большое количество корма). 4. The (валцы плющилок) consist of (два вальца с противоположным направлением вращения) that have a raised, interlocking pattern. 5. (Валкоукладчик) uses a sickle bar (скашивать стебли) of the crop. 6. (На следующий день) a tedder is used to spread it again, so that the (сено сушилось быстрее).

**Exercise 13. Translate the following words and word combinations into English using the text.**

Агрегат, используемый для сеноуборки; позволять сене лучше высухать; взаимодействовать со скошенной травой; длинный шлейф, лежащий на земле; собирать скошенную траву в валки; самоходная валковая жатка; шнековый конвейер; способствовать более быстрому высушиванию; жидкость, находящаяся за стенками клетки; три основных вида; разработчики сельскохозяйственной техники; с открытым верхом приёмный контейнер на колесах; непосредственно в

поле; небольшая подборная жатка; отбуксировать в место назначения; заполненный грузом; мощные тракторы.

**Exercise 14. Find in B the English equivalents to the Russian words in A.**

A	B
1) двигающийся	a) moving; b) causing; c) spreading.
2) разбрасывать	a) rubber; b) developer; c) scatter.
3) уборка	a) destination; b) collection; c) application.
4) транспортёр	a) conveyor; b) trailer; c) tedder.
5) непосредственно	a) quickly; b) effectively; c) directly.
6) в наши дни	a) conditioners; b) nowadays; c) versions.
7) буксируемый	a) trapped; b) activated; c) dragged.
8) телега	a) wagon; b) cargo; c) mower.
9) валок	a) windrow; b) implement; c) engine.
10) стебли	a) wheels; b) grass; c) stalks.

**Exercise 15. Choose the correct preposition.**

1. They also require quite a bit *of/among* power when operating, and will usually need to be connected *to/from* powerful tractors. 2. The loading wagon is an open receptacle *on/to* wheels, which can be filled *with/without* grass, straw or chaff directly *from/to* the field. 3. Tedders will only interact *with/of* mowed grass. 4. A reel helps the cut crop fall neatly *onto/over* an auger conveyor which moves it and deposits it *into/from* a windrow. 5. The hay tedder is a machine used *in/on* haying.

**Exercise 16. Answer the following questions.**

1. What is the aim of using a tedder while haying?
2. How is it applied?
3. Will the tedder interact with non-mowed grass?
4. What is the swather designed for?
5. Are swathers self-propelled or drawn? What do you know about that?
6. What is the hay conditioner used for?
7. What does the hay conditioner consist of?
8. What is the main trend in creating the conditioners?
9. What is the purpose of the loading wagon?
10. Why can the loading wagon collect the hay or straw?
11. What kind of tractors should be used?

**Exercise 17. Read, translate the following text and answer the question: What is a tractor designed for?**

The most common and well-known farm machinery is a tractor. Tractors are used to pull a variety of farm machines and equipment. Farm machinery

used for soil cultivation includes the plow, the power tiller, the spike, drag and disk harrows, the chisel plow, the cultivator, the spading machine<sup>1</sup> and the rock picker<sup>2</sup>. These machines clear the land of stones and weeds, and loosen the soil in readiness for planting.

<sup>1</sup> spading machine – лопаточная почвообрабатывающая машина

<sup>2</sup> rock picker – подборщик камней

## Unit 10

### PLOUGHING

#### Словообразование

Приставки *en-(em-)*, прибавляемые к существительным или прилагательным, образуют глаголы:

sage (клетка) – to **encage** (сажать в клетку);

**Exercise 1. Form the new words using prefixes *en-(em-)*. Translate them into Russian.**

**Model:** rank – to enrank

**en-** trap, danger, able, act, close, circle, frame, plane, camp, queue;

**em-** bed, body, blaze, blazon, boss, bow, brace, brangle, brittle.

Приставка *mis-*, прибавляемая к глаголам или существительным, образует слова, выражающие неправильное или неточное выполнение действия:

to direct (направлять) – to **misdirect** (неправильно направлять);

fortune (везение) – **misfortune** (неудача).

**Exercise 2. Form the new words using prefix *mis-*. Translate them into Russian.**

**Model:** to manage – to mismanage

To translate, to interpret, to state, to behave, to guide, to pronounce, to lay, information, location, management, persuasion.

### The Present Continuous Active

#### (Настоящее продолженное время в активном залоге)

Настоящее продолженное время в активном залоге (The Present Continuous Active) является сложной видо-временной формой, которая образуется при помощи вспомогательного глагола **to be** в настоящем

времени и причастия настоящего времени (The Participle I) смыслового глагола. Причастие настоящего времени (The Participle I) образуется от инфинитива присоединением окончания **-ing**: to lead – **leading**, to pay – **paying**. При этом соблюдаются следующие правила орфографии:

1. Немая буква **e** на конце глагола перед окончанием **-ing** опускается, например: to take – **taking**.

2. Конечный согласный звук удваивается, если ему предшествует краткий ударный гласный: to put – **putting**, to refer – **referring**.

3. Буква **l** в конце слова всегда удваивается: to travel – **travelling**.

4. Буква **y** в конце слова сохраняется, независимо от того, какой звук ей предшествует, например: to study – **studying**, to stay – **staying**.

5. Буквосочетание **-ie** в конце слова заменяется на **-y**: to tie – **tying**.

Утвердительная форма	Отрицательная форма	Вопросительная форма
<b>I am working</b>	<b>I am not working</b>	<b>Am I working?</b>
<b>He is working</b>	<b>He is not working</b>	<b>Is he working?</b>
<b>She is working</b>	<b>She is not working</b>	<b>Is she working?</b>
<b>It is working</b>	<b>It is not working</b>	<b>Is it working?</b>
<b>We are working</b>	<b>We are not working</b>	<b>Are we working?</b>
<b>You are working</b>	<b>You are not working</b>	<b>Are you working?</b>
<b>They are working</b>	<b>They are not working</b>	<b>Are they working?</b>

Настоящее продолженное время в активном залоге (The Present Continuous Active) употребляется для выражения:

1) длительного действия, совершающегося в *момент речи* с такими обстоятельствами времени, как **today** – *сегодня*, **nowadays** – *в наши дни*, **now** – *сейчас*, **still** – *все ещё*, **at present** – *в настоящее время*, **at the moment** – *в данный момент*:

She *is typing* a letter *now*. – Она *печатает* письмо *сейчас*;

2) длительного действия, совершающегося в *настоящий период* времени, но необязательно в *момент речи*:

Catherine *wants to work* in Italy, so she *is learning* Italian. – Катрин *хочет работать* в Италии, поэтому она *учит* итальянский язык;

3) будущего *запланированного* действия (в предложении иногда есть обстоятельство, указывающее на будущее):

Now listen, Roger *is coming* home tomorrow. – Сейчас слушай, Роджер *приезжает* домой *завтра*.

Следует помнить о том, что в английском языке существуют глаголы, которые не употребляются в Present Continuous:

1) **чувственного восприятия**: feel, look, notice, observe, hear, see, smell, sound, taste;

2) **умственной деятельности**: advise, believe, consider, doubt, forget, guess, hope, imagine, insist, know, mean, promise, realize, recognize, recommend, regret, remember, require, seem, suggest, suppose, suspect, think, understand, wonder;

3) **чувств**: admire, envy, adore, astonish, concern, despise, detest, dislike, hate, impress, like, love, surprise;

4) **желания**: desire, lack, need, please, prefer, satisfy, want, wish;

5) **принадлежности**: belong, consist, contain, depend, have, include, involve, keep owe, own, possess;

6) **некоторые другие глаголы**: agree, apologize, appear, cost, deny, deserve, equal, exist, fit, forgive, impress, lack, last, look like, matter, reach, refuse, remain, resemble, stop, suit, survive.

**Exercise 3. Transform the following verbs into the Participle I. Translate them into Russian.**

Read, write, take, sit, play, look, swim, jump, run, go, do, buy, help, eat, clean, make, speak, sleep, listen, talk, fly, lie, die, come, shop, live, sing, dance, work, have, cry, put, use, stop, drive, win.

**Exercise 4. Translate the following sentences into Russian.**

1. I'm playing tennis with my friend next Friday. 2. We are walking on the beach now. 3. They are having a great time at the camp at the moment. 4. Is Angela painting a beautiful picture now? 5. What hotel are Tina and Pam staying today? 6. It is raining outdoors nowadays, isn't it? 7. Where is Bobby preparing for the test now? 8. The dog is still barking at some strangers. 9. The water in the kettle is not boiling, is it? 10. Somebody is knocking at the door right now. 11. The children are still sleeping.

**Exercise 5. Choose the right form of the verb to be.**

1. My friend (am, is, are) playing in the yard now. 2. I (am, is, are) writing an exercise at the moment. 3. They (am, is, are) doing homework at present. 4. Look! He (am, is, are) smiling at us. 5. Listen! The birds (am, is, are) singing in the garden. 6. We (am, is, are) going for a walk. 7. She (am, is, are) making a pie. 8. Listen! The dog (am, is, are) barking at the door.

**Exercise 6. Put the verbs in brackets in the Present Continuous.**

1. Be quiet! Mum (sleep). 2. What you (do) now? 3. The dog (play) with a ball. 4. I (not sleep) at present. I (listen) to music. 5. The children (drink) milk in the kitchen. 6. He (have) a bath. 7. Why you (laugh)? 8. His dad and brother (cycle) to the shops. 9. We (not travel) in Japan. 10. I (sunbathe) on the beach. 11. She (not watch) TV. 12. They (not swim) in the sea. 13. Sue (stay) at home today. 14. I (watch) a reality show on TV. 15. My favourite team (win)! 16. Someone (swim) in the sea.

### Exercise 7. Use the Present Indefinite or Present Continuous.

1. Vegetarians are people who (don't eat/aren't eating) meat.
2. Look out! My brother (comes/is coming).
3. Some people still think the Sun (goes/is going) round the Earth.
4. What (happens/is happening) in golf if you lose the ball?
5. I (play/am playing) tennis at present.
6. Look! She (wears/is wearing) the same shoes as me.
7. What (are you looking/do you look) at? – A strange bird.
8. I (stay/am staying) with John for a few weeks until my flat is ready.
9. At the moment we (stay/are staying) with Peggy.
10. The boys (are studying/study) still the chassis.

### The Indefinite Pronouns *Some, Any, No*

#### (Неопределенные местоимения *some, any, no*)

1) Неопределенное местоимение **some** употребляется в утвердительных предложениях перед исчисляемыми существительными во множественном числе в значении *некоторые, какие-то, несколько* и перед неисчисляемыми существительными в значении *немного*, например:

I have *some* pens. – У меня есть *несколько* ручек.

I have *some* coffee. – У меня есть *немного* кофе.

2) Неопределенное местоимение **any** употребляется в отрицательных предложениях перед всеми видами существительных в значении *никакой, никакие*, например:

Tom *does not* read *any* book. – Том не читает *никакую* книгу.

Peter *does not* repair *any* engines. – Питер не ремонтирует *никакие* двигатели.

Nick *does not* drink *any* coffee. – Ник не пьет *никакой* кофе.

2.1) Неопределенное местоимение **any** употребляется в вопросительных предложениях перед всеми видами существительных в значении *какой-нибудь, какие-нибудь*, например:

*Did* you see *any* film yesterday? – Ты видел *какой-нибудь* фильм вчера?

*Are* there *any* cars in the street? – Есть *какие-нибудь* автомобили на улице?

*Have* they got *any* tea? – У них есть *какой-нибудь* чай?

2.2) Неопределенное местоимение **any** употребляется в утвердительных предложениях в значении *любой*:

*Any* boy can run fast. – *Любой* мальчик может бегать быстро.

You can read *any* newspapers. – Ты можешь читать *любые* газеты.

3) Неопределенное местоимение **no**, находясь в предложении, делает его отрицательным, глагол-сказуемое употребляется в утвердительной форме, но при этом на русский язык переводится в отрицательной форме. Данное местоимение употребляется пред всеми видами существительных, причем неопределенный артикль перед исчисляемым существительным в единственном числе не употребляется, например:

They have *no* water. У них *нет* воды.

Mike made *no* mistakes. Майк не сделал *ни одной* ошибки.

Sue has got *no pencil*. – У Сью *нет* карандаша.

**Exercise 8. Translate the following sentences into Russian.**

1. There is some tea in the glass, but it is very hot. 2. There is no fresh milk in the fridge. I can't make porridge. 3. Are there any tasty apples in the bag? 4. There isn't any jam on the round plate. 5. There are some bananas on the table. They are yellow. 6. There is no butter on the plate. 7. There is no cheese on the table, but there're some cheese sandwiches. 8. There isn't any sausage on the table. 9. There are some potatoes in the bag. 10. There aren't any books and copybooks on the table, are there?

**Exercise 9. Use *some, any or no*.**

1. What job would you like to have? – ... would be good. 2. There is ... cake left on the table. 3. Have you seen ... interesting film recently? 4. With that card you can visit ... cinema you prefer. 5. Would you like ... sugar in your tea? 6. Could you bring ... napkins, please? 7. It is Friday. I am going out with ... of my friends. 8. You will be able to buy a new shirt in ... shop. 9. My dad is busy now. He's got ... work to do. 10. There are ... people in the park because it is cold. 11. Sue didn't buy ... books.

### **The Modal Verb *Have To***

#### **(Модальный глагол *have to*)**

Модальный глагол **have to** – *должен, придется, вынужден* – выражает *необходимость* совершения действия, вызванную обстоятельствами. По смыслу близок модальному **must** (обязанность или необходимость с точки зрения говорящего).

В этом значении он может употребляться во всех формах и временах, в предложениях любых типов в сочетании с простым инфинитивом с частицей **to**. Он имеет формы времени: **have / has to** – настоящее время, **had to** – прошедшее время, **shall / will have to** – будущее время.

I We You They He She It	have has had shall have will have			to screw the nut. to control the tractor. to adjust the plow.
Do Does Did Shall Will	I we you they he /she /it		have	to check the linkage? to connect the header? to prepare machine?
I We You They He She It	do does did shall will	(not)	have	to leave the field. to clean the windscreen. to build a garage. to repair a manure spreader.

Модальный глагол **have to** употребляется в предложении:

1) для выражения *обязанности, в определенном случае наступающей извне*:

You *have to work hard* if you want to succeed. – Ты *должен работать* много, если хочешь достичь цели;

2) для выражения *обязанности или необходимости, вызванной законом, правилом или властью конкретного человека*:

Children *have to go to school* when they are 7 (*закон*). – Дети должны идти в школу с семи лет.

Mum says that you *have to be at home at 9.00 p.m.* (*приказ матери*). – Мама говорит, что ты *должен быть* дома в девять часов вечера;

3) для выражения *обычной повторяющейся обязанности*:

I *have always to tell* my parents where I am going. – Я всегда *должен говорить* моим родителям, куда я иду;

4) модальный глагол **have to** может выступать в качестве *безличного* глагола:

People all over the world *have to learn* English. – Люди во всем мире *должны изучать* английский язык;

5) для указания на *отсутствие необходимости* в отрицательных предложениях:

You *don't have to go* there. (Вам *не нужно* (нет необходимости) *идти* туда).

**Exercise 10. Translate the following sentences into Russian.**

1. I have to wash the dishes. 2. We don't have to set the table. 3. He will have to make lunch. 4. She had to cut the grass. 5. Do they have to put away their things? 6. Did I have to help my friend? 7. Will she have to wash the dishes? 8. Does he have to cook supper? 9. They have to come to school on Sunday. 10. We shall have to work at night, shan't we? 11. Mary has to go to work by train, doesn't she? 12. Tom and Nick didn't have to get up early, did they? 13. Emily had to prepare the documents for Monday, didn't she?

**Exercise 11. Make the right choice.**

1. My parents *have / has* to wear a uniform at work. 2. I *don't / doesn't* have to wash the dishes after lunch. 3. Lily *didn't / doesn't* have to go shopping yesterday. 4. Jon *will have / has* to go to work next week. 5. We *don't / won't* have to get up early on Sundays. 6. Leo *have / had* to read a lot of books last month. 7. I *had to / has* to take out the garbage on Mondays.

**Exercise 12. Use the right form of the modal verb *have to*.**

1. You (not run). You won't miss the bus. 2. Pete's eyes are very bad, and he (wear) glasses. 3. School starts at eight o'clock, so we (get) up early. 4. My friend gave me some tickets for the concert, so I (not pay)! 5. We (study) maths, because it's compulsory. 6. She's got lots of time. She (not hurry). 7. We (not take) any exams at the end of this term. 8. My mum sometimes (work) at weekends.

**Exercise 13. Use the necessary form of the modal verb *have to*.**

1. She (приходится) buy some food.
2. She (пришлось) buy some food.
3. She (придется) buy some food.
4. Peter and Tom (придется) work hard.
5. Peter and Tom (пришлось) work hard.
6. Peter and Tom (приходится) work hard.

**Exercise 14. Read and memorize the following words and word combinations.**

break down ['breɪk'daʊn] – разлагать

aerate [eə'reɪt] – насыщать кислородом

dry out ['draɪ,aʊt] – высыхать

advance [əd'vɑːns] – достижение

mouldboard plough ['məʊld,bɔːd pləʊ] – отвальный плуг

share [ʃeə] – лемех  
 coultter ['kəʊltə] – предплужник  
 wedge-shaped ['wedʒʃeɪpt] – клинообразный, клиновидный  
 tool [tu:l] – рабочий орган  
 cut into [kʌt 'ɪntə] – врезаться  
 sod [sɒd] – дёрн  
 strip [stri:p] – полоса  
 roll over [rəʊl 'əʊvə] – переворачиваться  
 rest [rest] – лежать  
 hold against [həʊld ə'genst] – упираться  
 next door [ˌnekst'dɔ:] – соседний, прилегающий  
 landside ['lænd,saɪd] – полевая доска  
 furrow ['fʌrəʊ] – борозда  
 reversible plough [rɪ'vɜ:səbl,pləʊ] – оборотный плуг  
 upside down [ˌʌpsaɪd'daʊn] – кверху корпусами  
 back-to-back [ˌbæk-tə'bæk] – задними сторонами друг к другу  
 chisel plough ['tʃɪzəl pləʊ] – чизель-культиватор  
 hardpan ['hɑ:dræpən] – орштейн (*твёрдый подпочвенный пласт*)  
 invert [ɪn'vɜ:t] – переворачивать  
 shank [ʃæŋk] – стойка  
 traction ['trækʃən] – тяговое усилие  
 ridging plough ['rɪdʒɪŋ,pləʊ] – орудие, плуг с двусторонним корпусом  
 ridging [rɪdʒɪŋ] – гребневание  
 face away ['feɪsɪŋ ə'weɪ] – поворачиваться спиной друг к другу  
 mole plough ['məʊl,pləʊ] – плуг для рытья дренажных канав  
 under drainage [ˌʌndə'dreɪnɪdʒ] – закрытый дренаж  
 trench [trentʃ] – канава  
 tip [tɪp] – сошник  
 drain [dreɪn] – дренажная канава  
 three-point linkage ['θri:ɔɪnt 'lɪŋkɪdʒ] – трёхточечное навесное устройство  
 mounted ['maʊntɪd] – навесной  
 semi-mounted [ˌsemi 'maʊntɪd] – полунавесной  
 stump-jump plough ['stʌmpdʒʌmp 'pləʊ] – лесной прыгающий плуг  
 break up ['breɪk ʌp] – распахать  
 weight [weɪt] – груз  
 linkage ['lɪŋkɪdʒ] – рычажный механизм

**Exercise 15. Read and translate the following text.**

1. The primary purpose of ploughing is to turn over the upper layer of the soil, bringing fresh nutrients to the surface. It also buries weeds and the remains of previous crops, allowing them to break down. It also aerates the soil, and allows it to hold moisture better. The ploughed field is typically left to dry out, and is then harrowed before planting. A major advance in plough design is the **mouldboard plough**, which aids the share. When dragged through a field the coulter, a wedge-shaped tool, cuts vertically into the ground just ahead of the share to the front and bottom of the mouldboard. This releases a rectangular strip of sod that is then lifted by the share and carried by the mouldboard up and over. So the strip that is being cut lifts and rolls over (usually to the right) as the plough moves forward. The sod that has been lifted from it rests at about a 45 degree angle in the next-door furrow. The landside mounted at the rear of the plough controls the direction of the plough. Because it is held against the bottom corner of the new furrow being formed.

2. The **reversible plough** has two mouldboard ploughs mounted back-to-back, one turning to the right, the other to the left. While one is working the land, the other is carried upside-down in the air. At the end of each row, the paired ploughs are turned over, so the other can be used. The main function of a **chisel plough** is to loosen and aerate the soils. This plough is used to reduce the effects of compaction and break up hardpan. Unlike many other ploughs the chisel will not invert the soil. The chisel plough is used to run up to a depth of eight to twelve inches (200 to 300 mm). Each of the individual shanks are typically set from nine inches (229 mm) to twelve inches (305 mm) apart. A tractor of sufficient power and good traction is required. When planning to plough with a chisel plough it is important to bear in mind that 10 to 20 horsepower (7.5 to 15 kW) per shank will be required, depending on depth.

3. The **ridging plough** is used for crops, such as potatoes, which are grown buried in ridges of soil using a technique called ridging. A ridging plough has two mouldboards facing away from each other, cutting a deep furrow on each pass, with high ridges on either side. The **mole plough** allows underdrainage to be installed without trenches. It is a very deep plough, with a wedge-shaped tip. When dragged through the ground, it leaves a channel deep under the ground, and this acts as a drain. Modern mole ploughs may also bury a flexible perforated plastic drain pipe as they go, making a more permanent drain. The **stump-jump plough** is designed

to break up the farming land that contains many tree stumps and rocks that is very expensive to remove. The plough uses a moveable weight to hold the ploughshare in position. When a tree stump or a rock is encountered, the ploughshare is thrown upwards to avoid breaking the plough's linkage. The ploughing continues when the weight is returned to the earth after the obstacle is passed.

4. Modern ploughs are usually reversible ploughs, mounted on a tractor via a three-point linkage. These commonly have between two and as many as seven mouldboards – and semi-mounted ploughs can have as many as eighteen mouldboards. The hydraulic system of the tractor is used to lift and reverse the implement, as well as to adjust furrow width and depth. The plough is carried at the proper angle in the soil. This angle and depth can be controlled automatically by modern tractors. A two or three mouldboards-plough can be mounted on the front of the tractor if it is equipped with front three-point linkage.

**Exercise 16. Insert the necessary propositions using the text.**

1. A two or three mouldboards-plough can be mounted ... the front ... the tractor if it is equipped ... front three-point linkage.

2. The chisel plough is used to run up ... a depth ... eight ... twelve inches (200 to 300 mm).

3. The ridging plough is used ... crops, such as potatoes, which are grown buried ... ridges ... soil using a technique called ridging.

4. When dragged ... a field the coulter, a wedge-shaped tool, cuts vertically ... the ground just ahead ... the share ... the front and bottom ... the mouldboard.

**Exercise 17. Translate the words and word combination in brackets into English using the text.**

1. It also buries (сорняки и остатки) of previous crops, allowing them (разлагаться). 2. So the (полоса) that is being cut (поднимается и переворачивается) (usually to the right) (по мере того как плуг движется вперед). 3. Because (он упирается) the bottom corner of the (новой борозды, которая образуется). 4. (Каждая из отдельно взятой стойки) are typically set from nine inches (229 mm) to twelve inches (305 mm) (на расстоянии). 5. (Окучник) has two mouldboards (установленные спиной друг к другу), cutting a deep furrow on each pass, (с высокими гребнями с обеих сторон).

**Exercise 18. Make up word combinations using the text and translate them.**

- |                  |                           |
|------------------|---------------------------|
| 1) advance       | a) of the tractor         |
| 2) drag          | b) many tree stumps       |
| 3) direction     | c) a more permanent drain |
| 4) ploughs       | d) a deep furrow          |
| 5) carried       | e) to bear in mind        |
| 6) important     | f) upside-down in the air |
| 7) cut           | g) mounted back-to-back   |
| 8) make          | h) of the plough          |
| 9) contains      | i) through a field        |
| 10) on the front | j) in plough design       |

**Exercise 19. Translate the following words and word combinations into Russian.**

Purpose of ploughing; upper layer of the soil; bury weeds and remains of crops; cut vertically into the ground; landside at the rear of the plough; mouldboard plough; loosen and aerate the soil; reduce the effects of compaction; modern mole plough; plastic drain pipe; tree stumps and rock; semi-mounted plough; hydraulic system of the tractor; adjust furrow width and depth; mounted on the front of the tractor; front three-point linkage; lift and reverse the implement; tractor of sufficient power.

**Exercise 15. Point out the best answers to the questions.**

- How can a mole plough be used to make a more permanent drain?
  - a mole plough is used to bury trenches to line with concrete slabs;
  - a mole plough can be used to bury underdrainage trenches;
  - a mole plough can be used to set flexible perforated plastic drain pipe.
- What is the purpose of a stump-jump plough?
  - a stump-jump plough is designed to break up stumps and rocks;
  - a stump-jump plough is applied to break up tree stumps only;
  - a stump-jump plough breaks up the farmland containing stumps and rocks.
- What types of ploughs do they produce at present?
  - they usually produce trailed ploughs;
  - they usually produce ploughs semi-mounted on a three-point linkage;
  - they usually produce mounted reversible ploughs.
- What is the use of the tractor's hydraulic system?
  - it allows to lift and reverse the implement, to adjust the furrow depth;
  - it allows to lift and reverse the implement and adjust the furrow width;

c) it allows to lift and reverse the implement, adjust the furrow width and depth.

5. Is it possible to mount a plough on the front of the tractor?

- a) it's possible if the tractor is fitted with a drawbar;
- b) it's possible if the tractor is fitted with a power take-off drive;
- c) it's possible if the tractor is fitted with front three-point linkage.

6. What kind of plough is used for growing potatoes?

- a) usually trailed and reversible ploughs;
- b) usually ploughs having between two and seven mouldboards;
- c) they usually use ridging ploughs.

7. What is the main function of a chisel plough?

- a) the main function of a chisel plough is to invert the soil;
- b) the main function of a chisel plough is to reduce the effects of compaction and break up hardpan;
- c) the function of a plough is to aerate the soil, allow holding moisture better.

**Exercise 16. Translate the following words and word combinations into English using the text.**

Сорняки и остатки предыдущих сельскохозяйственных культур; насыщать кислородом почву; конструкция плуга; непосредственно перед лемехом; угол в 45 градусов; спаренные плуги; снизить воздействие уплотнения; трактор достаточной мощности; выращивать посаженными в гребни; производить глубокую борозду; оставлять канаву глубоко под землей; избежать поломки в рычажном механизме плуга; после того, как препятствие пройдено; плуги имеют от двух до семи отвалов; перед трактора; обычные и оборотные плуги.

**Exercise 17. Translate the following sentences into English.**

1. В современном сельском хозяйстве разные плуги находят свое применение. 2. Самым распространенным видом плуга является отвальный плуг. 3. Оборотный плуг представляет собой важное достижение в производстве современных сельскохозяйственных машин. 4. Чизель-культиватор – это эффективное орудие для снижения воздействия уплотнения почвы. 5. Плуги с двусторонними корпусами широко применяются для выращивания такой сельскохозяйственной культуры, как картофель. 6. Для проведения мелиоративных работ незаменим плуг для рытья дренажных канав.

## Unit 11

### HARROWS

#### Словообразование

Приставка **out-**, прибавляемая к глаголам и иногда к существительным, образует слова, указывающие на превосходящий, чрезмерный результат действия, например:

to weight (взвешивать) – to **outweight** (перевешивать).

**Exercise 1. Form the new words using the prefix out-. Translate them into Russian.**

**Model:** to class – to outclass

To cast, to come, to outpour, to stay, to jump, to eat, to live, to fly.

Приставка **re-**, прибавляемая к глаголам, образуют слова, значения, которых указывают на повтор действия, например:

to consider (рассматривать) – to **reconsider** (пересматривать).

**Exercise 2. Form the new words using the prefix re-. Translate them into Russian.**

**Model:** to import – to reimport

To arrange, to furnish, to read, to sell, to issue, to make, to appoint.

#### The Past Continuous Active

##### (Прошедшее продолженное время в активном залоге)

Прошедшее продолженное время в активном залоге (The Past Continuous Active) является сложной видо-временной формой, которая образуется при помощи вспомогательного глагола **to be** в прошедшем времени и причастия настоящего времени (The Participle I) смыслового глагола.

Утвердительная форма	Отрицательная форма	Вопросительная форма
I was working	I was not working	Was I working?
He was working	He was not working	Was he working?
She was working	She was not working	Was she working?
It was working	It was not working	Was it working?
We were working	We were not working	Were we working?
You were working	You were not working	Were you working?
They were working	They were not working	Were they working?

Прошедшее продолженное время в активном залоге (The Past Continuous Active) используется для выражения действия, происходившего или длившегося в определенный момент в прошлом. Этот момент в прошлом может быть выражен:

1) точным указанием *времени*, например:

*I was reading a book at 5 o'clock yesterday.* – Я читал книгу в пять часов вчера;

2) точным указанием *отрезка времени*, например:

*Victor was working in the garden from 4 to 7 o'clock yesterday.* – Виктор работал в саду с 4 до 7 часов вчера;

3) другим действием, выраженным глаголом в Past Indefinite, например:

*It was raining when I arrived home.* – Шел дождь, когда я приехал домой;

4) параллельным действием, выраженным глаголом в Past Continuous, например:

*While Sally was cooking, Mary was laying the table.* – В то время как Салли готовила пищу, Мэри накрывала на стол;

5) прошедшее продолженное время (Past Continuous Active) используется для описания обстановки, на фоне которой происходили события, например:

*It was a warm summer day. The sun was shining and the birds were singing.* – Это был теплый летний день. Солнце светило и птицы пели.

Прошедшее продолженное время (Past Continuous Active) часто используется в предложениях вместе с такими обстоятельствами времени, как **at 9 o'clock yesterday** – в 9 часов вечера, **all day long** – весь день, **all the time** – все время, **the whole evening** – весь вечер, **from 3 to 7** – от 3 до 7 часов, **this time last month** – в это время в прошлом месяце, **when** – когда, **while** – в то время как, **when he came** – когда он пришел, **as / just as** – когда / в то время как и др.

### **Exercise 3. Translate the following sentences into Russian.**

1. I was going home at 4 o'clock yesterday. 2. Where were you playing basketball from 4 to 6 yesterday? 3. Sue was talking to her friend for forty minutes yesterday. 4. Who was cleaning the floor at 9 on Thursday? 5. Nick was riding his bike all the evening, wasn't he? 6. Sheila and Dora were waiting for a bus while it was raining. 7. Artists were not preparing for the concert all day yesterday. 8. Pupils were not learning the poem for an hour, were they? 9. Dick was painting the walls in the room while Mary was washing the window. 10. Eve and Tony were skating when John joined them. 11. Pat was travelling in Africa this time last month. 12. Polly was working this time last week. 13. Jack came in just as I was going out.

#### Exercise 4. Put the verbs in brackets in the Past Continuous.

1. When I came, Tom (sit) in the armchair and (read) a book.
2. The teacher met Kate when she (go) to a shop.
3. He couldn't speak because he (die) of laugh.
4. What you (do) from 2 to 5 the day before yesterday? I phoned you several times. – I (listen) to music.
5. When I looked out of the window that afternoon, the sun (shine) brightly, the birds (sing) and the wind (blow).
6. When you called me yesterday, I (take) a shower.

#### Exercise 5. Make the right choice.

1. David (*came / was coming*) in when the children (*wrote / were writing*) a test.
2. Mike (*phoned / was phoning*) me when I (*took / was taking*) a shower.
3. Mike (*spoke / was speaking*) to me when his little sister (*took / was taking*) his book out of his schoolbag.
4. We (*met / were meeting*) them when we (*stood / were standing*) at the bus stop.
5. I (*slept / was sleeping*) when his mother (*came / was coming*) back.
6. On Monday Mary (*cooked / was cooking*) lunch when the postman (*brought/ was bringing*) her a letter from her friend.
6. When the teacher (*came / was coming*) into the classroom, the children (*sat / were sitting*) at their desks.

### The Derivative Pronouns of *Some, Any, No*

#### (Производные местоимения от *some, any, no*)

Местоимения *some, any, no* со словами *thing, body* и *one* образуют сложные местоимения: *something, somebody, someone, anything, anybody, anyone, nothing, nobody, no one*.

1) Местоимение *something* употребляется в утвердительных предложениях в качестве подлежащего в значении *что-то*, при этом сказуемое должно употребляться в форме 3-го лица единственного числа:

*Something is* wrong here. – Что-то здесь не так.

1.1) Местоимение *something* употребляется в утвердительных предложениях в качестве дополнения в значении *что-то*:

John saw *something* in the dark. – Джон увидел *что-то* в темноте.

1.2) Местоимение *anything* употребляется в отрицательных предложениях в значении *ничего*, в вопросительных предложениях в значении *что-нибудь* и в утвердительных предложениях в значении *всё*:

I did not see *anything* there. – Я *ничего* там не видел.

*Did you do anything* yesterday? – Ты делал *что-нибудь* вчера?

She cooks *anything* she wants. – Она готовит *все*, что хочет.

2) Местоимение **somebody** употребляется в утвердительных предложениях в качестве подлежащего в значении *кто-то*, при этом сказуемое должно употребляться в форме 3-го лица единственного числа:

*Somebody comes* here. – *Кто-то* идет сюда.

2.1) Местоимение **somebody** употребляется в утвердительных предложениях в качестве дополнения в значении *кто-то*:

Bob saw *somebody* in the forest. – Боб увидел *кого-то* в лесу.

2.2) Местоимение **anybody** употребляется в отрицательных предложениях в значении *никто, никого*, в вопросительных предложениях в значении *кто-нибудь* и в утвердительных предложениях в значении *все*:

He did not phone *anybody* last Saturday. – Он *никому* не звонил в субботу.

*Did you show anybody* that road? – Ты показывал *кому-нибудь* ту дорогу?

Maggie helps *anybody* she is asked to. – Мэгги помогает *всем*, кто ее попросит.

3) Отрицательное местоимение **nothing** употребляется в качестве подлежащего в значении *ничто, ничего*, при этом сказуемое должно употребляться в утвердительной форме в 3-м лице единственного числа, а переводиться на русский язык в отрицательной:

*Nothing changes* here. – *Ничего* не меняется здесь.

3.1) Отрицательное местоимение **nothing** употребляется в предложениях в качестве дополнения в значении *ничто, ничего*. Сказуемое должно употребляться в утвердительной форме, а переводиться на русский язык в отрицательной:

Drake took *nothing* from the table. – Дрейк *ничего* не брал со стола.

3.2) Отрицательное местоимение **nobody** употребляется в качестве подлежащего в значении *никто*, при этом сказуемое должно употребляться в утвердительной форме в 3-м лице единственного числа, а переводиться на русский язык в отрицательной:

*Nobody* likes bad weather. – *Никто* не любит плохую погоду.

3.3) Отрицательное местоимение **nobody** употребляется в предложениях в качестве дополнения в значении *никто*. Сказуемое должно употребляться в утвердительной форме, а переводиться на русский язык в отрицательной:

Bill saw *nobody* there. Билл *никого* не видел там.

### Exercise 6. Translate the following sentences into Russian.

1. They saw something interesting. 2. The engineer gave them some spare parts. 3. Tim will bring something to us. 4. Bruce showed some photos to Mike. 5. Jorge was reading something. 6. He will write somebody a letter. 7. Peter has something in his bag. 8. There are some powerful tractors here. 9. They have some new tasks. 10. We have done nothing to help him. 11. Let me explain something to you. 12. Nobody can give me what I really want. 13. We cannot pretend that nothing has happened. 14. I cannot confirm anything now. 15. I need somebody to talk to.

### Exercise 7. Make the right choice.

1. Is there (*something, anything*) interesting in the magazine? 2. They have (*any, no*) old cars. 3. I don't want (*nothing, anything*) today. 4. "I haven't got (*any, no*) instrument," said a repairman. 5. Did you buy (*any, no*) cheese yesterday? 6. I didn't see (*anybody, nobody*) in the street when I went out. 7. We did not harvest (*no, any*) crop because it was raining all day. 8. There is (*anybody, nobody*) at the bus station. 9. How much did you pay for these flowers? – I didn't pay (*nothing, anything*). 10. Have you found (*anything, nothing*)? 11. Is there (*any, some*) salt on the shelf?

### Exercise 8. Read and memorize the following words and word combinations.

break up ['breɪk ʌp] – разбить  
clod [klɒd] – комок  
lump [lʌmp] – глыба  
fine [faɪn] – мелкий  
finish ['fɪnɪʃ] – поверхность  
tilth [tɪlθ] – пашня  
rigid frame ['rɪdʒɪd freɪm] – жёсткая рама  
tine harrow ['taɪn 'hærəʊ] – зубовая борона  
chain harrow ['tʃeɪn 'hærəʊ] – сетчатая борона  
towing-bar ['təʊɪŋ bɑ:] – жёсткая буксирная балка  
disc harrow ['dɪsk 'hærəʊ] – дисковая борона  
chop up ['tʃɒp ʌp] – измельчить  
cornstalk ['kɔ:nstɔ:k] – стебель кукурузы  
clogging [klɒgɪŋ] – забивание  
concavity [kɒn'kævəti] – вогнутость  
stand in for ['stændɪn'fɔ:] – заменять  
rough country ['rʌf 'kʌntri] – неровная местность  
scalloped-edged ['skɒləpt 'edʒd] – зубчатая кромка  
broadcast ['brɔ:dkɑ:st] – разбросанный

offset ['ɒfset] – несимметричный, офсетный  
side section ['saɪd 'seksʃən] – боковая секция  
invert [ɪn'vɜ:t] – переворачивать  
rotary power harrow ['rəʊt(ə)rɪ 'paʊə 'hærəʊ] – ротационная борона  
bolt [bɔʊlt] – скреплять, скручивать болтами  
rotor head ['rəʊtə hed] – вращающаяся головка  
tine [taɪn] – зуб  
adjacent [ə'dʒeɪsənt] – расположенный рядом  
tune [taɪn] – регулировать положение  
hydraulic linkage [haɪ'drɔ:lɪk 'lɪŋkɪdʒ] – навесное устройство с

гидромеханизмом

levelling ['levəlɪŋ] – выравнивание  
covering seed ['kʌvərɪŋ si:d] – заделка семян  
dung [dʌŋ] – органическое удобрение  
thatch [θætʃ] – высокая трава  
sward [swɔ:d] – газон  
seed drill ['si:d drɪl] – рядовая сеялка  
level off ['levəl ɒf] – выравнивать  
operating costs ['ɒpəreɪtɪŋ kɔsts] – эксплуатационные расходы

### **Exercise 9. Read and translate the following text.**

1. Harrowing is often carried out on fields to level the rough surface left by ploughing operations. The purpose of this activity is to break up clods and lumps of soil and to provide a finer finish, a good tilth that is suitable for seeding and planting operations. Sometimes harrowing may also be used to remove weeds and to cover seed after sowing. There are nominally four types of harrows: disc harrows, tine harrows, chain harrows and power harrows. In modern practice they are tractor-mounted implements, either trailed after the tractor or mounted on the three-point hitch.

2. All four harrow types can be used in one pass to prepare the soil for seeding. It is also common to use any combination of two harrows for a variety of tilling processes. Harrows may be of several types and weights, depending on the intended purpose. They almost always consist of a rigid frame to which discs, teeth, linked chains or other means of cultivation are attached. But tine and chain harrows are often only supported by a rigid towing-bar at the front of the set. **Disc harrows** are used to chop up soil that has been recently plowed to eliminate clumps and loosen the soil if it has been packed. They are also used to chop up old crops, such as cornstalks, to make the land easier to plow and to eliminate clogging in the plowing process. It consists of many iron or steel discs which have slight concavity and are arranged into two or four sections.

3. The so-called giant discs are a specialized kind of disc harrows that can stand in for a plough in very rough country where a mouldboard plough will not handle. Giant discs are scalloped-edged discs operated in a frame that is often weighted with concrete or steel blocks to improve penetration of the cutting edges. This sort of cultivation is normally immediately followed by broadcast fertilization and seeding. When viewed from above, the four sections would appear to form an "X". The discs are also offset so that they are not parallel with the overall direction of the implement. The concavity of the discs as well as their being offset causes them to loosen the soil. Disc harrows are tractor-driven and are raised hydraulically. Some large ones even have side sections which raise up vertically to allow easier road transport or better storage configurations.

4. Rotary **power harrows** are highly recommended from an agronomic point of view: they enable an extremely high crop yield since they do not invert soil layers, but rather help to maintain the soil's natural composition, structure and biodiversity. Rotary power harrows have vertical rotating tines bolted to a series of rotor heads across the full width of the machine. The tines are driven by the power take-off through a gearbox and system of gears attached to the tine rotors. Adjacent tine rotors turn in opposite directions and each rotor is carefully timed with its neighbour to prevent the tines hitting each other. Although it is more common for power harrows to be used on the rear hydraulic linkage, some models can also be attached to a front linkage and driven by a front-end power shaft. This leaves the rear linkage free for a drill, fertilizer distributor or a sprayer.

5. **Chain harrows** are often used for lighter work such as levelling the tilth or covering seed. Chain harrowing can be done on pasture land to spread out dung, and to break up dead material (thatch) in the sward. In sports-ground maintenance a light chain harrowing is often used to level off the ground. Furthermore these implements are most frequently used in combination with all types of seed drill, for soil cultivation and seeding in a single pass to limit operating costs, while preventing excessive soil compaction caused by repeated passes of the tractor.

**Exercise 10. Answer the following questions.**

1. What is the purpose of the harrowing? 2. What do the harrows usually consist of? 3. Are the disc harrows used to bury old crops? 4. What additional components are applied to improve penetration of the cutting edges of giant discs? 5. What causes the disc harrows to loosen the soil while operating? 6. What is the advantage of the rotary power harrows from an agronomic point of view? 7. How are the rotary harrows driven? 8. What is the purpose of chain harrows?

**Exercise 11. Translate the following words and word combinations into English using the text.**

Выравнивать неровную поверхность; разбивать комья и глыбы; удалять сорняки и заделывать семена; навешивать на трехточечную навесную систему; зубовые и сетчатые бороны; раскрошить почву; исключить забивание в процессе вспашки; жесткая рама; пересечённая местность; общее направление движения орудия; поднимать с помощью гидравлической системы; бетонные или стальные блоки; в сочетании со всеми рядовыми сеялками; дорожно-транспортная конфигурация; вертикально вращающиеся зубья; посредством коробки передач; вращение каждого ротора тщательно отрегулировано; передний BOM; чрезмерное уплотнение почвы.

**Exercise 12. Match the synonyms.**

- |                |                 |
|----------------|-----------------|
| 1) suitable    | a) dung         |
| 2) power       | b) remove       |
| 3) modern      | c) general      |
| 4) purpose     | d) tool         |
| 5) cultivation | e) restrict     |
| 6) eliminate   | f) tillage      |
| 7) implement   | g) objective    |
| 8) common      | h) contemporary |
| 9) limit       | i) energy       |
| 10) manure     | j) acceptable   |

**Exercise 13. Translate the following words and word combinations into Russian.**

Ploughing operations; provide a good tilth; seeding and planting operations; tractor-mounted implement; use in one pass to prepare the soil; variety of tilling processes; rigid towing-bar; arranged into four sections; stand in for a plough; weight with steel blocks; broadcast fertilization and seeding; concavity of the discs; side sections; better storage configuration; extremely high crop yield; invert soil layer; structure and biodiversity; vertical rotating tines; full width of the machine; system of gear; turn in opposite direction; prevent the tines hitting each other; rear hydraulic linkage; fertilizer distributor and sprayer; soil cultivation and seeding; limit operating costs; repeated passes of the tractor.

**Exercise 14. Find in B the English equivalents to the Russian words in A.**

<b>A</b>	<b>B</b>
1) ровнять	a) careful; b) level; c) normal.
2) боронование	a) ploughing; b) seeding; c) harrowing.
3) возделывание	a) cultivation; b) fertilization; c) combination.
4) устранять	a) improve; b) specialize; c) eliminate.
5) часто	a) frequently; b) vertically; c) extremely.
6) вогнутость	a) variety; b) biodiversity; c) concavity.
7) хотя	a) furthermore; b) although; c) sometimes.
8) роторный	a) country; b) highly; c) rotary.
9) прикреплённый	a) bolted; b) attached; c) mounted.
10) лучший	a) easier; b) either; c) better.

**Exercise 15. Say whether the following statements are true or false. Correct the false ones using the text.**

1. There are nominally three types of harrows: tine harrows, chain harrows and power harrows. 2. They almost always consist of an articulated frame to which discs, teeth, linked chains or other means of cultivation are attached. 3. Disc harrows consist of many iron or steel discs with slight concavity and are arranged into two or four sections. 4. When viewed from above, the four sections would form letter "W". 5. All power harrows are used on the rear hydraulic linkage only.

## Unit 12

### CROPS PLANTING

#### Словообразование

Приставка **non-**, прибавляемая к существительным и прилагательным, образует слова с противоположным значением, например:

interference (вмешательство) – **non-interference** (невмешательство).

**Exercise 1. Form the new words using the prefix non-. Translate them into Russian.**

**Model:** activated – non-activated

Addictive, adjacent, acceptance, commercial, essential, governmental, adult, aerated, fiction, alcoholic, profit.

Приставка **ultra-**, прибавляемая к прилагательным и существительным, образует слова, значения которых указывают на чрезмерность, необычность или неприемлемость, например:

violet (фиолетовый) – **ultraviolet** (ультрафиолетовый).

**Exercise 2. Form the new words using the prefix *ultra-*. Translate them into Russian.**

**Model:** modern – ultramodern

Short, conservative, fashionable, radical, portable, red, reliable, sonic.

### The Future Continuous Active

#### (Будущее продолженное время в активном залоге)

Будущее продолженное время в активном залоге (The Future Continuous Active) является сложной видо-временной формой, которая образуется при помощи вспомогательных глаголов будущего времени **shall** и **will**, вспомогательного глагола **to be** в форме инфинитива и причастия настоящего времени (The Participle I) смыслового глагола.

Утвердительная форма	Отрицательная форма	Вопросительная форма
<b>I shall be working</b>	<b>I shall not be working</b>	<b>Shall I be working?</b>
<b>We shall be working</b>	<b>We shall not be working</b>	<b>Shall we be working?</b>
<b>He will be working</b>	<b>He will not be working</b>	<b>Will he be working?</b>
<b>She will be working</b>	<b>She will not be working</b>	<b>Will she be working?</b>
<b>It will be working</b>	<b>It will not be working</b>	<b>Will it be working?</b>
<b>You will be working</b>	<b>You will not be working</b>	<b>Will you be working?</b>
<b>They will be working</b>	<b>They will not be working</b>	<b>Will they be working?</b>

Будущее продолженное время в активном залоге (The Future Continuous Active) используем для того, чтобы выразить действие, которое будет происходить в определенный момент в будущем.

1) этот момент может быть выражен точным указанием *времени* или *отрезка времени* в будущем, например:

*I shall be reading a book at 5 o'clock tomorrow.* – Я буду читать книгу в пять часов завтра.

*Tom will be working in the field from 8 to 12 tomorrow.* – Том будет работать в поле с 8 до 12 завтра;

2) будущее продолженное время используется для выражения действий, которые произойдут в результате *подготовительных*

действий, договоренности или естественного течения событий, когда мы уверены, что будет так и никак иначе:

I can ask John to call you. *I'll be seeing* him tomorrow. – Я могу попросить Джона позвонить тебе. Я увижусь с ним завтра.

John and I made a deal. *I will be feeding* his cat next week – Мы с Джоном заключили сделку. Я буду кормить его кота на следующей неделе

In a few minutes we *will be landing* at the International Airport. – Через пять минут мы будем приземляться в международном аэропорту;

3) будущее продолженное время используется для выражения *запланированных действий* с указанием момента или отрезка времени:

This Saturday he *will be writing an abstract*. – В эту субботу он будет писать реферат.

В примере с Future Continuous говорится о том, что всю субботу он будут писать реферат: акцент делается на длительном действии, которое будет совершаться в будущем в определенный отрезок времени, хотя и не будет происходить непрерывно в течение этого отрезка.

*They are moving* to Moscow next Monday. – Они переезжают в Москву в следующий понедельник

При помощи Present Continuous сообщается четкий, уверенный план на ближайшее будущее;

4) будущее продолженное время используется для описания нескольких действий, которые произойдут в будущем:

*I'll be writing* an essay on Sunday, and my mother *will be cleaning* the house. – Я буду писать сочинение в воскресенье, а мама будет убирать дом;

5) для описания действий в будущем, прерванных другим действием в будущем. При этом часто будут использоваться союзы: ***when, while, as soon as, if***, которые обозначают время или условие. Вместо будущего в придаточном предложении следует употреблять Present Indefinite или Present Continuous:

*I will be cooking* dinner when you arrive. – Я буду готовить ужин, когда ты приедешь.

If you come home about 2 p.m., *they will be having* dinner. – Если ты вернешься домой около двух часов дня, они будут ужинать.

While Andrew is reading, *Maggie will be watching* television. – Пока Эндрю будет читать, Мэгги будет смотреть телевизор;

б) будущее продолженное время используется для того, чтобы аккуратно и вежливо узнать у собеседника о планах на ближайшее будущее. При помощи такой формы мы можем поинтересоваться, совпадают ли намерения другого человека с нашими желаниями:

*Will you be going to a new restaurant with us tonight?* – Ты пойдешь с нами в новый ресторан сегодня вечером?

В то время как Future Indefinite звучит как приглашение:

*Will you go to a new restaurant with us tonight?* – Пойдем с нами в новый ресторан сегодня вечером.

Будущее продолженное время (Future Continuous) часто используется в предложениях вместе с такими обстоятельствами времени, как **at 5 o'clock tomorrow** – в 5 часов завтра, **from 5 to 6 o'clock tomorrow** – завтра с 5 до 6 часов, **at that moment** – в тот момент, **this time tomorrow (next week, next month)** – в это время завтра (на следующей неделе, в будущем месяце), **at 9 o'clock on Monday** – в 9 часов в понедельник, **when he comes** – когда он придёт, **while** – в то время как, **the whole day** – весь день, **at midnight** – в полночь.

### **Exercise 3. Translate the following sentences into Russian.**

1. I shall be repairing my bike at 8 o'clock tomorrow. 2. Tom will be returning from school at that moment. 3. My sister will be writing her homework when you come. 4. If the temperature drops, it will be snowing tomorrow morning. 5. Sandra will be washing up at noon. 6. This time next year my friends will be running their own shop. 7. I will be buttering the bread while you are slicing the cucumbers. 8. What time will your parents be arriving tomorrow? 9. They will be dancing and singing the whole evening tomorrow. 10. What will she be doing from morning till night the day after tomorrow? 11. I'll be preparing for my future exams at 7 p.m. tomorrow. 12. Mark will be playing the violin from 2 till 4 o'clock on Sunday. 13. Will you be using your car this evening? – No, you can take it.

### **Exercise 4. Put the verbs in brackets in the Future Continuous Active**

1. I (do) my homework at 6 o'clock tomorrow. 2. When I come home tomorrow, my family (have) supper. 3. When you come to my place tomorrow, I (to read) your book. 4. Don't come to my place tomorrow, please. I (write) a composition the whole evening. 5. What you (do) at 8 o'clock tomorrow? 6. You (watch) a new film the whole evening tomorrow? 7. Next week at this time she (work) on the project. 8. Are you very busy now? I (call) you later. 9. They (run) in the central park from 9

till 11 tomorrow. 10. I (stay) exactly in this hotel next week. 11. This time next Sunday we (fly) to Hawaii. 12. Steven and Peter (pack) his clothes tonight. 13. The old woman (post) some letters. 14. The children (play) golf. 15. The old man (make) a phone call.

### The Construction *To Be Going To*

#### (Оборот *to be going to*)

Оборот **to be going to** образуется глаголом **to go** в форме Present Continuous (**am/is/are going** – *собираться сделать что-либо*) и инфинитивом смыслового глагола с частицей **to**.

Утвердительная форма	Отрицательная форма	Вопросительная форма
I <b>am going to</b> read	I <b>am not going to</b> read	<b>Am I going to</b> read?
He <b>is going to</b> read	He <b>is not going to</b> read	<b>Is he going to</b> read?
She <b>is going to</b> read	She <b>is not going to</b> read	<b>Is she going to</b> read?
It <b>is going to</b> read	It <b>is not going to</b> read	<b>Is it going to</b> read?
We <b>are going to</b> read	We <b>are not going to</b> read	<b>Are we going to</b> read?
You <b>are going to</b> read	You <b>are not going to</b> read	<b>Are you going to</b> read?
They <b>are going to</b> read	They <b>are not going to</b> read	<b>Are they going to</b> read?

Оборот **to be going to** используется для:

1) выражения *намерения совершить действие или уверенности* в его совершении в будущем, например:

I *am going to send* him a telegram. – Я *собираюсь послать* ему телеграмму;

2) для выражения *большой вероятности* совершения действий в будущем, так как их признаки *очевидны* в настоящем, например:

Look at the clouds! *It's going to rain*. – Посмотри на облака! *Пойдет* дождь.

#### **Exercise 5. Use construction *to be going to*.**

1. I ... (move) to Liverpool. 2. Tom ... (fly) to Mars. 3. Victoria ... (marry) at 27. 4. We ... (have) five children. 5. My sons and daughters ... (become) famous actors. 6. They ... (travel) all over the world soon. 7. We ... (eat) in cafes every day. 8. I ... (open) a diving school in York. 9. She (phone) him tomorrow. 10. That tower (collapse) soon. 11. My friends (arrive) today. 12. We (pay) for her. 13. Mum (see) her dentist on Monday.

## The Estimative Quantifiers

### (Количественные местоимения)

Неисчисляемые существительные	Исчисляемые существительные
a lot of – <i>много</i>	
much – <i>много</i>	many – <i>много</i>
a little – <i>немного</i>	a few – <i>несколько</i>
little – <i>мало</i>	few – <i>мало</i>

К количественным местоимениям относятся *much, many, little, few, a little, a few, a lot of*. Местоимения *many, much, few, little* употребляются главным образом в вопросительных и отрицательных предложениях, например:

Have they *many* friends? – У тебя *много* друзей?

There isn't *much* tea in my cup. – В чашке есть *немного* чая.

В случае употребления *many, much, few, little* в утвердительных предложениях они чаще всего определяются словами **very** (очень), **too** (слишком), **so** (так), **rather** (довольно), **how** (как) например:

There are *so many* people here. – Здесь так *много* людей.

There's *too much* coffee for him. – Для него *слишком много* кофе.

She has *very few* friends here. – У нее здесь *очень мало* друзей.

В утвердительных предложениях, как правило, вместо *many* и *much* употребляются *a lot of (lots of)*:

I have got *a lot of* questions. – У меня есть *много* вопросов.

They have *lots of* friends. – У них *много* друзей.

Употребление *few, little, a few, a little* характерно для официальной речи:

Are there *few* or *many* people at concert? – На концерте *мало* или *много* людей?

Give me *a little* time, please. – Дай мне *немного* времени, пожалуйста.

В разговорной речи чаще употребляются сочетания *not much, not many, very few, very little*:

I have *not much* food at home. – У меня дома *немного* еды.

There are *not many* interesting newspapers at present. – В настоящее время *не много* интересных газет.

Tom has *very few* new records at home. – У Тома дома *очень мало* новых пластинок.

Сочетание **how many** – *сколько* – употребляется в вопросительных предложениях перед исчисляемыми существительными. Сочетание **how much** – *сколько* – употребляется перед неисчисляемыми именами существительными.

*How many* lessons have you got today? – *Сколько* уроков у тебя сегодня?

*How much* sugar is there in my tea? – *Сколько* сахара в моем чае?

**Exercise 6. Translate the following sentences into Russian.**

1. We don't have much food in the house. 2. We had very little snow last winter. 3. I need so many apples for the pie. 4. How many people are there in your office? 5. There is too much wine in your glass. 6. She didn't have much luggage. 7. She has a few relatives. 8. Gary had very little time for other things. 9. I have tried diving very many times in my life. 10. John will not have many exams next year. 11. We have a little time before the train leaves. 12. I have a lot of flowers. 13. Did it cost much to repair the car? 14. A lot of people drive too fast. 15. Vicky has very few friends.

**Exercise 7. Make the right choice.**

1. I don't have *many / much* friends. 2. Please, be quick! We have *a little / a few* time. 3. There were *much / a lot of* sunny days but we did not spend *much / many* time on the beach. 4. I will come soon. There is so *little / few* work to do. 5. There are *a few / a little* roses in the garden. 6. There are *a few / a little* windows in my room. 7. Mary has *little / a few* dolls because she likes toy cars. 8. He doesn't read *many / much* books. 9. You took *a little / a few* photos on holiday. 10. There is too *much / many* salt in the soup. 11. There are rather *many / little* sky-scrapers in our city. 12. I've got *a few / a little* albums of this singer. 13. There was very *little / many* rain last autumn. 14. How *many / much* fish are there in the sea?

**Exercise 8. Read and memorize the following words and word combinations.**

planter ['plɑ:ntə] – сажалка, сеялка

drawbar ['drɔ: bɑ:] – сцепное устройство

seeding unit [rəu 'ju:nɪt] – высеваящий аппарат

meter out ['mi:tə aʊt] – дозировать

concept ['kɒnsɛpt] – представление

established [ɪs'tæblɪʃt] – широко известный, общепризнанный

usage ['ju:sɪdʒ] – применение

marker ['mɑ:kə] – маркер

extend out [ɪk'stend aʊt] – простирать(ся), выдвигаться  
 half the width [hɑ:f ðə wɪθ] – наполовину ширины захвата  
 tractor's tread should be centered – должна проходить по центру  
 колеи трактора  
 single ['sɪŋɡl] – отдельный  
 rod [rɒd] – штанга  
 GPS ['dʒi:pi:'es] – глобальная система навигации и определения  
 положения  
 auto-steer system ['ɔ:təustɪə 'sɪstəm] – система автоматического  
 управления  
 precision equipment [prɪ'sɪzən ɪ'kwɪpmənt] – точное измерительное  
 оборудование  
 accurate within ['ækjərət wɪ'ðɪn] – с точностью до  
 hold the seed release [həʊld ðə si:d rɪ'li:s] – прекращать высев семян  
 run overlapping pattern [rʌn,əʊvə'læpɪŋ 'pætən] – двигаться с  
 частичным перекрытием  
 seed bin [si:d bɪn] – семенной ящик  
 fertilizer bin ['fɜ:tlaɪzə bɪn] – туковый бункер  
 plate [pleɪt] – диск высевающего аппарата  
 tooth [tu:θ] – ячейка  
 tooth spacing [tu:θ 'speɪsɪŋ] – интервал между ячейками  
 rate [reɪt] – норма высева  
 drive [draɪv] – привод  
 gear [gɪə] – передача, скорость  
 come about [kʌm ə'baʊt] – появляться, возникать  
 shortfall ['ʃɔ:tfɔ:l] – недостаток  
 ground driven system [graʊnd 'drɪvən 'sɪstəm] – система привода от  
 ходового колеса  
 hydraulic driven system [haɪ'drɔ:lɪk 'drɪvən 'sɪstəm] – гидравлическая  
 система привода  
 on the go [ɒnðə'gəʊ] – быть в движении  
 computer-controlled [kəm'pjʊ:tə kən'trəʊld] – управляемый  
 компьютером  
 brush-belt seeding unit [brʌʃbɛlt si:dɪŋ 'ju:nɪt] – высевающий аппарат  
 щёточного типа с ременным приводом  
 trench [trentʃ] – канавка, углубление  
 rearward trajectory ['rɪəwəd trə'dʒektəri] – направленная назад линия  
 движения  
 ground speed ['graʊnd 'spi:d] – скорость относительно земли

bounce [baʊns] – отскок  
roll [rəʊl] – перекат  
seed tube ['si:d,tju:b] – семяпровод  
bristle ['brɪsl] – щетина  
cradle ['kreɪdl] – бережно удерживать  
conditioner [kən'dɪʃənə] – очиститель  
delivery system [dɪ'lɪvəpɪ 'sɪstɪm] – система подачи  
shed [ʃed] – удалять

**Exercise 9. Read and translate the following text.**

1. A planter is a farm implement, usually towed behind a tractor that sows (plants) seeds in rows throughout a field. It is connected to the tractor with a drawbar or a three-point hitch. Planters lay the seeds down in precise manner along rows. Seeds are distributed through devices called seeding units. The row units are spaced evenly along the planter. Planters vary greatly in size, from 1 row to 48. The space between the row units also vary greatly. Various machines meter out seeds for sowing in rows. They all possess a set of similar concepts in the ways that they work, but there is established usage in which the machines for sowing some crops including maize (corn), beans, and peas are mostly called planters, whereas those that sow cereals are drills.

2. On smaller and older planters, a marker extends out to the side half the width of the planter and creates a line where the tractor's tread should be centered for the next pass in the field. The marker is usually a single harrow disc on a rod on each side of the planter. On larger and more modern planters, GPS navigation and auto-steer systems for the tractor are often used, eliminating the need for the marker. The precision equipment for a computer-controlled planter enables to sow seeds accurate within 2 cm. In an irregularly shaped field, the precision farming equipment will automatically hold the seed release over area already sown when the tractor has to run overlapping pattern to avoid obstacles such as trees.

3. Older planters commonly have a seed bin for each row and a fertilizer bin for two or more rows. In each seed bin plates are installed with a certain number of teeth and tooth spacing according to the type of seed to be sown and the rate at which the seeds are to be sown. The tooth size is just big enough to allow one seed in at a time but not big enough for two. Modern planters often have a large bin for seeds that are distributed to each row with high precision. There are planters with different type of drive: mechanical or hydraulic. In a mechanical drive system the unit works by a small suspended wheel being driven by another which is in contact with the

ground. When the driven wheel begins to turn it then turns a series of gears that determine the quantity of the seed sown.

4. The gears can be changed by the operator in order to change the sown quantity. A hydraulic driven system came about to correct the shortfalls of the ground driven system. Hydraulic driven systems allow the operator to change seed quantity on the go, as well as allowing the computer controller to follow a prepared prescription for an individual field. Many manufactures have already developed planters fitted with brush-belt seeding unit. This technology delivers seed to the bottom of the trench at a rearward trajectory that truly matches the ground speed of the planter. This ensures precise seed placement with no bounce and roll as can be found in some seed tubes whether you have corn or soybeans. Brush bristles gently cradle the seed on all sides with full control to deliver each seed to the bottom of the trench. And a brush belt conditioner at the bottom of the delivery system is self-cleaning to shed any dust from the brush belt.

**Exercise 10. Match the words with their definitions.**

- |                 |   |
|-----------------|---|
| 1) device       | a) the solid surface of the earth.                  |
| 2) planter      | b) a plan which gives ideas to solve the problem.   |
| 3) concept      | c) a thing that directs or regulates something.     |
| 4) marker       | d) a toothed wheel that works with other wheels.    |
| 5) technology   | e) a person who operates equipment or machine.      |
| 6) controller   | f) application of scientific knowledge in industry. |
| 7) gear         | g) an object used to indicate a position or route.  |
| 8) operator     | h) an abstract idea; a general notion.              |
| 9) prescription | i) a machine or person that plants seeds, bulbs.    |
| 10) ground      | j) a piece of mechanical or electronic equipment.   |

**Exercise 11. Translate the expressions into Russian paying attention to the prepositions.**

To tow *behind* a tractor; to plant seeds *in* rows; connected *to* the tractor; to space *along* the planter; to vary greatly *in* size; seeds *for* sowing; a set *of* similar concepts; machines *for* sowing; centered *for* the next pass; disc *on* a rod; systems *for* a tractor; need *for* a marker; equipment *for* a computer-controlled planter; tooth spacing *according to* the type *of* seed; distributed *to* each row; a series *of* gears; to change seed quantity *on* the go.

**Exercise 12. Translate the following words and word combinations into English using the text.**

Сельскохозяйственное орудие; высевать зерно рядами; высевальные агрегаты; разниться значительно по размеру; дозировать

зерно для высева; проделывать линию; следующий проход по полю; на каждой из сторон сеялки; точное измерительное оборудование; сеять зерно с точностью до 2 сантиметров; автоматически прерывать высев; объезжать препятствие; диск высевающего аппарата с зубьями; большой семенной ящик; различный тип привода; система механического привода; система гидравлического привода; менять норму высева на ходу; система привода от ходового колеса; скорость сеялки относительно земли; бережно удерживать зерно.

**Exercise 13. Translate the following words and word combinations into Russian.**

Throughout a field; to connect to the tractor with a drawbar or a three-point hitch; machines meter out seeds for sowing; established usage; next pass in the field; to sow seeds accurate within 2 cm; irregularly shaped field; to run overlapping pattern; big enough to allow one seed; mechanical or hydraulic drive; a certain number of teeth; be in contact with the ground; to change the sown quantity; prescription for an individual field; planters fitted with brush-belt seeding unit; placement with no bounce and roll; to change the sown quantity; shed dust from the brush belt.

**Exercise 14. Choose the right translation for the underlined part of the sentence.**

1. This technology delivers seed to the bottom of the trench at a rearward trajectory that truly matches the ground speed of the planter.

- a) сеет зерно на дно канавки;
- b) обеспечивает подачу зерна на дно канавки.

2. A hydraulic driven system came about to correct the shortfalls of the ground driven system.

- a) система с гидравлическим приводом;
- b) гидравлический привод системы.

3. In a mechanical drive system the unit works by a small suspended wheel being driven by another which is in contact with the ground.

- a) агрегат приводится в действие от колеса, которое получает привод от другого;
- b) устройство работает за счет того, что небольшое подвесное колесо приводится в движение другим колесом

4. Modern planters often have a large bin for seeds that are distributed to each row with high precision.

- a) высеваются по рядам с высокой точностью;
- b) распределяются по каждому ряду с высокой точностью.

5. In an irregularly shaped field, the precision farming equipment will automatically hold the seed release over area already sown when the tractor has to run overlapping pattern to avoid obstacles such as trees.

a) оборудование для точного земледелия автоматически прервет высев семян;

b) точное измерительное оборудование сельскохозяйственного назначения автоматически прекратит выпуск семян.

6. On smaller and older planters, a marker extends out to the side half the width of the planter and creates a line where the tractor's tread should be centered for the next pass in the field.

a) маркер выдвигается в сторону на расстояние, равное половине ширины захвата сеялки;

b) маркер выдвигается в сторону на расстояние, равное ширине захвата сеялки.

## Unit 13

### POTATO PLANTER

#### Словообразование

Приставка *extra-*, прибавляемая к прилагательным, образует слова со значением, указывающим на необычность, чрезвычайность нахождения за пределами известного местоположения, например:

ordinary (обычный) – **extraordinary** (выдающийся);

mural (внутристеночный) – **extramural** (внестеночный).

**Exercise 1. Form the new words using prefix *extra-*. Translate them into Russian.**

**Model:** atmospheric – extra-atmospheric

Mundane, territorial, official, tropical, national, constitutional, spectral, solar, sensory, planetary, nuclear.

Приставка *ex-*, прибавляемая к существительным, образует слова со значением «бывший», например:

minister (министр) – **ex-minister** (экс-министр).

**Exercise 2. Form the new words using prefix *ex-*. Translate them into Russian.**

**Model:** husband – ex-husband

Offender, champion, president, manager, director, wife, soldier, student, officer, chairman, serviceman.

## The Participle II

### (Причастие прошедшего времени)

В английском языке при образовании причастий прошедшего времени (The Participle II) глаголы делятся на две группы: правильные и неправильные.

Правильные глаголы образуют Participle II путем прибавления к форме инфинитива окончания **-ed**. При этом соблюдаются следующие правила орфографии:

а) глаголы, оканчивающиеся в инфинитиве на немое **-e**, теряют эту гласную при прибавлении окончания **-ed**: to live – **lived**;

б) глаголы, оканчивающиеся в инфинитиве на **-y** с предшествующей согласной, меняют **y** на **i**: to study – **studied**.

Если же перед **-y** стоит гласная, то **-y** сохраняется: to play – **played**;

в) если односложный глагол в инфинитиве оканчивается на одну согласную, перед которой стоит одна гласная, то конечная согласная удваивается: to stop – **stopped**;

г) двусложные и многосложные глаголы, оканчивающиеся на одну согласную, перед которой стоит одна гласная, удваивают конечную согласную только в том случае, если ударение падает на последний слог: to equip [ik'wip] – **equipped**.

Если глагол оканчивается на **l**, то **l** удваивается независимо от того, падает ли ударение на последний слог или нет: to cancel – **cancelled**.

Все неправильные глаголы сведены в таблицу, в которой имеются три колонки: первая – инфинитив, вторая – прошедшее простое время, третья – причастие прошедшего времени (**The Participle II**), и все формы неправильных глаголов необходимо заучивать наизусть.

Третья форма неправильного глагола является формой **Participle II**: to begin – began – **begun**.

## The Present Perfect Active

### (Настоящее совершенное время в активном залоге)

Настоящее совершенное время в активном залоге (The Present Perfect Active) образуется с помощью вспомогательного глагола **to have** в Present Indefinite и причастия прошедшего времени (The Participle II) основного глагола.

Утвердительная форма	Отрицательная форма	Вопросительная форма
I <b>have worked</b> We <b>have worked</b> You <b>have worked</b> They <b>have worked</b> He <b>has worked</b> She <b>has worked</b> It <b>has worked</b>	I <b>have not worked</b> We <b>have not worked</b> You <b>have not worked</b> They <b>have not worked</b> He <b>has not worked</b> She <b>has not worked</b> It <b>has not worked</b>	<b>Have I worked?</b> <b>Have we worked?</b> <b>Have you worked?</b> <b>Have they worked?</b> <b>Has he worked?</b> <b>Has she worked?</b> <b>Has it worked?</b>

1. Настоящее совершенное время в активном залоге (The Present Perfect Active) употребляется для выражения действия, которое *состоялось до момента речи* и имеется в виду результат этого действия, его важность на момент речи. Время действия преимущественно не указывается, так как в центре внимания находится результат действия, а не время когда оно произошло, например:

*I have locked the door.* – Я *запер* дверь.

*You have read more books than me.* – Ты *прочел* книг больше, чем я.

2. Настоящее совершенное время употребляется также в предложении с обстоятельствами времени:

а) обозначающими период, который начался в прошлом и длился до момента речи: **up to now, to the present** – к этому времени, **lately** – недавно, в последнее время, **recently** – недавно, в последнее время, **so far** – до сих пор, **since** – с тех пор, **not yet** – еще не:

*Up to now we have read three books.* – К этому времени мы *прочитали* три книги.

*Have you been to the theatre recently?* – Ты *был* в театре *недавно*?

*You have not shown me your room yet.* – Ты *еще* не *показал* мне свою комнату.

*I have done nothing since I left.* – Я *ничего* не *сделал*, *с тех пор* как я уехал.

*Have you heard from your friend lately?* – Ты *получил* новости от своего друга *в последнее время*?

б) обозначающими период, который еще не закончился, например: **today** – сегодня, **this morning** – сегодня утром, **this winter** – этой зимой, **this week (month, year)** – на этой неделе (в этом месяце, в этом году):

*My friends have not arrived today.* – Мои друзья не приехали *сегодня*.

*Have you breakfasted this morning?* – Ты *завтракал* *сегодня утром*?

3. Настоящее совершенное время употребляется в предложениях с наречиями неопределенного времени и частотности: **ever** – *когда-либо*, **never** – *никогда*, **often** – *часто*, **seldom** – *редко*, **already** – *уже*, **just** – *только что*:

We have *just* arrived. – Мы *только что* приехали.

Have you *ever* thought about that? – Ты *когда-либо* думал об этом?

I have *often* heard about that. – Я *часто* слышал об этом.

4. Настоящее совершенное время употребляется для выражения действия или состояния, происходившего с какого-то момента в прошлом вплоть до момента речи. Период продолжительности действия в большинстве случаев обозначается:

а) словосочетанием с предлогом **for** (**for an hour** – *в продолжение часа*, **for ten years** – *на протяжении десяти лет*, **for a long time** – *долгое время*):

I have known Tim *for* 5 years. – Я знаю Тима *уже* пять лет;

б) Слово **since** употребляется в качестве предлога для выражения момента начала действия: **since five o'clock** – *с пяти часов*, **since Monday** – *с понедельника*, в качестве союза: **since I saw him** – *с того момента, как я его видел* и в качестве наречия: **since** – *с тех пор*.

He has worked in a bank *since* winter. – Он работает в банке *с зимы*.

She has held two jobs *since* she graduated. — Она сменила две работы *с тех пор*, как окончила учёбу.

Nobody has seen him *since*. – *С тех пор* его никто не видел.

**Exercise 3. Translate the following sentences into Russian.**

1. We have just returned from the journey. 2. Have you seen your boss today? 3. My Dad has worked as a builder for three years. 4. I have been to Britain several times since I finished school. 5. She has lived in Spain since 1994. 6. I have spent a lot of money since. 7. Ian and Peter have not repaired the radio, have they? 8. I have never driven a car. 9. We have got some letters this week. 10. The dog has just run away. 11. The weather has changed since the sun rose. 12. Has Nelly typed three letters yet? 13. Max has bought a magazine today, hasn't he? 14. Helen has not decorated her room yet. 15. Have your cousins ever been to this cinema?

**Exercise 4. Put the infinitives in brackets in the Present Perfect Active.**

I (be) to their concert twice. Their music is amazing. 2. I (not, see) Jane since the day of her wedding. They (come back) from their honey moon yet? 3. Where is your ID Card? – I (lose) it. They are going to make me another one. 4. Oh, look! It's Sarah. I (not, see) her for a long time. 5. Jane is on holiday. She (go) to Ireland. 6. Are you going to the medical center? –

I (already, be) there today. 7. I am waiting for a very important letter. It (not/to arrive) yet? 8. My father (start) a new job recently. He is very busy now. I (not, talk) to him for a long time already.

**Exercise 5. Complete the sentences using the Present Perfect or Past Indefinite.**

1. I (know) her for six years. 2. I (know) him when I was at high school. 3. He (live) in Paris from 1997 to 2000. 4. He (live) in New York since 2001. 5. Where's Pete? I (not see) him for ages. 6. I (not see) Pete last night. 7. We (be) at primary school from 1993 to 1998. 8. We (be) in this class since September. 9. I (not watch) this video yet. 10. I (not watch) a video at the weekend. 11. I (never/ be) to the USA. I (want) to go there last summer but I couldn't. 12. He (live) in this street all his life. 13. His father (come back) to London last Sunday. 14. Yan (write) a letter to Nick two days ago.

**The Modal Verb *Be To***

**(Модальный глагол *be to*)**

В качестве модального глагола **to be** употребляется в сочетании с инфинитивом с частицей **to** для выражения *необходимости* совершить действие согласно предварительной *договоренности* или *заранее намеченному плану*.

I He/She We You They	am is are (not) was were	to stay there for a few days. to look after the children. to leave in 16 minutes.
Am Is Are Was Were	I he/she we you they	to make a detailed report? to come to dentist's? to start on Monday?

Глагол **to be** в настоящем времени – **am, is, are** – на русский язык переводится *должен, должны* и выражает необходимость совершения действия в *настоящем* или *будущем*:

They *are to begin* this work at once. – Они *должны начать* эту работу немедленно.

Глагол **to be** в прошедшем времени – **was, were** – на русский язык переводится *должен был, должны были* и выражает действие, которое должно было совершиться в прошлом, но неизвестно, совершилось ли действие или не совершилось, это становится ясно из всего содержания речи:

*I was to send the telegram, but I forgot.* – Я должен был послать телеграмму, но я забыл.

**Was, were** в сочетании с инфинитивом в форме **Perfect** выражает действие, которое должно было совершиться в прошлом, но не совершилось:

*I was to have finished my work yesterday.* – Я должен был закончить свою работу вчера.

### **Exercise 6. Translate the following sentences into Russian.**

1. You are to stay at the table until you finish your lunch. 2. They were to have cooked a pizza but the client changed the order. 3. I was to have come (but I failed to do so) 4. The government was to have reduced inflation. 5. The Prime minister is to visit Canada. 6. When was he to be here? 7. We were to meet Mike near the market. 8. You are not to open the box until Christmas. 9. Who was to have done the shopping? 10. What am I to do when the guests come? 11. The train was to leave at five-fifteen. 12. If we are to get there on time, we must start at once. 13. Children are not to leave the school without their teacher's permission.

### **Exercise 7. Read and memorize the following words and word combinations.**

seed piece ['si:di:s] – резанный клубень семенного картофеля  
potato planter [pə'teɪtəu 'plɑ:ntə] – картофелесажалка  
tuber ['tju:bə] – клубень  
planting rate ['plɑ:ntɪŋ reɪt] – норма высева  
range [reɪndʒ] – колебаться в пределах  
mounted ['mauntɪd] – навесной  
trailed ['treɪld] – прицепной  
trail-type ['treɪl taɪp] – прицепной  
cam-actuated jaw [kæm'ækʃueɪtɪd dʒɔ:] – зажим, приводимый в действие кулачком  
picker point ['pɪkə pɔɪnt] – захватная рука с накалывающим пальцем  
picker arm ['pɪkə ɑ:m] – захватная рука  
boot [bu:t] – сошник  
press wheel ['preswi:l] – заделывающий каток  
fertilizer spreading device ['fɜ:taɪzə spreɪdɪŋ dɪ'vaɪs] – устройство для внесения удобрений

spear [spiə] – пронзать, протыкать  
 auger ['ɔ:gə] – шнек  
 agitator ['ædʒɪteɪtə] – смеситель  
 shaker ['ʃeɪkə] – вибратор  
 seed hopper [si:d'hɒpə] – семенной ящик  
 fertilizer hopper ['fɜ:tilaɪzə'hɒpə] – туковая банка  
 cam-actuated [kæm'ækʃueɪtɪd] – приводимый в действие кулачком  
 power takeoff ['paʊə'teɪkɒf] – механизм отбора мощности  
 shaft [ʃɑ:ft] – вал  
 frame [freɪm] – рама  
 axle ['æksl] – ось  
 sturdy ['stɜ:di] – прочный  
 draft [dra:ft] – тяговое усилие  
 slanted ['slɑ:ntɪd] – наклонный  
 feeding device ['fi:diŋ dɪ'vaɪs] – питающее устройство  
 furrow ['fʌrəʊ] – борозда  
 concave [kɒŋ'keɪv] – вогнутый  
 covering disk ['kʌvərɪŋ dɪsk] – заделывающий диск  
 ridge [rɪdʒ] – гребень  
 band [bænd] – полоса, лента  
 belt-type plate feed [brʌʃbɛlt plɛɪtʃi:d] – дисковый питатель с  
 ремненным приводом  
 mechanical plate feed [mɪ'kænɪkəl plɛɪtʃi:d] – дисковый питатель с  
 механическим приводом  
 spot [spɒt] – заметить  
 maneuverable [mə'nu:vərəbl] – маневренный  
 headland ['hedlənd] – поворотная полоса

**Exercise 8. Read and translate the following text.**

1. Potatoes are generally grown from seed pieces cut from the whole tubers, although small potatoes are sometimes planted without cutting. Since planting rates range from 800 to 1500 lb. per acre, large planting machinery units are necessary. Potato planters may be mounted or trailed. They are manufactured in fully automatic versions and plant two to eight rows. Most of them are two-wheel trail-type implements, since the potato tubers and fertilizer present considerable weight. The working parts of the planter are hoppers, picker points or cam-actuated jaws, boots with disc elements without press wheels for covering the furrow and fertilizer spreading devices. Each hopper of the potato planter has an auger, an agitator and shakers that feed the tubers to the seeding unit. The working

parts of the planter are driven by a power takeoff shaft of a tractor. The frame, axle, and wheels must be sturdy and well-designed because of the carried weight and the made draft. Seed and fertilizer hoppers should be placed as low as possible to ease the labour of filling hoppers.

2. Potatoes are planted deep and a wide V-boot is required to open a furrow. When the planter is operating, the agitator and shakers move the tubers along the slanted bottom of the hopper to the feeding device, where they are caught by the jaws of the planter seeding unit and thrown into the boot. One type of the seeding unit has a wheel with cam-actuated jaws which close to grasp a seed piece while passing up through the hopper and then release it into the boot on the opposite side. Another type of the seeding unit has a wheel with cam-actuated picker points which are projected through the picker arm as it passes up through the hopper. Thus spearing a seed piece and carrying it over to the opposite side, where the points are withdrawn, allowing the seed to drop in the furrow made by the boot. Concave covering disks bury the seed pieces to a depth of perhaps 4 inches and leave the ridge over each row.

3. Large amounts of fertilizer are often used with potatoes, and to avoid damage the fertilizer should be placed in bands at each side and slightly below the seed. A pair of disks open furrows for the fertilizer bands. The boot then splits the soil between the bands, thus covering the fertilizer and preventing contact with the tubers. Fertilizer hoppers have belt-type or horizontal mechanical plate feeds capable of applying up to 3,000 lb. per acre. Nowadays the leading farm machinery manufactures consider the possibility of developing self-propelled potato planters. The idea for this machine is that the driver has an excellent view on the planting operation. He can easily spot trouble if something happens. Another great advantage is the perfect weight distribution compared to a tractor mounted unit. The machine can be highly maneuverable while turning, which means that the headlands can be kept to a minimum space.

**Exercise 9. Answer the following questions.**

1. How can the planting rates range if the tubers are sown? 2. What kinds of potato planters are manufactured at present? 3. What are the working parts of the potato planter? 4. Must the frame, axle, and wheels be sturdy and well-designed? Why? 5. What do the agitator and shakers do when the planter is operating? 6. What can you tell about the types of planter seeding unit? 7. How should the fertilizer be placed to avoid the damage to the potatoes? 8. Why do the farm machinery manufactures develop self-propelled potato planters?

**Exercise 10. Translate the following words and word combinations into Russian.**

Large planting machinery; mounted or trailed planters; potato tubers and fertilizer; press wheels for covering the furrow; feed the tubers to the seeding unit; frame; axle; because of the made draft; placed as low as possible; V-boot is required to open a furrow; agitator and shaker; feeding device; planter seeding unit; jaws of seeding unit; pass up through the hopper; project through the picker arm; drop seed in the furrow; bury the seed piece; to a depth of perhaps 4 in; furrow for the fertilizer bands; cover the fertilizer; if something happens; consider the possibility; spot trouble easily; perfect weight distribution; maneuverable while turning.

**Exercise 11. Find in B the English equivalents to the Russian words in A.**

<i>A</i>	<i>B</i>
1) без	a) because of; b) without; c) perhaps.
2) удобрение	a) hopper; b) agitator; c) fertilizer.
3) заделывающий	a) something; b) covering; c) carrying.
4) колебаться	a) range; b) project; c) manufacture.
5) необходимый	a) weight; b) machinery; c) necessary.
6) способный	a) possible; b) capable; c) considerable.
7) механический	a) mechanical; b) machinery; c) machine.
8) сажалка	a) tuber; b) auger; c) planter.
9) вес	a) boot; b) weight; c) depth.
10) борозда	a) furrow; b) ridge; c) row.

**Exercise 12. Translate the following words and word combinations into English using the text.**

Полностью автоматическая модификация; двухколесное орудие; рабочие части сажалки; сошник с дисками; заделывать борозду; смеситель и вибратор; ВОМ трактора; захватывать зажимом; бросать в сошник; закрыть, чтобы захватить семенной картофель; протыкать семенной картофель; извлекать палец; большое количество удобрения; немного ниже семенного картофеля; пара дисков; способный внести до 3,000 фунтов на акр; ведущие производители сельскохозяйственной техники; разработать самоходную картофелесажалку; прекрасный обзор операции посадки; еще одно большое преимущество.

**Exercise 13. Translate the words and word combination in brackets into English using the text.**

1. Since (норма высева) range from 800 to 1500 lb. (на акр), large (агрегаты посадочной техники) are necessary.

2. Most of them are (двухколесные, прицепные орудия) since the potato tubers and fertilizer (представляют значительный вес).

3. (Семенной и туковые бункеры) should be placed as low as possible (облегчить труд по загрузке бункеров).

4. (Вогнутые заделывающие диски) bury the seed pieces to a depth of perhaps 4 in. and (оставляют гребень над каждым из рядов).

5. The boot then (разделять почву между двух лент), thus covering the fertilizer and (предотвращая контакт с клубнями).

**Exercise 14. Translate the expressions into Russian paying attention to the prepositions.**

Potatoes grown *from* seed pieces, planted *without* cutting, plant two *to* eight rows, press wheels *for* covering furrow, hopper *of* the potato planter, drive *by* a power takeoff, move the tubers *along* the slanted bottom, throw *into* the boot, wheel *with* cam-actuated picker points, drop *in* the furrow, furrow made *by* the boot, placed *in* bands *at* each side, furrows *for* the fertilizer bands, contact *with* the tubers, slightly *below* the seed; leave the ridge *over* each row; compared *to* a mounted unit.

**Exercise 15. Insert the necessary words given below in italic.**

1. Another great advantage is the perfect weight distribution compared to a tractor ... . 2. Nowadays the leading farm ... consider the possibility of developing self-propelled potato planters. 3. Potatoes are planted deep and a ... is required to open a furrow. 4. Each hopper of the ... has an auger, an agitator and shakers that feed the tubers to the seeding unit. 5. They are manufactured in fully ... and plant two to eight rows. 6. A pair of disks open furrows for the ... .

*Fertilizer bands; automatic versions; potato planter; wide V-boot; machinery manufactures; mounted unit.*

## Unit 14

### FARM TRACTOR

#### Словообразование

Приставка **pre-**, прибавляемая к глаголам, прилагательным, существительным, образует слова, означающие предшествование чему-нибудь, указывающие на то, что было *перед* или *до* определенных событий, например:

to compute (считать) – to **pre**compute (предварительно вычислять);

historic (исторический) – **pre**historic (доисторический);

payment (платёж) – **pre**payment (предоплата).

**Exercise 1. Form the new words using prefix *pre-*. Translate them into Russian.**

**Model:** fabricate – prefabricate

Condition, analysis, agricultural, define, classical, revolution, elections, aeration, adolescence, war, determine, decode, date, concert.

Приставка ***post-***, прибавляемая к глаголам, прилагательным, существительным, образует слова, означающие что-то, что было *после*, следовало *за* чем-то, например:

date (дата) – **postdate** (более поздняя дата);

classical (классический) – **post-classical** (постклассический);

election (выборы) – **post-election** (после выборов).

**Exercise 2. Form the new words using prefix *post-*. Translate them into Russian.**

**Model:** trigger – posttrigger

War, revolutionary, modern, position, normalize, impressionism, glacial, graduate, entry, damage.

### The Past Perfect Active

#### (Прошедшее совершенное время в активном залоге)

Прошедшее совершенное время в активном залоге (The Past Perfect Active) образуется с помощью вспомогательного глагола **to have** в Past Indefinite и причастия прошедшего времени (The Participle II) основного глагола.

Утвердительная форма	Отрицательная форма	Вопросительная форма
<b>I had worked</b>	<b>I had not worked</b>	<b>Had I worked?</b>
<b>We had worked</b>	<b>We had not worked</b>	<b>Had we worked?</b>
<b>You had worked</b>	<b>You had not worked</b>	<b>Had you worked?</b>
<b>They had worked</b>	<b>They had not worked</b>	<b>Had they worked?</b>
<b>He had worked</b>	<b>He had not worked</b>	<b>Had he worked?</b>
<b>She had worked</b>	<b>She had not worked</b>	<b>Had she worked?</b>
<b>It had worked</b>	<b>It had not worked</b>	<b>Had it worked?</b>

Прошедшее совершенное время в активном залоге (The Past Perfect Active) употребляется:

1) для выражения действия, которое состоялось ранее другого действия в прошлом, выраженного глаголом в Past Indefinite:

I told you I had met her. – Я сказал тебе, что я ее встретил.

We arrived at the cinema at 8.00, but the film had started at 7.30. – Мы приехали в кинотеатр в 8.00, но фильм начался в 7.30;

2) для выражения действий в сложноподчиненных предложениях с союзами **before** – *перед тем как*, **after** – *после того, как*, **when** – *когда*, **as soon as** – *как только*, когда необходимо отметить предшествование одного прошедшего действия другому:

We got to the station at 8.00, *after* the train had left. – Мы добрались до вокзала в 8.00, *после того как* поезд уехал.

When I spoke to the woman I realized I had met her somewhere before. – Когда я поговорил с женщиной, я понял, что я *встречал* ее где-то раньше.

*Before* I entered the Institute, I had left the school. – Перед тем как я поступил в институт, я закончил школу.

*As soon as* she had arrived in my new flat, she began to tidy it up. – Как только она приехала в мою новую квартиру, она начала приводить ее в порядок;

3) для выражения прошедших действий, которые произошли к определенному моменту в прошлом, с помощью предлога **by**; **by 6 o'clock yesterday** – *к шести часам вчера*, **by that time** – *к тому времени*, **by last week (month, year)** – *к прошлой неделе (месяцу, году)*, **by last summer** – *к прошлому лету*:

а) момент может быть выражен временем:

By last Monday we had finished our project. – К *прошлому понедельнику* мы закончили наш проект;

б) момент может быть выражен другим действием:

By the moment we arrived to the seaside, our friends had booked the hotel. – К тому времени, когда мы приехали на море, наши друзья *забронировали* отель.

### Exercise 3. Translate the following sentences into Russian.

1. We had returned home by seven o'clock yesterday evening. 2. Sue had passed all the exams by last Tuesday, hadn't she? 3. Builders hadn't finished the work by eight o'clock yesterday, had they? 4. Your sister had told us the news by the time we arrived home. 5. Had you bought the flowers before the party yesterday? – Yes, we had. 6. Had they played tennis before dinner yesterday? – No, they hadn't. 7. The tourists had arrived before supper yesterday. 8. Whom had Robert seen during his last visit to our town? 9. She hadn't moved to a new house by the end of last week. 10. By what time had your grandparents finished their work in the

garden yesterday? 11. How many letters had she typed by the end of the day? 12. Clara told us that she had never been to the Pyramids before.

**Exercise 4. Put the verbs in brackets in the Past Perfect.**

1. He (maintain) row-crop tractors before he entered the agricultural firm. 2. Ralph said that he (buy) his new cotton pickers and harvesters from a local dealer. 3. The combine operator wanted to work individually because he (repair) the harvester alone. 4. Victor did not know who (produce) the first general-purpose tractor. 5. The engineer was informed that the repair workers (adjust) the last maize planter. 6. Suddenly he remembered that he (not, hitch) the equipment for land reclamation. 7. By the time the tractor reached the field, Tom (test) the computerized control system. 8. Before the mechanic arrived at the Agricultural Show, the organizers (prepare) the tractor stand. 9. The designers (prepare) the drawing before the production process started. 10. Tom (bring) all the spare parts before his assistant repaired the steering mechanism.

**Exercise 5. Put the verbs in brackets in the Past Indefinite or Past Perfect.**

1. Simon (be) very glad to see that his brother (do) the homework. 2. By the time the film (end), she (fall asleep). 3. I really (feel) sick last night because I (eat) too much raw fish. 4. When Richard (arrive) at the station he (find) that his wife just (leave). 5. First he (make) a toast, then he (sit down) and (drink) a white coffee. 6. Kate (walk) home because she (miss) the last bus. 7. By the time we (get) to Brazil, we already (spend) all our money. 8. I (decide) to become a fireman by the time I (be) eight. 9. She (sign) the contract before we (come). 10. I (phone) my son and (say) that Bob (see) him in the pub. 11. It (stop) raining by the time they (go).

**Exercise 6. Choose the correct answers.**

1. I *didn't recognise* / *hadn't recognised* Sue, because she *cut* / *had cut* her hair. 2. I *arrived* / *had arrived* at the shop at 6.45, but it already *closed* / *had already closed*. 3. David *didn't play* / *hadn't played* the match because he *hurt* / *had hurt* his leg. 4. When I *looked* / *had looked* everywhere for my car keys, I *started* / *had started* to panic. 5. When he *had finished* / *finished* his dinner he *sat down* / *had sat down* to watch TV. 6. It was / had been a film I *didn't see* / *hadn't seen* before.

**Exercise 7. Read and memorize the following words and word combinations.**

multi-purpose [ˌmʌltiˈpʊzːpəs] – универсальный

shovelling [ˈʃʌvəlɪŋ] – работа лопатой или экскаватором

hauling [ˈhɔːlɪŋ] – буксировка, трелёвка

power supply ['paʊəsə, plai] – энергоснабжение  
 tilling [tɪlɪŋ] – обработка почвы  
 pushing ['puʃɪŋ] – сталкивание  
 lifting ['lɪftɪŋ] – подъём  
 haul [hɔ:l] – тащить, тянуть  
 gasoline engine ['gæsəli:n 'endʒɪn] – бензиновый двигатель  
 tricycle type tractor ['traɪsɪkl, taɪp 'træktə] – трёхколёсный трактор  
 closely-placed ['kləʊsli, pleɪst] – близко расположенный  
 in vogue [ɪn'vəʊg] – в моде  
 four-wheel tractor ['fɔ:wi:l 'træktə] – четырёхколесный трактор  
 eight-wheel drive unit ['eɪtwi:l draɪv 'ju:nɪt] – устройство привода на  
 восемь колес  
 caterpillar track ['kætəpɪlə, træk] – гусеничный ход  
 articulated tractor [ɑ:'tɪkjələreɪtɪd 'træktə] – трактор с шарнирно-  
 сочленённой рамой  
 driving wheel ['draɪvɪŋ, wi:l] – ведущее колесо  
 steerable wheel ['stiərəbl, wi:l] – направляющее колесо  
 steering wheel ['stiəriŋ, wi:l] – руль, рулевое колесо  
 auto-steer system [ɔ:'təʊ'stiə 'sɪstəm] – система автоматического  
 управления  
 propeller shaft [prə'pelə ʃɑ:ft] – карданный вал  
 gearbox ['gɪəbɒks] – коробка передач  
 differential gear [,dɪfə'rentʃəl gɪə] – дифференциал  
 oversize [ˌəʊvə'saɪz] – что-л. имеющее большой размер  
 high clearance [haɪ'kliərəns] – высокий клиренс  
 tapering lug ['teɪpəriŋ lʌg] – конусообразный грунтозацеп  
 crawler ['krɔ:lə] – гусеничный трактор  
 caterpillar ['kætəpɪlə] – гусеничный трактор  
 track-laying [træk'leɪŋ] – гусеничный  
 continuous track [kən'tɪnjuəs, træk] – гусеничная лента  
 plate [pleɪt] – плита, пластина  
 pivot ['pɪvət] – соединять стержнем  
 encircle [ɪn'sɜ:kl] – охватывать по окружности  
 adhesion [əd'hi:zən] – сцепление  
 grip [grɪp] – сцепление  
 row-stop tractor ['rəʊkrɒp 'træktə] – пропашной трактор  
 standard tractor ['stændəd 'træktə] – сельскохозяйственный трактор  
 обычного типа  
 high-clearance tractor [ˌhaɪ'kliərəns 'træktə] – высококлиренсный  
 трактор

utility tractor [ju:'tɪlətɪ 'træktə] – трактор общего назначения  
 tread [tred] – ширина хода, колея  
 general purpose tractor ['dʒenərəl 'pɜ:pəs 'træktə] – универсальный трактор  
 wheatland farm tractor ['wi:tlənd fɑ:m 'træktə] – сельскохозяйственный трактор  
 gardening ['gɑ:dənɪŋ] – садоводство  
 landscaping ['lænskeɪpɪŋ] – благоустройство и озеленение  
 excavation [ˌɛkskə'veɪʃən] – выемка грунта  
 turf tire [ˌtɜ:f 'taɪə] – дерновая шина  
 agricultural tire [ˌægrɪ'kʌltʃərəl 'taɪə] – шина для сельскохозяйственной техники  
 hitch [hɪtʃ] – прицеплять  
 drawbar ['drɔ:ba:] – сцепная серьга, брус автосцепки  
 two-point hitch ['tu:pɔɪnt hɪtʃ] – двухточечное навесное устройство  
 three-point hitch ['θri:pɔɪnt hɪtʃ] – трехточечное навесное устройство

**Exercise 8. Read and translate the following text.**

1. A farm tractor is a distinctive, multipurpose farm vehicle. It is perhaps the most essential of all farm machinery. Farm tractors are used to carry out different agricultural tasks. These include plowing, shovelling, tilling, disking, harrowing, planting, hauling, pushing, lifting, transporting and providing power supply. The first tractors, in the sense of powered traction vehicles, started as stationary and portable steam engines operated on farms in the late 19th century and used to haul plows by the 1890s. In 1892 an Iowa blacksmith, John Froehlich, built the first farm vehicle powered by a gasoline engine. The tricycle type tractors came next, with either a single front wheel or closely-placed double front wheels. The tractor manufacturer Farmall was famous for its bright red, tricycle design machines. These designs were in vogue from the 1930s to the 1970s. Four-wheel tractors, however, were easier and safer to handle. They also proved to be more suitable to meet the requirements of mechanized farming.

2. Modern tractors may have eight-wheel drive units, caterpillar tracks, or articulated and non-articulated designs. They may have electrical or computer controls and are capable of a multitude of different functions. The driving wheels are on an axle and the steerable wheels are below the engine compartment. The seat and the steering wheel are set in the center of the four wheels, usually inside of the driving cab. Many modern farm tractors are fitted with GPS devices, auto-steer systems and other automated features. Most tractors are powered by internal-combustion engines running

on diesel fuel. Power is transmitted through a propeller shaft to a gearbox having 8 or 10 speeds and through the differential gear to the two large rear-drive wheels. The engine may be from about 12 to 120 horsepower or more. Until 1932, when oversize pneumatic rubber tires with high clearance were introduced, wheel-type farm tractors had steel tires with high, tapering lugs to engage the ground and provide traction.

3. Crawler, caterpillar or track-laying tractors run on two continuous tracks consisting of a number of plates pivoted together and joined to form a pair of endless chains, each encircling two wheels on either side of the vehicle. These tractors provide better adhesion and lower ground pressure than the wheeled tractors do. Crawler tractors may be used on heavy, sticky soil or on very light soil that provides poor grip for a tire. Different kinds of tractors have been developed for different farming requirements. These include row-crop tractors, standard tractors, high-clearance tractors and utility tractors. They come in different sizes, ranging from small to large. The row-crop and high-clearance tractors have adjustable treads that allow careful navigation through crop rows. These vehicles can make their way through rows of tomatoes, maize, wheat or other crops without damaging the plants. The high-clearance types have increased ground clearance and suited for farm work with vegetables or high growing crops.

4. The wheatland farm tractors are used for heavy field work on extensive tracts of farmland. The utility tractors are usually smaller than general purpose vehicles. These can be used for non-farming activities like gardening, landscaping and excavation. Such tractors are fitted with turf tires that are softer than the regular agricultural tires. Farm equipment and implements are usually hitched to the back end of the tractor. The hitching system may be a draw bar, a two-point hitch or a three-point hitch. The three-point hitching system is the standard feature in most modern tractors.

**Exercise 9. Answer the following questions.**

1. What agricultural tasks are farm tractors used to carry out? 2. When was the first tractor powered by a gasoline engine built? 3. What kinds of wheeled tractors can you speak about? 4. What devices are many modern farm tractors fitted with? 5. How is the power from the engine to the wheels transmitted? 6. What is the advantage of track-laying tractors over the wheeled? 7. What farming requirements must various tractors meet? 8. Can utility tractors be used for non-farming activities? 9. What hitching systems are farm tractors supplied with?

**Exercise 10. Translate the expressions into Russian paying attention to the prepositions.**

The most essential *of* all farm machinery; *in* the late 19th century; portable engines operated *on* farms; be *in* vogue; vehicle powered *by* an engine; machines famous *for* tricycle design; requirements *of* mechanized farming; capable *of* a multitude of functions; wheels are *below* the engine; be set *in* the center; inside *of* the cab; powered by an internal-combustion engine; run *on* diesel fuel; rubber tires *with* high clearance; run *on* two continuous tracks; a number *of* plates; range from small to large; rows *of* tomatoes; tractors used *for* heavy field; standard feature *in* modern tractors.

**Exercise 11. Translate the following word chains.**

Farm vehicle; farm machinery; farm tractors; caterpillar tracks; traction vehicle; steam engine; gasoline engine; mechanized farming; front wheels; tractor manufacturer; engine compartment; four-wheel tractor; eight-wheel drive units; rear-drive wheels; rubber tires; propeller shaft; wheel-type farm tractor; track-laying tractor; ground pressure; crawler tractor; high-clearance tractor; row-crop tractor; utility tractor; two-point hitch; wheatland tractor.

**Exercise 12. Choose the words that have the following definitions.**

1. A thing used for transporting people or goods, especially on land.  
a) plane;      b) harvester;      c) vehicle.
2. Taking or carrying (people or goods) from one place to another by means of a vehicle.  
a) driving;      b) transporting;      c) providing.
3. Refined petroleum used as fuel for internal combustion engines.  
a) gasoline;      b) combustion;      c) adhesion.
4. A set of gears with its casing, esp. in a motor vehicle.  
a) horsepower;      b) propeller;      c) gearbox.
5. A set of gears allowing a vehicle's driven wheels to revolve at different speeds in cornering  
a) manufacturer;      b) differential;      c) equipment.
6. Containing or operated by air or gas under pressure.  
a) crawler;      b) regular;      c) pneumatic.
7. A farm vehicle that is used to pull farm machinery and to provide the energy.  
a) pivot;      b) machine;      c) tractor.
8. A machine with moving parts that converts power into motion  
a) engine;      b) caterpillar;      c) blacksmith.
9. The distance between the lowest point of the vehicle and the road.  
a) implement;      b) equipment;      c) clearance.

**Exercise 13. Translate the following words and word combinations into English using the text.**

Выполнять сельскохозяйственные работы; трелёвка; боронование; вспашка; тяговое транспортное средство с механическим приводом; стационарный паровой двигатель, тянуть плуг; проще и безопаснее в применении; производитель тракторов; рулевое колесо; множество различных функций; ведущие колеса и оси; отвечать требованиям механизированного земледелия; автоматическая функция; привод передаётся через карданный вал; пневматические резиновые шины большого размера; сцепляться с грунтом; обеспечивать лучшее сцепление; регулируемая ширина колеи.

**Unit 15**

**TYPES OF TRACTORS**

**Словообразование**

Суффикс **-ful**, прибавляемый к существительным, а иногда к глаголам, образует прилагательные, указывающее характеристику предмета или на наполненность емкостей:

help (помощь) – **helpful** (полезный);

to forget (забывать) – **forgetful** (забывчивый);

spoon (ложка) – **spoonful** (полная ложка).

**Exercise 1. Form the new words using prefix -ful. Translate them into Russian.**

**Model:** beauty – beautiful

Master, watch, fear, pain, basket, pot, spade, glass, hand, room, boat.

Суффикс **-ing**, прибавляемый к существительным и глаголам, образует существительные, обозначающие процесс или материал:

floor (пол) – **flooring** (половые доски);

to translate (переводить) – **translating** (перевод).

**Exercise 2. Form the new words using prefix -ing. Translate them into Russian.**

**Model:** to open – opening

To spell, to brush, to draw, to walk, to hear, to cut, to land, to feed, carpet, roof, mat.

## The Future Perfect Active

### (Будущее совершенное время в активном залоге)

Будущее совершенное время в активном залоге (The Future Perfect Active) образуется при помощи вспомогательных глаголов будущего времени **shall/will**, вспомогательного глагола **to have** в Present Indefinite и причастия прошедшего времени (The Participle II) основного глагола.

Утвердительная форма	Отрицательная форма	Вопросительная форма
<p>I <b>shall have worked</b>                      We <b>shall have worked</b>                      You <b>will have worked</b>                      They <b>will have worked</b>                      He <b>will have worked</b>                      She <b>will have worked</b>                      It <b>will have worked</b></p>	<p>I <b>shall not have worked</b>                      We <b>shall not have worked</b>                      You <b>will not have worked</b>                      They <b>will not have worked</b>                      He <b>will not have worked</b>                      She <b>will not have worked</b>                      It <b>will not have worked</b></p>	<p><b>Shall I have worked</b>  <b>Shall we have worked</b>  <b>Will You have worked</b>  <b>Will they have worked</b>  <b>Will he have worked</b>  <b>Will she have worked</b>  <b>Will it have worked</b></p>

Будущее совершенное время в активном залоге (The Future Perfect Active) употребляется для выражения будущего действия, которое завершится до определенного момента в будущем времени. Этот момент может быть указан:

1) такими обстоятельствами, которые указывают на время, к которому действие будет завершено, например: **by 2020** – к 2020 году, **by that time** – к тому времени, **by the end of the week** – к концу недели, **by Monday** – к понедельнику, **by then** – к тому времени, **by tomorrow** – к завтрашнему дню, **until/till** – перед/до (употребляются исключительно в отрицаниях).

By the end of the week I *shall have given up* smoking. – К концу недели я брошу курить.

We *shall have left* this countryside by the end of the year. – Мы уедем из этой деревни к концу года.

By Saturday she *'ll have finished* her project. – К субботе она закончит свой проект.

She *will not have spoken* to him until he calls. – Она не будет разговаривать с ним до тех пор, пока он не позвонит;

2) другим будущим действием в придаточном предложении времени, выраженным глаголом в Present Indefinite. Предполагается, что к началу этого действия действие в главном предложении, выраженное глаголом в Future Perfect, уже закончится. Как правило, с такими союзами, как **before** – до того как, **when** – когда, **by the time** – к тому времени, когда:

*He'll have left* our town before I arrive at the station. – Он *уедет* из нашего города до того, как я приеду на вокзал.

*We'll have repaired* this fridge when you return. – Мы *отремонтируем* этот холодильник, когда ты вернёшься.

By the time you *come* home, Tom *will have prepared* dinner. – К тому времени, когда ты придешь домой, Том *приготовит* обед.

**Exercise 3. Translate the following sentences.**

1. By the time I'm 25 years old I will have opened a Ballet School.
2. By the next year I'll have started learning French.
3. By 2050 I will have travelled the world.
4. By the time I get married I will have graduated from the university.
5. By the end of this year I will have learnt figure-skating.
6. By December I will have visited my aunt in Australia.
7. By the time I'm 40 years old I will have had three children.
8. By next summer I will have finished my book of poems.
9. By next month my friends and I will have visited the Hermitage.

**Exercise 4. Put the infinitives in brackets in the Future Perfect.**

1. I (be) a Londoner for five and a half years by next September.
2. By Tuesday Jill (finish) these novels by O'Henry.
3. Next year is Fred and Kate's 10th wedding anniversary. They (be) happily married for ten years.
4. Molly thinks the film (start) by the time she gets to Fred's.
5. They (to finish) the plans by then.
6. Before his holiday Tom (spend) all his money.
7. The train (leave) by the time the couple get to the station.
8. I (cook) dinner by then.
9. I (finish) my chemistry homework before Jillian comes home.
10. Fernando (have) his operation by August and should be much fitter.
11. Before Lisa arrives, I (finish) dinner.
12. Johnny (translate) this document by 7pm o'clock this afternoon.
13. Helen (make) this awesome doll by her daughter's birthday.
14. Steven (not/learn) his lesson by tomorrow.
15. The librarian (register) all the books by the end of the week.
16. Our plant (fulfil) its plan by the 5th of December.
17. By the end of the month the delegation (come).
18. Do please hurry or they (close) the door by the time we get there.
19. The director (arrive) at his plant by the end of the month.

## The Modal Verb May

### Модальный глагол may

Модальный глагол **may** (*мочь, иметь разрешение; возможно, может быть*) имеет основное значение вероятности или разрешения и используется в двух формах: **may** – для использования в настоящем времени и **might** – в прошедшем времени. Для выражения действия в будущем времени вместо глагола **may** используется эквивалент **shall/will be allowed to**.

I We He / She It You They	may may not  might might not	connect bars by using knuckle joint. lubricate the mechanism. apply bolts fasten this unit. disassemble and assemble this gear box.		
May Might	I we he / she it you they	rivet these three plates? use gears to transmit power to shafts? go to the automobile production shop? start the engine?		
I We He / She It You They	shall  will	(not)	be allowed	to leave tractor unrepaired. to clean the grain elevator. to repair an engine. to replace the piston.
Shall  Will	I we he / she it you they	be	allowed	to repair the gearbox? to prepare the beet harvester? to adjust the plough? to oil the wheels?

Модальный глагол **may** чаще всего используется для выражения:

1) *возможности, предположения*, например:

John *may be* at home, or perhaps at work. – Джон, *может быть*, дома или, возможно, на работе.

**Might** выражает большую степень неуверенности, например:

The weather *might be* better tomorrow. Погода *может быть* лучше завтра, *но вряд ли*;

2) *разрешения*, например:

Johnny, you *may leave* the table when you have finished your dinner. – Ты *сможешь встать* из-за стола только тогда, когда закончишь обедать;

3) *просьбы* для получения разрешения, например:

*May* I use your bathroom? – *Могу* я воспользоваться твоей ванной?

4) *запрета*, например:

You *may not talk* loudly in libraries. – Нельзя громко разговаривать в библиотеках.

5) модальный глагол **may** в сочетании с инфинитивом в форме Perfect выражает *предположение*, относящееся к прошлому и переводится на русский язык посредством *может быть*, *возможно*, а инфинитив в форме Perfect – глаголом в прошедшем времени:

He *may have left* Gomel. – Он, *может быть (возможно)*, уехать из Гомеля.

Tom *may not have come* yet. – Том, *может быть (возможно)*, еще не приехал.

**Exercise 5. Translate the following sentences into Russian paying attention to the verb *may*.**

1. May I invite Nick to our house? 2. It stopped raining, and mother told us that we might go out. 3. They may travel by sea. It may be cheaper, but it takes a long time. 4. May I shut the door? 5. You may not go to the wood alone, you don't know the way. 6. You might be more polite. 7. He who falls today, may rise tomorrow. 8. Fortune may very well smile upon you one day. 9. I told him that he might go home. 10. John may have gone to the cinema. 11. It might rain, so don't forget your umbrella. 12. Don't drink this water! It might be poisonous. 13. You won't be allowed to talk during your exam tomorrow. 14. Mary may not have bought the dress. 15. It's ten o'clock. They might have arrived now.

**Exercise 6. Read and memorize the following words and word combinations.**

pulling ['pulɪŋ] – волочение

trailer ['treɪlə] – телега

power ['paʊə] – приводить в действие

tread width ['tred wɪθ] – ширина хода, колея

durability [ˌdʒʊərə'bɪlətɪ] – износостойчивость

engineering task [ˌendʒɪ'nɪərɪŋ tɑːsk] – задача по инженерному обеспечению

engineering tool [ˌendʒɪ'nɪərɪŋ tuːl] – техническое средство

dozer blade [ˈdɔʊzə bleɪd] – отвал бульдозера

bucket [ˈbʌkɪt] – ковш

hoe [həʊ] – скрепер

ripper [ˈrɪpə] – рыхлитель

engineering tractor [ˌendʒɪ'nɪərɪŋ ˈtræktə] – инженерный трактор

hoe-loader [həʊ'ləʊdə] – экскаватор типа «обратная лопата»

assembly [ə'sembli] – устройство

backhoe [ˈbækhəʊ] – обратная лопата

demolition [ˌdɛmə'liʃən] – разборка, снос

retractable [rɪ'træktəbl̩] – убираемый, отводной

compact utility tractor [ˌkəm'pækt juː'tɪlɪtɪ 'træktə] – малогабаритный трактор общего назначения

horsepower [ˈhɔːs paʊə] – лошадиная сила

mid-mounted [mɪd'maʊntɪd] – зд. расположенный впереди

snow blower [snəʊ 'bləʊə] – роторный снегоочиститель

rotary broom [ˈrəʊtəri brʊːm] – вращающаяся щётка

tailor [ˈteɪlə] – разрабатывать с учетом

truck farming [trʌk 'fɑːmɪŋ] – товарное овощеводство

soon after [suːn 'ɑːftə] – вскоре

round [raʊnd] – цикл

belt-drive ['beltdraɪv] – ремённый привод

transaxle [træns'æksəl] – ведущий мост в блоке с коробкой передач

feature ['fiːtʃə] – техническая характеристика, параметр

with impunity [ɪm'pjʊːnəti] – без ущерба

snagging ['snæɡɪŋ] – облом

underslung [ˌʌndə'slʌŋ] – подвешенный ниже оси

exhaust pipe [ɪg'zɔːst paɪp] – выхлопная труба

cowling ['kaʊlɪŋ] – капот двигателя

fairing ['feərɪŋ] – обтекатель

deflect [dɪ'flekt] – отклонять

slide off [slaɪd ɒf] – скользить

catch [kæʃ] – захватывать

sheetmetal [ʃiːt 'metəl] – листовый металл

spark arrestor [spɑːk ə'restə] – искрогаситель

exhaust tip [ɪg'zɔːst tɪp] – насадка выхлопной трубы

wire cage ['waɪə keɪdʒ] – проволочный каркас

snag [snæɡ] – сук, сучок (*на дереве*)

### **Exercise 7. Read and translate the following text.**

1. The **farm tractor** is used for pulling agricultural machinery or trailers, for plowing, tilling, disking, harrowing, planting, and similar tasks. A farm tractor used to power a pump for irrigating a plot of land. A variety of farm tractors have been developed for particular uses. These include row crop tractors with adjustable tread width to allow the tractor to pass down rows of corn, tomatoes or other crops without crushing the plants. Standard tractors with fixed wheels and a lower center of gravity are designed for plowing and other heavy field work. And high-clearance tractors with adjustable tread and increased ground clearance are often used in the cultivation of cotton and other high-growing row crop. The durability and engine power of tractors made them very suitable for engineering tasks. Tractors can be fitted with engineering tools such as dozer blades, buckets, hoes, rippers, etc. The most common attachments for the front of a tractor are dozer blades or buckets. When attached to engineering tools, the tractor is called an **engineering tractor**.

2. The most common variation of the classic tractor is a **hoe-loader**. It has a loader assembly on the front and a backhoe on the back. Backhoe-loaders can be used for a variety of tasks: construction, small demolitions, digging holes, loading trucks, breaking asphalt and paving roads. Some buckets have retractable bottoms, enabling them to empty their loads more quickly and efficiently. The **compact utility tractor** (CUT) is a smaller version of an agricultural tractor, but designed primarily for landscaping rather than for planting and harvesting. Typical CUTs range from 20 to 50 horsepower with available power take-off (PTO) horsepower ranging from 15 to 45 hp. CUTs are often equipped with both a mid-mounted and a standard rear PTO. The mid-mount PTO shaft typically rotates at/near 2000 rpm and is used to power front-mounted snow blowers or front-mounted rotary brooms.

3. The **row-crop tractor** is tailored to the growing of crops grown in rows, as in truck farming and to cultivating. Cultivating takes place soon after the crop plants have sprouted until they are harvested. Several rounds of cultivating may be done over the season. A row-crop tractor essentially brings together a farm tractor and its cultivator into one machine. **Garden tractors** are small, light tractors designed for use in domestic gardens and small estates for cutting grass, snow removal. They are powered by horizontal-crankshaft engines with a belt-drive to transaxle. The engines are generally a one- or two-cylinder petrol engines, although diesel engine models are also available. **Orchard tractors** tailored to use in fruit orchards

typically have features suited to passing under tree branches with impunity. These include a lower overall profile; reduced tree-branch snagging risk (via underslung exhaust pipes, and large sheetmetal cowlings and fairings that allow branches to deflect and slide off rather than catch). Spark arrestors on the exhaust tips and often wire cages protect the operator from snags. And the whole operation is carried out without difficulties.

**Exercise 8. Translate the expressions into Russian paying attention to the prepositions.**

Tractor is used *for* pulling; plot *of* land; a variety *of* farm tractors; tractors *with* adjustable tread; tractors *with* fixed wheels; center *of* gravity; designed *for* plowing; suitable *for* engineering tasks; version *of* tractor; range *from* 20 to 50 horsepower; rotates *at/near* 2000 rpm.; tailor *to* the growing *of* crops; belt-drive *to* transaxle; pass *under* tree branches *with* impunity; arrestors on the exhaust tips.

**Exercise 9. Match the beginning of each sentence with its end.**

1. A farm tractor used to power ... .
  2. When attached to engineering tools, ... .
  3. It has a loader assembly on the front ... .
  4. Cultivating takes place soon after ... .
  5. They are powered by horizontal-crankshaft ... .
  6. Some buckets have retractable bottoms, enabling... .
  7. Spark arrestors on the exhaust tips ... .
- a) ... them to empty their loads more quickly and efficiently.
  - b) ... the crop plants have sprouted until they are harvested.
  - c) ... engines with a belt-drive to transaxle.
  - d) ... a pump for irrigating a plot of land.
  - e) ... and often wire cages protect the operator from snags.
  - f) ... the tractor is called an engineering tractor.
  - g) ... and a backhoe on the back.

**Exercise 10. Translate the following words and word combinations into Russian.**

Pull agricultural machinery; power a pump for irrigation; tractors for particular uses; row crop tractor; adjustable tread width; pass down rows of crops; lower center of gravity; plowing and heavy field work; high-growing row crop; engine power of tractors; tractors fitted with engineering tool; the most common front attachments; most common variation; loader assembly on the front; designed for planting and harvesting; available power take-off; mid-mount PTO shaft; rotates at/near 2000 rpm; several rounds of cultivating; light tractors for use in domestic gardens.

**Exercise 11. Translate the words and word combination in brackets into English.**

1. The (пропашной трактор) is tailored to the growing of (культуры, выращиваемые рядами), as in truck farming and to cultivating. 2. Garden tractors are (небольшие, легкие тракторы) designed for use in domestic (сады и небольшие усадьбы) for cutting grass, (очистка снега). 3. CUTs (часто оснащаются) with both a mid-mounted and a (серийный задний ВОМ). 4. (Тракторы могут оснащаться) with (техническими средствами) such as dozer blades, buckets, (скреперы, рыхлители).

**Exercise 12. Translate the following words and word combinations into English using the text.**

Сельскохозяйственный трактор; орошение участка земли; разрабатывать для определенных целей; регулируемая ширина колеи; проходить по рядам кукурузы; не раздавливая растения; тяжелая полевая работа; износоустойчивость трактора; отвалы бульдозера и ковши; погрузочное оборудование; рытье ям; дробление асфальта и мощение дороги; предназначенный для благоустройства; делать за сезон; выгружать грузы; сцеплять сельскохозяйственный трактор и культиватор; мощность в диапазоне от 15 до 45 л. с.

## Unit 16

### CRAWLER TRACTOR

#### Словообразование

Приставки *in-*, *il-*, *im-*, *ir-*, прибавляемые к прилагательным, образуют прилагательные с отрицательным значением:

visible (видимый) – **invisible** (невидимый);  
logical (логический) – **illogical** (нелогичный);  
moral (моральный) – **immoral** (аморальный);  
resistible (отразимый) – **irresistible** (неотразимый).

**Exercise 1. Form the adjectives using the negative prefixes. Translate them into Russian.**

**Model:** delicate – indelicate

**in-** – comparable, frequent, accurate, artistic, attentive, capable;

**il-** – legible, literate, liberal, legal, logical, licit, liquid, legitimate;

**im-** – possible partial, patient, movable, modest, material, measurable;

**ir-** – responsible, resolute, regular, rational, relevant, receptive.

Приставка **un-**, прибавляемая к глаголам, прилагательным и иногда к существительным, образует слова с отрицательным значением:

to fasten (прикреплять) – to **unfasten** (откреплять);  
 suitable (подходящий) – **unsuitable** (неподходящий);  
 truth (правда) – **untruth** (неправда).

**Exercise 2. Form the new words using the prefix un-. Translate them into Russian.**

**Model:** to coil – to uncoil

To saddle, changed, explored, kind, true, safe, reasonable, bearable.

## The Passive Voice

### (Пассивный залог)

Пассивный залог (The Passive Voice) употребляется, когда в центре внимания говорящего находится лицо или предмет, которые *подвергаются действию*, а не лицо или предмет, которые *совершают действие*.

В пассивном обороте лицо или предмет, которые подвергаются действию, являются подлежащими и стоят на первом месте.

	Present	Past	Future
Indefinite	The film <b>is shown</b> every day. <b>Is the film shown</b> every day? The film <b>is not shown</b> every day.	The film <b>was shown</b> yesterday. <b>Was the film shown</b> yesterday? The film <b>was not shown</b> yesterday.	The film <b>will be shown</b> tomorrow. <b>Will the film be shown</b> tomorrow? The film <b>will not be shown</b> tomorrow.
Continuous	The film <b>is being shown</b> now. <b>Is the film being shown</b> now? The film <b>is not being shown</b> now.	The film <b>was being shown</b> at 5 yesterday. <b>Was the film being shown</b> at 5 yesterday? The film <b>was not being shown</b> at 5 yesterday.	
Perfect	The film <b>has just been shown</b> . <b>Has the film been shown</b> ? The film <b>has not been shown</b> yet.	The film <b>had been shown</b> by 5 o'clock. <b>Had the film been shown</b> by 5 o'clock? The film <b>had not been shown</b> by 5 o'clock.	The film <b>will have been shown</b> by 5 o'clock. <b>Will the film have been shown</b> by 5 o'clock? The film <b>will not have been shown</b> by 5 o'clock.

I. Форма пассивного залога образуется с помощью глагола **to be** в нужной форме (в зависимости от времени) и причастия прошедшего

времени (**Participle II**) смыслового глагола. Построение предложения в пассивном залоге в разных временах происходит следующим образом:

1. **Present Indefinite Passive** (настоящее неопределенное время) в пассивном залоге образуется по формуле: **am/is/are + Participle II**:

These books *are used* for work. – Эти книги *используются* для работы.

The office *is cleaned* every day. – Офис *убирается* каждый день.

2. **Past Indefinite Passive** (прошедшее неопределенное время) в пассивном залоге образуется по формуле: **was/were + Participle II**:

This picture *was painted* in the 16th century. – Эта картина *была написана* в 16 веке.

These houses *were built* in 1954. – Эти дома *были построены* в 1954г.

3. **Future Indefinite Passive** (будущее неопределенное время) в пассивном залоге образуется по формуле: **shall/will be + Participle II**:

The car *will be repaired* tomorrow. – Автомобиль *будет отремонтирован* завтра.

The article *will be written* next week. – Статья *будет написана* на следующей неделе;

4. **Present Continuous Passive** (настоящее длительное время) в пассивном залоге образуется по формуле: **am/is/are being+Participle II**:

I feel that I *am being watched* now by somebody. – Я думаю, что *на меня кто-то смотрит*.

The road *is being repaired* at present. – Дорога *ремонтируется* в данный момент.

5. **Past Continuous Passive** (прошедшее длительное время) в пассивном залоге образуется по формуле: **was/were being+Participle II**:

At six o'clock a story *was being told*. – В шесть часов историю *рассказывали*.

They *were being watched* carefully. – *За* ними внимательно *наблюдали*;

6. **Present Perfect Passive** (настоящее совершенное время) в пассивном залоге образуется по формуле: **have/has been+Participle II**:

This coffee *has just been made*, help yourself. – Кофе только что *был приготовлен*, угощайтесь.

The presents *have already been bought*. – Подарки уже *куплены*.

7. **Past Perfect Passive** (прошедшее совершенное время) в пассивном залоге образуется по формуле: **had been + Participle II**:

All the windows *had been cleaned* before the storm. – Все окна *были вымыты* перед грозой.

The letter *had been written* by 5 o'clock yesterday. – Письмо *было написано* к 5 часам вчера;

8. **Future Perfect Passive** (будущее совершенное время) в пассивном залоге образуется по формуле: **shall/will have been + Participle II**:

By this time tomorrow the deal *will have been signed*. – Завтра к этому времени договор *будет подписан*.

The article *will have been translated* by this time tomorrow. – Статья *будет переведена* к этому времени завтра.

II. На русский язык глаголы в **Passive Voice** могут переводиться следующими способами:

1. сочетанием глагола **быть** (в прошедшем и будущем временах) с краткой формой причастия страдательного залога:

The article *was transplanted*. – Статья *была* переведена.

The article *will be translated*. – Статья *будет* переведена;

2. глаголом с окончанием на **-ся, -сь**:

Technical articles *are translated* at every lesson. – Технические статьи *переводятся* на каждом уроке;

3. неопределенно-личной формой, т. е. без подлежащего:

Technical articles *are translated* at every lesson. – Технические статьи *переводят* на каждом уроке.

Глагол в форме **Indefinite Passive** может переводиться на русский язык глаголом совершенного и несовершенного вида, так как форма **Indefinite** не уточняет характера действия:

Houses *are built* very quickly now. – Дома *строятся (строят)* теперь очень быстро.

III. В английском языке в страдательном залоге показателем времени служит глагол **to be**, который изменяется в зависимости от лица и числа подлежащего. Смысловой глагол стоит всегда в форме **Participle II**, т. е. остается неизменным.

1. New films *are shown* here every week. – Новые фильмы *показывают* здесь каждую неделю.

2. A new film *was shown* here yesterday. – Новый фильм *был показан* здесь вчера.

3. A new film *will be shown* here tomorrow. – Новый фильм *будет показан* здесь завтра.

IV. Если указывается, кем или чем производится действие, то употребляется существительное или местоимение с предлогом **by**,

если речь идет о дополнении в творительном падеже (отвечающем на вопрос кем? чем?) или с предлогом **with** для указания на материал или орудие, при помощи которого совершается действие:

The new engine was designed *by* our engineers. – Новый двигатель был сконструирован нашими инженерами.

The laboratory is equipped *with* automatic machinery. – Лаборатория оборудована автоматическими механизмами.

V. В английском предложении за сказуемым в страдательном залоге может следовать предлог; слово, с которым этот предлог соотносится, является подлежащим. Поэтому при переводе на русский язык этот предлог ставится *перед* подлежащим:

The engineer was sent *for*. – За инженером послали.

This article is much spoken *about*. – Об этой статье много говорят,

VI. Подлежащее английского предложения пассивной конструкции при переводе на русский язык может стоять не только в именительном падеже, но и в любом косвенном падеже в зависимости от контекста.

The *chief engineer* was sent abroad. – Главного инженера послали за границу.

The *chief engineer* was sent many telegrams. – Главному инженеру послали много телеграмм.

This information was referred *to*. – На эту информацию ссылались.

**Exercise 3. Translate the sentences in the Present Indefinite Passive into Russian.**

1. A lot of e-mails are sent and received every day. 2. The meal is prepared by Tom. 3. When are grocery shops closed in England? 4. What ingredients are used to make a pizza? 5. England is visited by millions of tourists every year. 6. I am presented to Dr. Green. 7. What berries are grown in your garden? 8. New computer programmes are used in this project. 9. I am shown a new film, aren't I? 10. I am not taken to the concert, am I? 11. He is often scolded by his mother, isn't he? 12. This shirt is not often worn by him. 13. The sculptures are created by a young artist.

**Exercise 4. Translate the sentences in the Past Indefinite Passive into Russian.**

1. He was told that story. 2. I was shown the way by the boy. 3. Many houses were burnt by The Great Fire of London. 4. The boat was carried away by the waves. 5. Something very interesting was told us by the teachers. 6. My cat was not given milk yesterday, was it? 7. The match was played in the evening. 8. He was advised to be more patient. 9. My friend and I were sent to clean the yard, weren't we? 10. The answers were calculated very quickly. 11. Was his last movie filmed in black and white?

12. The e-mail was sent yesterday. 13. Penicillin was discovered by Alexander Fleming. 14. When was our new house built? 15. The shop was opened at nine o'clock.

**Exercise 5. Translate the sentences in the Future Indefinite Passive into Russian.**

1. The streets will be widened. 2. The buses will be repaired, won't they? 3. Will the trees and flowers be planted? 4. Where will a fountain be put up? 5. The bus stop will be rebuilt. 6. The old houses will be pulled down. 7. When will the shops be opened? 8. The lampposts on the roads will be modernized. 9. The benches will not be painted, will they? 10. The book will be returned. 11. The room will not be cleaned. 12. Will the text be typed? 13. The old clothes will be mended. 14. Will the fruits be washed? 15. The device will not be connected network.

**Exercise 6. Translate the sentences in the Present Continuous Passive into Russian.**

1. The bridge is being built now 2. The papers are not being read right now 3. Is TV being watched at the moment? 4. The car is being repaired, isn't it? 5. I am not being taught, am I? 6. How is the dinner being cooked? 7. Where is the picture being painted? 8. The book is not being sold. 9. Is coffee being drunk right now? 10. Clothes are being packed now. 11. Salads are not being eaten. 12. Am I being looked for? 13. Whom is the radio being listened by. 14. He is not being heard. 15. Are they being strongly criticized? 16. Negotiations are still being held.

**Exercise 7. Translate the sentences in the Past Continuous Passive into Russian.**

1. The plant was being built by construction workers. 2. The pictures were not being painted by Pat, were they? 3. Was I being listened to by my friend? 4. The report was being printed, wasn't it? 5. The car was not being driven by a pupil. 6. Were the exercises being completed by them when he came? 7. Whom was the bed being made by? 8. The products were not being bought by her when he called 9. Was the tea being drunk? 10. The music was being composed. 11. The books were not being written. 12. Were the cookies being eaten when she came back? 13. The desk was being cleaned. 14. The clothes were not being washed. 15. Was he being watched? 16. The new film was not being shown in the evening yesterday.

**Exercise 8. Translate the sentences in the Present Perfect Passive into Russian.**

1. The video has been recorded by him. 2. Why has this letter been opened? 3. The fruit has not been cut, has it? 4. All changes have been saved. 5. Why hasn't the debt been paid? 6. Have the pencils been

sharpened? 7. Whom have the notebooks been handed out by. 8. Has the tea been drunk? 9. The recordings have not been listened to. 10. The film has been watched by students. 11. The sentence has not been erased. 12. The work has been done. 13. The box has not been packed. 14. Has the newspaper been looked through? 15. Has the answer been given?

**Exercise 9. Translate the sentences in the Past Perfect Passive into Russian.**

1. The song had been sung by 10 in the evening. 2. Had you been given instructions? 3. The flowers had been watered, hadn't they? 4. John hadn't been asked that question before Sue came. 5. The trash hadn't been thrown out. 6. Whom had the dishes been washed by? 7. The dog had been walked by him. 8. The cat had been taught to jump. 9. A lot of things had been done before the children returned. 10. I had not been answered all the questions. 11. Nick hadn't been offered anything by Pete. 12. Had you been introduced to each other? 13. This video had been recorded by me. 14. That movie hadn't been watched by you. 15. Where had you been invited to?

**Exercise 10. Translate the sentences in the Future Perfect Passive into Russian.**

1. The boxes will have been brought by evening. 2. The poem will not have been learned by Monday. 3. Will the homework have been done by 7 p.m.? 4. The tea will have been drunk by afternoon. 5. The coffee will not have been made. 6. Will the game have been watched? 7. The books will have been received, won't they? 8. The exercise-books will not have been handed out. 9. Will the program have been installed? 10. The letter will have been written. 11. The horse will not have been ridden.

**Exercise 11. Read and memorize the following words and word combinations.**

crawler tractor ['krɔ:lə 'træktə] – гусеничный трактор  
track [træk] – гусеница, гусеничный трак  
traverse [trə'vɜ:s] – проходить, проезжать  
rich soil [riʃ səɪl] – плодородная почва  
exert force [ɪg'zɜ:t fɔ:s] – прилагать силу  
tracked vehicle [trækt 'vi:kl] – гусеничное транспортное средство  
segment ['segmənt] – сегмент  
roller ['rɔulə] – каток  
sink [sɪŋk] – увязать, застревать  
continuous track [kən'tɪnjuəs træk] – замкнутая сплошная лента  
compact [,kəm'pækt] – уплотнять  
conceive [kən'si:v] – задумывать, замышлять  
monumental [,mɒnju'mentəl] – важный

modular-chain link ['mɔdʒələʃəm lɪŋk] – звенья блочно-модульной цепи

enclosed [ɪn'kləʊzd] – замкнутый

manganese alloy steel ['mæŋgəni:z 'æləɪ sti:l] – марганцевый сплав

durability [ˌdʒuərə'bɪləti] – износоустойчивость

track roller [træk 'rəʊlə] – опорный каток гусеницы

set to ['set tu:] – прижимать

cushion ['kʊʃən] – смягчать

toothed drive wheel [tu:θt'draɪv wi:l] – зубчатое ведущее колесо

drive sprocket ['draɪv 'sprɒkɪt] – ведущая звёздочка

hole [həʊl] – вырез

link [lɪŋk] – звено

non-powered wheel [nɒn'paʊəd wi:l] – неведущее колесо

idler ['aɪdlə] – натяжное колесо

chevron tread [ʃeɪvən tred] – протектор елочкой

tension ['tenʃən] – натяжение

steering ['stiəriŋ] – управление направлением движения

steering wheel ['stiəriŋ wi:l] – рулевое колесо

planetary differential ['plænitəri ,dɪfə'renʃəl] – планетарный дифференциал

transmission pinion [trænz'mɪʃən 'pɪnjən] – малая шестерня трансмиссии

bevel gear ['bevəl ,giə] – коническая зубчатая передача

dual differential ['dju:əl ,dɪfə'renʃəl] – двойной дифференциал

uninterrupted [ʌn ,ɪntə'ʌptɪd] – непрерывный

final drive ['faɪnəl draɪv] – конечная передача, последнее звено привода

outboard ['aʊtbɔ:d] – внешний

inboard [ɪn'bɔ:d] – внутренний

toothed ripper [tu:θt 'rɪpə] – зубчатый рыхлитель

claw-type ['klɔ:taɪp] – в виде когтя

single-shank ripper ['sɪŋglʃæŋk 'rɪpə] – однозубый рыхлитель

multi-shank ripper ['mʌltʃæŋk 'rɪpə] – многозубый рыхлитель

dozer blade ['dəʊzə bleɪd] – отвал бульдозера

crawler loader ['krɔ:lə 'ləʊdə] – гусеничный погрузчик

### **Exercise 12. Read and translate the following text.**

1. A crawler tractor is a vehicle that moves on tracks instead of wheels. The tracks spread the vehicle's weight over a larger surface, enabling the tractor to exert a lower force per unit area on the ground. This allows the

tractor to safely traverse over moister ground like rich soil, snow, or mud. As the tracked vehicle moves forward, the segments are laid out flat on the ground at the front and are picked up again at the back. The segments in between the front and the back end carry load too as they are supported by rollers. This keeps it from sinking in areas where wheeled vehicles of the same weight would sink. A continuous track vehicle was conceived and built in the late 1800s by a Russian farmer. The design has been adjusted and reworked by many designers since, resulting in the modern crawler tractor. As for advantages, a crawler tractor does not compact the soil as much as a wheeled tractor. This is monumental in farming where the soil suffers from compaction. The disadvantage of a track vehicle lies in the complexity of the tracks and the expense in repair over that of a tire.

2. The tracks are made up of modular-chain links that form an enclosed chain. Each link is broad and often made of manganese alloy steel to increase strength and durability. The track is set to the ground by track rollers. When mounted on suspension, the rollers can cushion the ride. The tracks move on a toothed drive wheel, or drive sprocket that connects to holes in the track links. Also, a non-powered wheel, known as an idler, is mounted at both ends of the tracks to increase tension, allowing tracks to move more smoothly. Recently many manufacturers have used rubber tracks instead of steel, especially for agricultural use. In place of a track made of linked steel plates, a reinforced rubber belt with chevron treads is used. In comparison to steel tracks, rubber tracks are lighter, make less noise, create less maximal ground pressure and don't damage paved roads. The disadvantage is that they are not as solid as steel tracks.

3. While the basic operation of a tracked vehicle is similar to a wheeled vehicle, the main difference lies in steering. Instead of a steering wheel, a track vehicle utilizes a planetary differential. A planetary differential turns the machine by speeding up one track and slowing the other, while maintaining full power to both. When moving straight ahead, power flows through the transmission pinion and bevel gear into the dual differential, transmitting equal, uninterrupted power to each final drive. While turning, power is shifted to the outboard track speeding it up. The inboard track slows down to accommodate a tighter turning radius. Forward ground speed remains the same throughout the turn.

4. Crawler tractors have been fitted with a variety of attachments and the crawler track system has been adapted to number of different construction vehicles. One common attachment is the toothed ripper. It is a claw-type device, usually mounted to the rear of the vehicle. Rippers can either be

equipped with a single-shank (meaning one tooth) or multi-shank (two or more teeth). The ripper is mainly used to rip large objects from the ground (e.g., large rocks, tree stumps) or to loosen soils. When a dozer blade is attached to the front of the crawler tractor it is commonly known as a “bulldozer”. With loading equipment, it becomes a crawler loader. Many tracked tractors are also used in farming, especially in the localities with heavy or wet soils due to their superior traction.

**Exercise 13. Translate the following words and word combinations into Russian.**

Move on tracks instead of wheels; exert force per unit area; at the front; at the back; be supported by rollers; modern crawler tractor; compact the soil; expense in repair; increase strength and durability; toothed drive wheel; both ends of the tracks; rubber tracks; linked steel plates; reinforced rubber belt; less maximal ground pressure; utilize a planetary differential; maintain full power; tighter turning radius; fit with attachments; forward ground speed; rip objects from the ground; attach to the front.

**Exercise 14. Put each word in the correct place.**

1. *soils / tractors / localities*

Many tracked \_\_\_\_ are also used in farming, especially in the \_\_\_\_ with heavy or wet \_\_\_\_ due to their superior traction.

2. *pinion / drive / differential*

When moving straight ahead, power flows through the transmission \_\_\_\_ and bevel gear into the dual \_\_\_\_, transmitting equal, uninterrupted power to each final \_\_\_\_.

3. *ride / ground / track*

The \_\_\_\_ is set to the \_\_\_\_ by track rollers. When mounted on suspension, the rollers can cushion the \_\_\_\_.

4. *attachments / crawler / vehicles*

\_\_\_\_ tractors have been fitted with a variety of \_\_\_\_ and the crawler track system has been adapted to number of different construction \_\_\_\_.

5. *rollers / load / segments*

The \_\_\_\_ in between the front and the back end carry \_\_\_\_ too as they are supported by \_\_\_\_.

**Exercise 15. Match the beginning of each sentence with its end.**

1. Forward ground speed ...
2. The ripper is mainly used to rip ...
3. The disadvantage is that ...
4. This is monumental in farming ...
5. Instead of a steering wheel, a track ...

6. Each link is broad and often made of ...
7. It is a claw-type device, usually ...
  - a) ... where the soil suffers from compaction.
  - b) ... vehicle utilizes a planetary differential.
  - c) ... mounted to the rear of the vehicle.
  - d) ... remains the same throughout the turn.
  - e) ... large objects from the ground or to loosen soils.
  - f) ... they are not as solid as steel tracks.
  - g) ... manganese alloy steel to increase strength and durability.

**Exercise 16. Find the Russian equivalents for the following English words and word combinations.**

- |                        |                                     |
|------------------------|-------------------------------------|
| 1) loading equipment   | a) марганцевый сплав                |
| 2) spread weight       | b) постоянный привод                |
| 3) lay out flat        | c) грунтовое давление               |
| 4) wheeled vehicle     | d) погрузочное оборудование         |
| 5) track vehicle       | e) колесное транспортное средство   |
| 6) manganese alloy     | f) смягчать ход                     |
| 7) cushion the ride    | g) гусеничное транспортное средство |
| 8) ground pressure     | h) укладывать ровно                 |
| 9) uninterrupted power | i) распределять вес                 |

**Exercise 17. Translate the following words and word combinations into English using the text.**

Вес транспортного средства; единица площади на грунте; между передней и задней частью; современный гусеничный трактор; расходы на ремонт; зубчатое ведущее колесо; армированная резиновая лента, по сравнению со стальными траками, основная разница заключается в рулевом управлении; планетарный дифференциал; ускорять одну гусеницу; коническая зубчатая передача; малая шестерня трансмиссии; двойной дифференциал; непрерывный привод; обеспечивать меньший радиус разворота; однозубый рыхлитель.

**Exercise 18. Answer the following questions?**

1. Are the segments so important when the tracked vehicle moves forward? 2. What is a monumental advantage of the crawler tractor over the wheeled one? 3. What material is used for producing tracks to increase their strength and durability? 4. What are the advantages and disadvantages of rubber tracks? 5. How does the planetary differential turn the tracked vehicle? 6. What do you know about the toothed ripper?

## Unit 17

### TRACTOR PARTS

#### Словообразование

Суффиксы **-able(-ible)**, прибавляемые к глаголам, а иногда к существительным, образуют прилагательные со значением возможности совершения действия, обозначенного глаголом:

to eat (есть) – **eatable** (съедобный);

to resist (противостоять) – **resistible** (отразимый).

**Exercise 1. Form the new words using the suffix -able(-ible).**

**Translate them into Russian.**

**Model:** prevent – preventable; exhaust – exhaustible

**-able** – change, know, agree, service, check, choose, buy, pay, notice.

**-ible** – reduce, convince, convert, respond, extend, divide, expend.

Суффикс **-ize** прибавляемый к прилагательным и к существительным образуют глаголы:

material (материальный) – to **materialize** (осуществлять)

summary (краткая сводка) – to **summarize** (суммировать)

**Exercise 2. Form the new words using the suffix -ize. Translate them into Russian.**

**Model:** mineral – to mineralize

Hospital, special, local, general, standard, natural, real, legal, colony.

### The Sequence of Tenses

#### (Согласование времен)

В русском языке глагол-сказуемое придаточного дополнительного предложения может употребляться в любом времени (*настоящем, прошедшем или будущем*) в зависимости от содержания. В английском языке это возможно тогда, когда глагол-сказуемое главного предложения стоит в *настоящем* или *будущем времени*, следовательно, глагол-сказуемое придаточного предложения может стоять в любом, требуемом по смыслу времени, например:

*I think that it will rain.* – Я думаю, что *пойдет* дождь.

*He understands that he has made a mistake.* – Он *понимает*, что *совершил* ошибку.

Tom *says* that he *was* busy yesterday. – Том *говорит*, что *был* занят вчера.

Если глагол-сказуемое главного предложения стоит в *прошедшем времени*, то *действует* правило согласования времен, которое состоит в том, что сказуемое придаточного дополнительного предложения согласуется со сказуемым главного. Данные правила также соблюдаются при переводе прямой речи в косвенную:

He *says*, “I *am* busy today”. – He *said* that he *was* busy that day.

### The Sequence of Tenses in the Sentence

#### (Согласование времен в предложении)

Прямая речь	Косвенная речь
Present Indefinite →	Past Indefinite
Past Indefinite →	Past Perfect
Future Indefinite →	Future Indefinite-in-the-Past
Present Continuous →	Past Continuous
Past Continuous →	Past Perfect Continuous
Future Continuous →	Future Continuous-in-the-Past
Present Perfect →	Past Perfect
Past Perfect →	Past Perfect
Future Perfect →	Future Perfect-in-the-Past

1. **Present Indefinite** в придаточном предложении при согласовании времен переходит в **Past Indefinite**:

Nick *says* that he *likes* going to the cinema. – Ник *говорит*, что ему *нравится* ходить в кино.

Nick *said* that he *liked* going to the cinema. Ник *сказал*, что ему *нравится* ходить в кино.

2. **Past Indefinite** в придаточном предложении при согласовании времен переходит в **Past Perfect**:

Dick *says* that he *saw* that film. – Дик *говорит*, что он *видел* этот фильм.

Dick *said* that he *had seen* this film. – Дик *сказал*, что он *видел* этот фильм.

3. **Future Indefinite** в придаточном предложении при согласовании времен переходит в **Future Indefinite-in-the-Past**. При этом вспомогательные глаголы будущего времени **shall/will** переходят в

**should/would.** На русский язык эта форма переводится глаголом в будущем времени:

Sue *says* that she *will finish* that work. – Сью *говорит*, что она *закончит* эту работу.

Sue *said* that she *would finish* that work. – Сью *сказала*, что она *закончит* эту работу.

4. **Present Continuous** в придаточном предложении при согласовании времен переходит в **Past Continuous**:

Mary *says* that she *is reading* a book. – Мэри *говорит*, что она *читает* книгу.

Mary *said* that she *was reading* a book. – Мэри *сказала*, что она *читает* книгу.

5. **Future Continuous** в придаточном предложении при согласовании времен переходит в **Future Continuous-in-the-Past**:

John *says* that he *will be watching* TV. – Джон *говорит*, что он *будет смотреть* телевизор.

John *said* that he *would be watching* TV. – Джон *сказал*, что он *будет смотреть* телевизор.

6. **Present Perfect** в придаточном предложении при согласовании времен переходит в **Past Perfect**:

Victor *says* that he *has done* his home task. – Виктор *говорит*, что он *выполнил* свое домашнее задание.

Victor *said* that he *had done* his home task. – Виктор *сказал*, что он *выполнил* свое домашнее задание.

7. **Past Perfect** в придаточном предложении при согласовании времен остается **Past Perfect**:

Nick *says* that he *had arrived* in time. – Ник *говорит*, что он *приехал* вовремя.

Nick *said* that he *had arrived* in time. – Ник *сказал*, что он *приехал* вовремя.

8. **Future Perfect** в придаточном предложении при согласовании времен переходит в **Future Perfect-in-the-Past**:

Sandra *says* that she *will have come* by 6 tomorrow. – Сандра *говорит*, что она *приедет* к 6 часам завтра.

Sandra *said* that she *would have come* by 6 the next day. – Сандра *сказала*, что она *приедет* к 6 часам следующего дня.

9. Предложения, выражающие общий вопрос в прямой речи, в косвенную речь вводятся с помощью союза **whether** или **if**:

He *asked* me: “Are you translating the article?” – Он спросил меня: «Ты переводишь статью?»

He *asked* me **if** (*whether*) I was translating the article. – Он спросил меня, перевожу ли я статью.

Глаголы **should**, **ought** и **must** употребляются в придаточном предложении независимо от того, в каком времени стоит глагол-сказуемое главного предложения:

He *says* (*said*) that I *ought to* send her a telegram. – Он говорит (сказал), что мне следует послать ей телеграмму.

I *tell* (*told*) him that he *should* consult a doctor. – Я говорю (сказал) ему, что ему следует обратиться к врачу.

He *tells* (*told*) us that we *must* not cross the street. – Он говорит (сказал), что нам нельзя переходить через дорогу.

### **Exercise 3. Translate the following sentences into Russian**

1. He knew he had a problem. 2. He realized he would be alone. 3. We hoped she would be waiting for us at six o'clock. 4. He said that Peter had booked tickets for the theatre the previous week. 5. Mr. Stone told me that the meeting would take place the following month. 6. He proved he was the best. 7. She imagined she could do that. 8. He told them he would speak to Mr. Smith about it if he saw him the next day. 9. Jane said she should learn that poem. 8. James told his friends he liked to watch TV shows. 10. She said she couldn't for a walk with me. 11. Miss Brooks said that Dr. Dodd was speaking on the phone then. 12. She said her husband was a manager in a big factory. 13. He said that Byron was born on January 22, 1788. 14. He said that he met Ann when he was going to the supermarket.

**Exercise 4. Put the following sentences into the indirect speech according to the rules of the Sequence of Tenses.**

**Model:** He *said*, “I *work* in New York.” –

He *said* that he *worked* in New York.

1. Sue said, “I speak French.” 2. She said, “I am speaking French well.” 3. She said, “I have spoken French.” 4. She said, “I spoke French.” 5. She said, “I am going to speak French.” 6. She said, “I will speak French fluently.” 7. She said, “I can speak French.” 8. She said, “I may speak French here.” 9. She said, “I have to speak French.” 10. She said, “I must speak French.” 11. She said, “I should speak French.” 12. She said, “I ought to speak French.”

**Exercise 5. Make the right choice.**

1. I knew that my sister (have/has/had) a problem. 2. I know that my sister (have/has/had) a problem. 3. I knew that my sister (will have/would

have/had) a problem soon. 4. He said he (lived/has lived/had lived) in Moscow since 2005. 5. She asks me if the flight (has been cancelled/had been cancelled/been cancelled). 6. She asked me if the flight (has been cancelled/had been cancelled/was cancelled). 7. Nobody knew what (will happen/would happen/happens) next. 8. Mike said that he (hasn't met/didn't meet/hadn't met) Helen since they parted. 9. Kelly said that she (didn't want/doesn't want/hadn't wanted) to wear her hat to school. 10. We didn't expect that he (showed/will show/would show) us the film.

**Exercise 6. Read and memorize the following words and word combinations.**

torque [tɔ:k] – вращающий момент, крутящий момент  
drive wheel [draɪv wi:l] – ведущее колесо  
transmission system [trænz'mɪʃən 'sɪstəm] – трансмиссия  
drive [draɪv] – привод  
disengaged [ˌdɪsɪn'geɪdʒd] – выведенный из зацепления, разомкнутый  
gear down ['gɪədaʊn] – снижать скорость  
sprocket ['sprəkɪt] – звёздочка  
right angle ['raɪt, æŋɡl] – прямой угол  
clutch [klʌʃ] – сцепление  
gearbox ['gɪəbɒks] – коробка передач  
plate [pleɪt] – диск сцепления  
gripping surface ['grɪpɪŋ 'sɜ:fɪs] – поверхность сцепления  
key [ki:] – заклинивать, закреплять (*при помощи шпонки*)  
input shaft ['ɪnpʊt ʃɑ:ft] – ведущий вал  
clamp [klæmp] – зажимать  
rearmost ['riəməʊst] – самый задний  
hold off ['həʊldɔ:f] – отводить  
multi plate clutche ['mʌltɪpleɪt, klʌʃ] – многодисковое сцепление  
alternately [ɔ:l'tɜ:nətli] – поочередно  
gearbox output ['gɪəbɒks 'aʊtpʊt] – выводной вал коробки передач  
straight shafting [streɪt 'ʃɑ:ftɪŋ] – линия валов, трансмиссионная передача  
rear axle [riə 'æksl] – задний мост, задняя ось  
slip [slɪp] – проскальзывать, буксовать  
final drive ['faɪnəl draɪv] – главная передача  
bulky ['bʌlki] – большой, объемный  
power take-off ['paʊə 'teɪkɔ:f] – отбор мощности  
spline [splɪn] – шлиц, паз  
drawbar ['drɔ:ba:] – сцепная серьга, брус автосцепки

pin [pɪn] – штырь, палец  
loop [lu:p] – петля  
clevis ['klevis] – скоба  
swinging drawbar ['swɪŋɪŋ 'drɔ:ba:] – маятниковое сцепное приспособление  
offset ['ɒfset] – смещенный  
arm [ɑ:m] – рычаг  
three-point hitch ['θri:ˌpɔɪnt, hɪtʃ] – трёхточечное навесное устройство  
attaching point [ə'tætʃɪŋ, pɔɪnt] – место крепления  
lifting arm ['lɪftɪŋ, ɑ:m] – подъёмный рычаг  
stabilizer ['steɪbəlaɪzə] – стабилизатор  
tilting [tɪlɪŋ] – качание  
top link ['tɒplɪŋk] – центральная тяга  
attachment device [ə'tætʃmənt dɪ'vaɪs] – крепежное приспособление  
post [pəʊst] – суппорт

**Exercise 7. Read and translate the following text.**

1. The sequence of gears and shafts through which the engine torque is transmitted to the tractor drive wheels is known as the transmission system. The functions of this system are: 1) to permit the drive from the engine to the wheels to be disengaged permanently or temporarily; 2) to gear down the crankshaft speed to give the required wheel or sprocket speeds; 3) to provide a means whereby the ratio of wheel or sprocket speed to crankshaft speed can be altered; 4) to transmit the drive through a right angle because the crankshaft and the wheel axle are normally at 90°.

2. **Clutch.** The clutch provides the means of temporarily engaging or disengaging the drive from the engine to the transmission system, i.e. to the gearbox which provides a range of ratios of crankshaft speed to tractor wheel speed. The clutch consists of a plate which is held by means of strong springs between two gripping surfaces, one being the rear face of the engine flywheel and the other being attached to the flywheel. The plate is keyed to a shaft which drives the transmission, that is, in practice, the gearbox input shaft. Thus, whenever the springs are allowed to act and clamp the clutch plate between the two other surfaces, the clutch is engaged, i.e. the transmission system is driven by the engine. But, if the rearmost gripping surface is held off by the movement of a clutch pedal against the compression of the springs, the clutch is disengaged and there is no drive to the transmission. Some tractors are fitted with multi plate clutches in which a number of plates are alternately fixed to the flywheel and the gear-box input shaft.

3. **Differential.** The drive in a wheeled tractor is taken from the gearbox output by straight shafting to a differential in the centre of the rear axle. The tractor driving wheels are on the ends of the rear axles and the purpose of the differential is to permit one of them to rotate faster than the other. The differential is therefore included in the transmission system to allow the tractor to turn and, incidentally, it also permits one wheel to slip more than the other. It should be noted that the drive from the engine is maintained. **Final drive.** The purpose of the final drive in the transmission system is to transmit power, that is, torque and speed. The dimensions and specification of the transmission components must be designed according to the load, i.e. torque, upon them as well as the speed: namely the higher the torque the larger and bulkier the gears and shafts need to be.

4. The **power take-off (PTO)** shaft has external splines and is normally situated at the rear of the tractor or sometimes at the front. The PTO can be connected to an implement that is either towed by a drawbar or a three-point hitch. It is necessary that the speed of the (PTO) shaft should be independent of the forward speed of the tractor and controlled only by the engine speed. The classic tractor **drawbar** is simply a steel bar to which the implement is attached with a pin or by a loop and clevis. The implement can be readily attached and removed, allowing the tractor to be used for other purposes on a daily basis. If the tractor is equipped with a swinging drawbar, then it can be set at the center or offset from center to allow the tractor to run outside the path of the implement.

5. The **three-point hitch** attaches the implement to the tractor so that the orientation of the implement is fixed with respect to the tractor and the arm position of the hitch. The three-point hitch includes the tractor's hydraulic system, attaching points, the lifting arms, and stabilizers. Three-point hitches are composed of three movable arms. The two lower arms – the hitch lifting arms – are controlled by the hydraulic system, and provide lifting, lowering, and even tilting to the arms. The top link is movable, but is usually not powered by the tractor's hydraulic system. Each arm has an attachment device to connect implements to the hitch. The implement is secured by placing a pin on the ends of the posts.

**Exercise 8. Answer the following questions.**

1. What is the purpose of the transmission system? 2 What is the clutch designed for? 3. What does the clutch consists of? 4. Is the differential included in the tractor transmission system? Why? 5. What parameters should be followed while designing the transmission? 6. Where is the PTO shaft normally situated at? 7. How can the implement be attached to and removed from the tractor? 8. What does the three-point hitch include?

**Exercise 9. Make up word combinations using the text and translate them.**

- |                      |                             |
|----------------------|-----------------------------|
| 1) give the required | a) wheel or sprocket speeds |
| 2) crankshaft speed  | b) of the implement         |
| 3) tractor           | c) of a clutch pedal        |
| 4) gearbox           | d) the rear axles           |
| 5) clamp             | e) of the implement         |
| 6) movement          | f) input shaft              |
| 7) ends of           | g) the clutch plate         |
| 8) outside the path  | h) wheel speed              |
| 9) orientation       | i) can be altered           |

**Exercise 10. Translate the following words and word combinations into Russian.**

Sequence of gears and shafts; drive from the engine to the wheels; drive through a right angle; means of engaging or disengaging; range of ratios of crankshaft speed; face of the engine flywheel; gearbox input shaft; rearmost gripping surface; straight shafting to a differential; ends of the rear axles; transmit power; the higher the torque the larger the gears; have external splines; at the rear of the tractor; forward speed of the tractor; steel bar; swinging drawbar; run outside the path of the implement; attach the implement to the tractor; three movable arms; tractor's hydraulic system.

**Exercise 11. Translate the expressions into Russian paying attention to the prepositions.**

Functions *of* the system; ratio *of* sprocket speed; right angle *at* 90°; clutch consists *of* a plate; springs *between* two gripping surfaces; be keyed *to* a shaft; be driven *by* the engine; movement *of* a clutch pedal; there is no drive *to* the transmission; differential *in* the centre *of* the rear axle; *at* the front; speed *of* the shaft; attached *with* a pin; equipped *with* a swinging drawbar; be set *at* the center; *on* the ends *of* the posts.

**Exercise 12. Match the synonyms from line A and B.**

A) Transmit; function; engine; drive; strong; fitted; permit; rotate; incidentally; component; implement; to compose.

B) To consist; tool; part; allow; by the way; motor; transfer; power; sturdy; revolve; purpose; equipped.

**Exercise 13. Translate the words and word combination in brackets into English.**

1. But, if (задняя поверхность сцепления) is held off by the movement of a clutch pedal (против сжатия пружин), the clutch is disengaged and there is no (привода трансмиссии). 2. The (сцепление состоит из) a plate

which (держится посредством упругих пружин) between two gripping surfaces, one being the (задняя поверхность маховика двигателя) and the other being attached to the flywheel. 3. The (назначение главной передачи) in the transmission system is (передавать привод), that is, (крутящий момент) and (скорость). 4. The PTO (может быть подсоединен к орудию) that is either towed by a (цепной серьгой или навесной трехточечной системой).

**Exercise 14. Translate the following words and word combinations into English using the text.**

Отношение частоты вращения колеса или звездочки; передавать привод под прямым углом, привод от двигателя к трансмиссии; задняя лицевая часть маховика двигателя; диск сцепления шпоночно закреплен на валу; многодисковое сцепление трактора; быть составной частью трансмиссии; размеры и технические характеристики; наружные шлицы; быть соединенным с орудием; быть независимым от поступательной скорости; маятниковое сцепное приспособление; устанавливаться в центре или смещаться относительно центра; положение рычагов навесного устройства.

## Unit 18

### ENGINE

#### Словообразование

Суффикс **-ate**, прибавляемый к существительным и к прилагательным образует глаголы:

active (активный) – to **activate** (активизировать);

oxygen (кислород) – to **oxygenate** (насыщать кислородом)

**Exercise 1. Form the new words using the suffix – (i)ate. Translate them into Russian.**

**Model:** origin – to **originate**

Hydrogen, differentia, valid, luxury, domestic, rustic, motive, alien.

Суффикс **-en**, прибавляемый к прилагательным и к существительным, образует глаголы:

black (чёрный) – to **blacken** (чернеть);

height (высота) – to **heighten** (повышать).

**Exercise 2. Form the new words using the suffix -en. Translate them into Russian.**

**Model:** threat – to **threaten**

Heart, red, tight, fresh, light, soft, fright, glad, sad, mad, strength, length.

## The Conditional Sentences

### (Условные предложения)

Условные предложения могут выражать реальные, маловероятные и нереальные условия. В зависимости от характера условия предложения принято подразделять на условные предложения *первого типа* (реальное условие), *второго типа* (нереальные или маловероятные) условия, относящиеся к настоящему или будущему времени) и *третьего типа* (нереальные условия, относящиеся к прошедшему времени).

1. Условие, содержащееся в условном придаточном предложении *первого типа*, рассматривается говорящим как реально предполагаемый факт, относящийся к *настоящему*, *прошедшему* или *будущему* времени. В этом случае сказуемые главного и придаточного предложений выражаются глаголами в формах изъявительного наклонения:

тип I	a) If + Present Indefinite, ... Future Indefinite. b) If + Past Indefinite, ... Past Indefinite. c) If + Present Indefinite, ... Present Indefinite.
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a) If the weather *is* good, we *shall go* skiing. – Если погода *будет* хорошей, мы *пойдем* кататься на лыжах;

b) If the weather *was* good, we *went* skiing. – Если погода *была* хорошей, мы *ходили* кататься на лыжах;

c) If the weather *is* good, we *go* skiing. – Если погода *хорошая*, мы *ходим* кататься на лыжах.

2. Условие, содержащееся в условном придаточном предложении *второго типа*, рассматривается говорящим как маловероятное и относится к *настоящему* или *будущему* времени. Глагол **to be** в придаточной части употребляется в форме **were** во всех лицах Данное предложение имеет следующую структуру:

тип II	If + Past Indefinite, ... should/would + Infinitive Indefinite.
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If the plane *landed*, they *would let* us know about it. – Если *бы* самолет приземлился, они *бы* нам сообщили об этом.

If he *were* here, I *should speak* to him. – Если *бы* он *был* здесь, я *бы* с ним *поговорил*.

3. Условие, содержащееся в условном придаточном предложении *третьего типа*, рассматривается говорящим как *неосуществимое*, так как относится к прошлому.

тип III	If + past perfect; ... should/would have + Participle II
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На русский язык глагол-сказуемое придаточного предложения переводится глаголом в сослагательном наклонении с частицей **бы** (в русском языке не отличается от условного придаточного предложения второго типа).

If Tom *had taken* a taxi, he *would have come* in time. – Если *бы* Том взял такси, он *приехал бы* вовремя.

### The Inversion in the Conditional Sentences

#### (Инверсия в условных предложениях)

В условных придаточных предложениях второго и третьего типа союзы **if, provided** могут быть опущены, в этом случае в придаточном предложении вспомогательный глагол (*should, had, were* и др.) ставится перед подлежащим:

*Should* the drought *continue*, a lot of people *will leave* the village. – Если засуха *продолжится*, многие люди *покинут* деревню.

*Had* the engine *been repaired* yesterday, we *should have left* the port. – Если *бы* двигатель *был отремонтирован* вчера, мы *бы покинули* порт.

*Were* there any letters from him, his sister *would telephone* me. – Если *бы* от него *были* письма, его сестра *позвонила бы* мне.

### The Conjunctions of the Conditional Sentences

#### (Условные союзы в английском языке)

**if** – *если*

I will stay *if* she comes. – Я останусь, если она придет.

**unless** – *если не*

I won't stay *unless* she comes. – Я не останусь, если она не придет.

**provided (providing)** – *при условии*

I will stay *providing* she comes. – Я останусь при условии, если только она придет.

**Exercise 3. Translate the sentences into Russian.**

a) 1. If I am not too busy, I shall go to the concert. 2. All of them will be surprised if I make such a mistake. 3. If he doesn't come in time, shall we have to wait for him? 4. If no one comes to help, we shall do the work ourselves. 5. If you put on your glasses, you will see better.

b) 1. If I had time, I would help you. 2. I should live better if I earned more money. 3. If I knew the answer, I should tell you. 4. He wouldn't come unless you invited him. 5. We shouldn't remember it if it weren't so strange.

c) 1. If I hadn't overslept, I wouldn't have been late in the office. 2. If she had been more responsible, she would have been promoted three years ago. 3. If you had read this book, you wouldn't have done errors. 4. She wouldn't have prepared this pie if she hadn't got so much commendation. 5. If I hadn't loved you, I wouldn't have married you.

**Exercise 4. Put the infinitives in brackets in the correct form paying attention to the type of the conditionals.**

**Type I.** 1. If it ... (cost) too much I ... (not take) it. 2. She ... (be) angry if you ... (lose) this photo. 3. If you ... (not eat up) the bread we ... (feed) the birds in the garden. 4. If I (know), I (tell) you. 5. If she (want) to talk, she (ring up).

**Type II.** 1. If I ... (have) free time now I ... (watch) my favourite film. 2. If I ... (be) you I ... (not eat) fast food. 3. His job ... (be) so hard if he ... (not have) a secretary. 4. She (feel) lonely if Peter (go) away. 5. We (be) pleased to see you if you (arrive).

**Type III.** 1. If you ... (not smoke) so much you ... (not be) in hospital now. 2. If we ... (meet) him yesterday we ... (call) you. 3. If Tom (have) enough time last week, he (prepare) for his exam. 4. You (do) much better in the exam if you (take) private lessons. 5. If the weather (be) nice we (go) horse-riding.

**Exercise 5. Put the infinitives in brackets in the correct form.**

1. If the flight is delayed, our guests (be) late. 2. We would have gone to the beach if the rain (stop). 3. They will miss the train if they (not, run.) 4. If you had given her the letter, she (tear) it to pieces. 5. If Jack moves too slowly, he (not, win) the game. 6. If I lost my job today, I (move) to the country. 7. She would invite our kids if they (behave) themselves. 8. If Tom were more careful, he (not, break) things. 9. If Sue had had a car, she (drive) there. 10. You wouldn't have got wet if you (put on) your mackintosh. 11. If Tim had a tractor of his own, he (plough) his field in time.

**Exercise 6. Read and memorize the following words and word combinations.**

reciprocating [rɪ'sɪprəkertɪŋ] – возвратно-поступательный, поршневой

engine block ['endʒɪn blɒk] – блок двигателя, блок цилиндров

cast [kɑːst] – литой, отлитый

straight engine [streɪt 'endʒɪn] – однорядный двигатель

boxer engine ['bɒksə 'endʒɪn] – оппозитный двигатель

V-engine [vi:'endʒɪn] – двигатель с v-образным расположением

цилиндров

occasionally [ə'keɪzənəli] – иногда

W-engine ['dʌblju: 'endʒɪn] – трёхрядный индукторный двигатель

water-cooled ['wɔːtəkuːld] – с водяным охлаждением,

water jacket ['wɔːtə dʒækt] – водяная рубашка

air-cooled ['eəkuːld] – с воздушным охлаждением

fin [fɪn] – ребро, пластина (*цилиндра, радиатора*)

protrude away [prə'truːd ə'veɪ] – выступать

slide [slaɪd] – зд. двигаться

head [hed] – головка цилиндра

concave [kɒŋ'keɪv] – вогнутый

deflector head [dɪ'flektə hed] – поршень с отражателем для свежего

заряда (порции) топлива

gudgeon pin ['gʌdʒən pɪn] – поршневой палец

exert force [ɪg'zɜːt fɔːs] – прилагать силу

circumference [sə'klɪmfərəns] – окружность

crankcase ['kræŋk keɪs] – картер двигателя

cylinder head ['sɪlɪndə hed] – головка блока цилиндра

stud [stʌd] – шпилька

exhaust duct [ɪg'zɔːst dʌkt] – вытяжной канал

intake duct ['ɪnteɪk dʌkt] – впускной канал

opposite ['ɒpəzɪt] – расположенный, находящийся напротив

spark plug ['spɑːk plʌg] – свеча зажигания

SI engine ['esi 'endʒɪn] – двигатель с искровым зажиганием

injector [ɪn'dʒektə] – инжектор, форсунка

CI engine ['siːaɪ 'endʒɪn] – двигатель с воспламенением от сжатия,

дизель

carburetor [kɑːbə'reɪtə] – карбюратор

head gasket [hed 'gæskɪt] – прокладка головки блока цилиндров

camshaft ['kæmʃɑːft] – распределительный вал, кулачковый вал

desmodromic mechanism [desmə'drɒmɪk 'mekənɪzəm] – десмодромный

газораспределительный механизм

stem [stem] – шток  
 rocker arm ['rɒk ə:m] – коромысло клапана (*в двигателе*)  
 pushrod ['puʃrɒd] – толкатель клапана  
 crankcase ['kræŋk keɪs] – картер двигателя  
 sump [sʌmp] – маслосборник  
 cavity ['kævəti] – пространство  
 main bearing [meɪn 'beəriŋ] – коренной подшипник  
 bulkhead ['bʌlkhed] – перегородка  
 detachable cap [dɪ'tætʃəbl 'kæp] – съёмная крышка  
 connecting rod [kə'nektiŋ,rɒd] – тяга, шатун  
 offset ['ɒfset] – смещенный  
 small end ['smɔ:l end] – верхняя головка шатуна  
 detachable half [dɪ'tætʃəbl hɑ:f] – съёмная половина  
 removable bolt [rɪ'mu:vəbl bæʊlt] – съёмный болт  
 big end ['big end] – нижняя головка шатуна  
 exhaust manifold [ɪg'zɔ:st 'mæniʃəʊld] – выпускной коллектор  
 intake manifold ['ɪnteɪk 'mæniʃəʊld] – впускной коллектор  
 port [pɔ:t] – отверстие, проход  
 catalytic converter [ˌkætə'lɪtɪk kɔn'vɜ:tə] – каталитический дожигатель

#### ВЫХЛОПНЫХ ГАЗОВ

muffler ['mʌflə] – глушитель  
 tailpipe ['teɪlpaɪp] – выхлопная труба

#### **Exercise 7. Read and translate the following text.**

1. The base of a reciprocating internal combustion engine is the engine block, which is typically made of cast iron or aluminium. The engine block contains the cylinders. In engines with more than one cylinder they are usually arranged either in 1 row (straight engine) or 2 rows (boxer engine or V-engine); 3 rows are occasionally used (W-engine) in contemporary engines. Water-cooled engines contain passages in the engine block where cooling fluid circulates (the water jacket). Some small engines are air-cooled, and instead of having a water jacket the cylinder block has fins protruding away from it to cool by directly transferring heat to the air.

2. The pistons are short cylindrical parts which slide continuously within the cylinder while the engine is in operation. The top wall of the piston is called its head and is typically flat or concave. Some two-stroke engines use pistons with a deflector head. When an engine is working the gas pressure in the combustion chamber exerts force on the piston head which is transferred to its gudgeon pin. Each piston has rings fitted around its circumference that mostly prevent the gases from leaking into the crankcase

or the oil into the combustion chamber. A ventilation system drives the small amount of gas that escape past the pistons during normal operation out of the crankcase so that it does not accumulate contaminating the oil and creating corrosion.

3. The cylinder head is attached to the engine block by numerous bolts or studs. The cylinder head seals the cylinders on the side opposite to the pistons; it contains short ducts for intake and exhaust and the associated intake valves that open to let the cylinder be filled with fresh air and exhaust valves that open to allow the combustion gases to escape. The cylinder head also holds the spark plug in the case of SI engines and the injector for engines that use direct injection. All CI engines use fuel injection, usually direct injection but some engines instead use indirect injection. SI engines can use a carburetor for fuel injection. Most SI engines have a single spark plug per cylinder but some have two.

4. A head gasket prevents the gas from leaking between the cylinder head and the engine block. The opening and closing of the valves is controlled by one or several camshafts and springs – or in some engines – a desmodromic mechanism that uses no springs. The camshaft may press directly the stem of the valve or may act upon a rocker arm, again, either directly or through a pushrod. The crankcase is sealed at the bottom with a sump that collects the falling oil during normal operation to be cycled again. The cavity created between the cylinder block and the sump houses a crankshaft that converts the reciprocating motion of the pistons to rotational motion. The crankshaft is held in place relative to the engine block by main bearings, which allow it to rotate. Bulkheads in the crankcase form a half of every main bearing; the other half is a detachable cap.

5. A connecting rod is connected to offset sections of the crankshaft in one end and to the piston in the other end through the gudgeon pin and thus transfers the force and translates the reciprocating motion of the pistons to the circular motion of the crankshaft. The end of the connecting rod attached to the gudgeon pin is called its small end, and the other end, where it is connected to the crankshaft, the big end. The big end has a detachable half to allow assembly around the crankshaft. It is kept together to the connecting rod by removable bolts.

6. The cylinder head has an intake manifold and an exhaust manifold attached to the corresponding ports. The intake manifold connects to the air filter directly, or to a carburetor when one is present, which is then connected to the air filter. It distributes the air incoming from these devices to the individual cylinders. The exhaust manifold is the first component in

the exhaust system. It collects the exhaust gases from the cylinders and drives it to the following component in the path. The exhaust system of an ICE (internal combustion engine) may also include a catalytic converter and muffler. The final section in the path of the exhaust gases is the tailpipe.

**Exercise 8. Answer the following questions.**

1. How can the cylinders be arranged in modern engines? 2. What kinds of engines are there according to their cooling system? 3. What can you tell about the piston? 4. What are the piston rings designed for? 5. What is the purpose of the cylinder head in an engine? 6. What do you know about the fuel injection? 7. How is the crankshaft held in the engine relative to the engine block? 8. What are intake and exhaust manifolds for?

**Exercise 9. Translate the following words and word combinations into Russian.**

Reciprocating internal combustion engine; cylinders arranged in 1 or 2 rows; water-cooled engine; engine block; air-cooled engine; water jacket; transfer heat to the air; slide continuously within the cylinder; top wall of the piston; combustion chamber; crankcase; gudgeon pin; piston rings; indirect injection; intake valve, exhaust valve; combustion gases; single spark plug; direct injection; carburetor; several camshafts; rocker arm; sump; connecting rod; reciprocating motion, circular motion, detachable half; removable bolt; air filter; exhaust system.

**Exercise 10. Complete the sentences choosing the right answers.**

1. The engines with more than one cylinder are usually arranged:
  - a) in 1 or 2 rows;
  - b) in 1 to 3 rows;
  - c) in 2 to 3 rows.
2. Small air-cooled engines to transfer heat to the air have:
  - a) water jackets only;
  - b) neither fins nor water jackets;
  - c) fins protruding away from cylinder block.
3. When an engine is working the gas pressure in the combustion chamber exerts force:
  - a) on crankshaft directly;
  - b) on the piston head;
  - c) on gudgeon pin.
4. The cylinder head is attached to the engine block:
  - a) by numerous bolts or studs;
  - b) by numerous bolts and studs;
  - c) by numerous bolts and nuts.

5. The cavity created between the cylinder block and the sump houses a crankshaft that converts:

- a) the reciprocating motion of the pistons to rotational motion;
- b) the reciprocating motion of the flywheel to rotational motion;
- c) the rotational motion of the pistons to reciprocating motion.

**Exercise 11. Find in B the English equivalents to the Russian words in A.**

<i>A</i>	<i>B</i>
1) канал	a) passage; b) bulkhead; c) gudgeon.
2) отражатель	a) converter; b) carburetor; c) deflector.
3) картер двигателя	a) converter; b) deflector; c) crankcase.
4) подшипник	a) component; b) bearing; c) filter.
5) вращательный	a) rotational; b) reciprocating; c) closing.
6) не прямой	a) opposite; b) normal; c) indirect.
7) выступающий	a) transferring; b) protruding; c) leaking.
8) впуск	a) intake; b) sump; c) manifold.
9) смещенный	a) associated; b) offset; c) sealed.
10) позволять	a) transfer; b) connect; c) allow.

**Exercise 12. Translate the words and word combination in brackets into English using the text.**

1. The pistons are (короткие цилиндрические части) which (двигаются постоянно внутри цилиндра) while the engine is in operation.  
2. The base of a (поршневой двигатель внутреннего сгорания) is the engine block, which is typically made of (литое железо или алюминий).  
3. The top (стенка поршня) is called its (днище) and is typically (ровный или вогнутый). 4. The (головка цилиндра) also holds (свечу зажигания) in the case of SI engines and the (инжектор для двигателя) that use (прямой впрыск).

**Exercise 13. Translate the following words and word combinations into English using the text.**

Блок цилиндров; двухтактный двигатель; охлаждающая жидкость; давление газа в камере сгорания; днище поршня; прилагать силу на днище поршня; давление передается на поршневой палец; окружность поршня; система вентиляции; улетучиваться после работы поршня; создавать загрязнение; приточный канал; многочисленные болты и шпильки; на противоположной стороне; прямой впрыск; кулачковые валы и пружины; преобразовывать возвратно-поступательное движение поршня; путь отработавших газов; впускной коллектор; располагать цилиндры в один, два и три ряда.

## Unit 19

### DIESEL ENGINE

#### Словообразование

Суффикс **-ics**, прибавляемый к существительным, образует слова, обозначающие название наук:

linguist (лингвист) – linguistics (лингвистика).

#### **Exercise 1. Translate the following nouns into Russian.**

Strategics, aeronautics, ballistics, diplomatics, physics, dynamics.

Суффикс **-dom**, прибавляемый к существительным и к прилагательным, образует существительные, указывающие на состояние или собирательность:

bore (скучный человек) – boredom (скука).

#### **Exercise 2. Form the new words using the suffix -ate. Translate them into Russian.**

**Model:** free – freedom

Earl, duke, official, queen, king, czar, serf.

### The Infinitive

#### (Инфинитив)

В английском языке инфинитив (Infinitive) – это неличная форма глагола, которая обозначает действие, но не указывает на лицо и число. В русском языке английский инфинитив соответствует неопределенной форме глагола, которая отвечает на вопросы «что делать? что сделать?», например: *жить* – **to live**. Формальным признаком инфинитива является частица **to**: **to write** – *писать*.

Если перед глаголом стоит частица **to**, то это инфинитив. Отрицательная форма образуется с помощью частицы **not**, которая ставится перед инфинитивом: **not to use** – *не использовать*.

It is difficult *not to use*. – Трудно *не использовать*.

### The Forms of the Infinitive

#### (Формы инфинитива)

В английском языке инфинитив имеет 5 форм. Чтобы хорошо понять значения форм инфинитива, необходимо иметь представление о *залоге* и *временах* глагола.

Infinitive	Active	Passive
Indefinite	to help	to be helped
Continuous	to be helping	–
Perfect	to have helped	to have been helped

1. Форма *Indefinite Infinitive Active/Passive* выражает действие, одновременное с действием сказуемого:

I was glad **to see** her. – Я был рад *увидеть* ее (*Indefinite Infinitive Active*).

The child didn't like **to be washed**. – Ребенок не любил, когда его *мыли* (*Indefinite Infinitive Passive*).

2. Форма *Continuous Infinitive* подчеркивает продолжительность действия, происходящего одновременно с действием глагола-сказуемого. Эта форма употребляется только в активном залоге.

He seems **to be writing** something. – Кажется, он что-то *пишет* сейчас (*Continuous Infinitive Active*).

3. Инфинитив в форме *Perfect Infinitive Active / Passive* обозначает действие, которое предшествует действию глагола-сказуемого. На русский язык перфектный инфинитив часто переводится придаточным предложением со сказуемым, выраженным глаголом в прошедшем времени:

I was very glad **to have met** you. – Я был очень рад, что *встретил* вас (*Perfect Infinitive Active*).

The child was happy **to have been brought** to the circus. – Ребенок был счастлив, что его *привели* в цирк (*Perfect Infinitive Passive*).

## The Meaning of the Forms of the Infinitive

### (Значение форм инфинитива)

Indefinite Active	Mary is glad <b>to help</b> her friend. Мери ( <i>всегда</i> ) рада помочь своей подруге.
Indefinite Passive	Mary is ( <i>always</i> ) glad <b>to be helped</b> . Мери ( <i>всегда</i> ) рада, когда ей помогают.
Continuous Active	Mary is glad <b>to be helping</b> her friend <i>now</i> . Мери рада, помогает своей подруге <i>сейчас</i> .
Perfect Active	Mary is glad <b>to have helped</b> her friend. Мери рада, что помогла своей подруге.
Perfect Passive	Mary is glad <b>to have been helped</b> . Мери рада, что ей помогли.

### Exercise 3. Translate the following sentences paying attention to the forms of the infinitives.

1. The assistant came to instruct the students. 2. The assistant came to be instructed by the professor. 3. The young doctors were happy to have been sent to the international conference. 4. The students wanted to know English well. 5. The doctors were glad to have cured the child. 6. I am sure to have met him before. 7. I remember to have been met early. 8. Mike is happy to work and study here. 9. Henry promised to show her the town. 10. Victor remembered to have been told the news. 11. The weather seems to be improving. 12. I want to inform you of her arrival. 13. I want to be informed of her arrival. 14. I was sure to have met him before.

### The Functions of the Infinitive

#### (Функции инфинитива)

1) подлежащее:

*To skate is pleasant.* – Кататься на коньках приятно.

Когда инфинитив имеет при себе пояснительные слова, он обычно стоит после сказуемого. В этом случае перед сказуемым стоит местоимение **it**:

*It is a pleasure to walk in the garden.* – Приятно гулять в саду;

2) именная часть составного именного сказуемого:

*Our plan is to go to the Crimea for the summer.* – Наш план состоит в том, чтобы поехать в Крым на лето;

а) в сочетании с прилагательными с глаголом-связкой:

*I am happy to hear it.* – Я счастлив слышать это;

3) часть составного глагольного сказуемого:

а) в сочетании с модальными глаголами: **can (could)**, **may (might)**, **must, should, would**, а также с глаголами **to have** и **to be** в модальном значении:

He *can speak* English. – Он *говорит* по-английски;

б) в сочетании с глаголами, которые выражают *начало, продолжение и конец* действия: к числу таких глаголов относятся: **to begin** – *начинать*; **to start** – *начинать*; **to continue** – *продолжать*; **to stop** – *прекращать*, **to finish** – *заканчивать*;

в) в сочетании с глаголами, которые выражают отношение к действию: **to want** – *хотеть*; **to hope** – *надеяться*; **to decide** – *решать*; **to plan** – *планировать*; **to intend** – *намереваться*; **to fail** – *потерпеть*

неудачу; **to manage** – удаваться, **to agree** – соглашаться; **to learn** – научиться; **to like** – нравиться; **to dislike** – не любить; **to help** – помогать; **to hate** – ненавидеть; **to threaten** – угрожать; **to promise** – обещать; **to try** – стараться; **to expect** – надеяться; **to offer** – предлагать; **to refuse** – отказываться:

He *continued to read* the book. – Он продолжал читать книгу;

4) дополнение:

I told him *to go* there. – Я сказал ему *идти* туда;

5) определение:

а) после существительных

I have no *desire to go* there. – У меня нет *желания идти* туда;

б) Инфинитив в функции определения часто встречается также после слов **the first, the second, the third, the last** и т. д.

He will be *the first to come* to the meeting. – Он *первым придет* на собрание;

с) инфинитив в функции определения употребляется также для указания назначения предмета:

He brought me *a book to read*. – Он купил мне *книгу для чтения*;

б) инфинитив употребляется в функции *обстоятельства*:

а) для выражения *цели*:

I went there *to watch* the sunrise. – Я пошел туда, чтобы *посмотреть* на восход;

б) для выражения *цели* с союзами **in order to, so as**:

I stayed there *in order (so as) to see* what would happen. – Я остался там, *чтобы видеть* что произойдет;

с) для выражения *следствия* со словами **too, enough, sufficiently**:

It is *too cold to bathe* today. – Сегодня *слишком* холодно, чтобы *купаться*.

Tom is *old enough to marry*. – Том *достаточно* взрослый, чтобы *жениться*;

He is *sufficiently strong to win* in this fight. – Он *достаточно* силен, чтобы *победить* в этом бою.

д) для выражения *сравнения* после союзов **as if, as though**:

John stopped *as if (as though)* to listen to strange noise. – Джон остановился, как будто *прислушиваясь* к странному шуму.

**Exercise 4. Translate the following sentences into Russian and state the Infinitive functions.**

1. To err is human. 2. To live is to think. 3. To explain this simple fact is not so easy. 4. It's impossible to deny this. 5. It was a great thing to live in New York. 6. To improve your writing, you must write the letters correctly.

7. Britain must try to import fewer goods from overseas so as to help her own industries. 8. To improve your writing is necessary for your academic success. 9. The box was too heavy for me to lift. 10. They helped to cook the meal. 11. Plants need light in order to survive. 12. Can you give me a book to read? 13. I couldn't run fast enough to catch up with her. 14. Snow was sufficiently encrusted to bear a pedestrian. 15. I expected to be met at the station yesterday. 16. He paused for a moment as if to arrange his thoughts. 17. The father removed his belt and raised it as though to hit the child. 18. She was the first to arrive. 19. He was the last to leave. 20. I will go to Japan next month. 21. My aim is to master English. 22. The problem was to avoid massive unemployment. 23. He went to London in order to study English. 24. Sociable people are easy to deal with. 25. His advice was hard to follow. 26. She can speak English. 27. Press Enter to start the installation. 28. I was too tired to notice it. 29. The carbon has to be obtained from the carbon dioxide in the air.

**Exercise 5. Read and memorize the following words and word combinations.**

aftercool ['ɑ:ftəku:l] – доохладить наддувочный воздух  
 turbocharge ['tɜ:bəʊtʃɑ:dʒ] – производить наддув  
 intermittent [,ɪntə'mɪt(ə)nt] – прерывистый  
 compression ratio [kəm'preʃən 'reɪʃiəu] – степень сжатия  
 supplemental [,sʌplɪ'mentəl] – дополнительный  
 constant-volume process ['kɒnstənt 'vɒljʊ:m 'prəuses] – изохорический процесс  
 top dead centre ['tɒpded 'sentə] – верхняя мёртвая точка  
 power output ['paʊə 'aʊtpʊt] – выходная мощность  
 after-cooler ['ɑ:ftəku:lə] – доохладитель  
 power capacity ['paʊə kə'pæsəti] – мощность  
 heavy-duty truck ['hevi'dju:ti trʌk] – грузовой автомобиль большой грузоподъёмности  
 in excess of [ɪnɪk'ses əv] – свыше  
 marine [mə'ri:n] – морской флот, транспорт  
 revolution [revə'lju:ʃən] – оборот  
 critical ['krɪtɪkəl] – важный  
 pre-combustion chamber [pri:kəm'bʌstʃən 'ʃeɪmbə] – предкамера  
 pre-chamber [pri:'ʃeɪmbə] – предкамера  
 orifice ['ɔ:rɪfɪs] – отверстие  
 combustion cup [kəm'bʌstʃən kʌp] – чашка сгорания  
 fuel line [fju:əl laɪn] – топливопровод  
 consistent [kən'sɪstənt] – последовательный

**Exercise 6. Read and translate the following text.**

1. The diesel engine is sometimes called a compression-ignition engine because initiation of combustion relies on air heated by compression. The air must be heated to a temperature greater than the temperature at which the injected fuel can ignite. Air temperatures are typically in excess of 526 °C; however, at engine start-up, supplemental heating of the cylinders is sometimes employed. It converts the chemical energy stored in the fuel into mechanical energy. The most outstanding feature of the diesel engine is its efficiency. So this type of engines are often turbocharged and aftercooled. Addition of a turbocharger and aftercooler can enhance the performance of a diesel engine in terms of both power and efficiency.

2. The diesel engine is an intermittent-combustion piston-cylinder device. It operates on either a two-stroke or four-stroke cycle and is typically constructed with compression ratios in the range 14:1 to 22:1. Diesel engine fuel-injection systems are typically designed to provide injection pressures in the range of 7 to 70 megapascals (1,000 to 10,000 pounds per square inch). Since the entire combustion process is controlled by fuel injection, it must begin at the correct piston position (i.e., crank angle). At first the fuel is burned in a nearly constant-volume process while the piston is near top dead centre. As the piston moves away from this position, fuel injection is continued, and the combustion process then appears as a nearly constant-pressure process.

3. There are three groups of diesel engines based on power – small, medium, and large. The small engines have power-output values of less than 188 kilowatts or 252 horsepower. These engines are used in automobiles, light trucks, stationary electrical-power generators and as mechanical drives. They are typically direct-injection, in-line, four- or six-cylinder engines. Many are turbocharged with aftercoolers. Medium engines have power capacities ranging from 188 to 750 kilowatts, or 252 to 1,006 horsepower. The majority of these engines are used in heavy-duty trucks. They are usually direct-injection, in-line, six-cylinder turbocharged and aftercooled engines. Some V-8 and V-12 engines also belong to this size group.

4. Large diesel engines have power ratings in excess of 750 kilowatts. These unique engines are used for marine, locomotive, and mechanical drive applications and for electrical-power generation. In most cases they are direct-injection, turbocharged and aftercooled systems. They may operate at as low as 500 revolutions per minute when reliability and durability are critical. The proper configuration of a fuel injection is very

significant for reliable diesel engine operation. Both mechanical and electronic injection systems can be used in either direct or indirect injection configurations. An Indirect Diesel Injection system (IDI) engine delivers fuel into a small chamber called a pre-combustion chamber, which is connected to the cylinder by a narrow air passage. Generally the goal of the pre-chamber is to create increased turbulence for better air/fuel mixing. This system ensures the engine's smoother and quieter running, its greater efficiency and easier starting. Most IDI systems tend to use a single orifice injector.

5. Direct injection diesel engines inject fuel directly into the cylinder. In this system the injector and the pump are combined into one unit positioned over each cylinder controlled by the camshaft. Usually there is a combustion cup in the top of the piston where the fuel is sprayed. Each cylinder has its own unit eliminating the high-pressure fuel lines, achieving a more consistent injection.

**Exercise 7. Answer the following questions.**

1. Why is the diesel engine sometimes called a compression-ignition engine? 2. Do turbocharger and aftercooler add some positive features to the diesel engine? 3. What cycles does the diesel engine operate on? 4. What range of pressures is the diesel engine designed to work on? 5. The sphere of application of the small diesel engines is very wide, isn't it? 6. The large diesel engines can perform very heavy operations, can't it? 7. What configurations of fuel injection are used in diesel engines?

**Exercise 8. Translate the following words and word combinations into Russian.**

Compression-ignition engine; air heated by compression; supplemental heating; chemical energy; power and efficiency; compression ratio, fuel-injection system; provide injection pressure; entire combustion process; correct piston position; crank angle; top dead centre; power-output value; stationary electrical-power generator; turbocharged and aftercooled engine; power rating; mechanical and electronic injection system; better air/fuel mixing; indirect injection configuration; engine's smoother and quieter running; single orifice injector; combustion cup; high-pressure fuel line.

**Exercise 9. Say whether the following statements are true or false. Correct the false ones using the text.**

1. In this system the injector and the pump are combined into one unit positioned over each cylinder controlled by the crankshaft. 2. Only mechanical injection system can be used in either direct or indirect injection configurations. 3. Large diesel engines may operate at 450 revolutions per

minute when reliability and durability are critical. 4. The majority of medium diesel engines are used in heavy-duty trucks. 5. The entire combustion process is controlled by fuel injection and begins at the correct crank angle. 6. The diesel engine is called a compression-ignition engine because initiation of combustion relies on spark plug.

**Exercise 10. Translate the following words and word combinations into English using the text.**

Температура воздуха обычно выше 526 °С; самая выдающаяся конструктивная особенность; преобразовывать химическую энергию; увеличить коэффициент полезного действия дизельного двигателя; на основе четырехтактного цикла; степень сжатия в диапазоне от 14:1 до 22:1; весь процесс сгорания; верхняя мертвая точка; три группы дизельных двигателей; механический привод; стационарные электрические генераторы; работать со скоростью вращения коленвала в 500 оборотов в минуту; система прямого впрыска; узкий воздушный канал; форсунка и насос объединены в один агрегат; топливопровод высокого давления.

**Exercise 11. Find in B the English equivalents to the Russian words in A.**

- | <b>А</b>      | <b>В</b>                                    |
|---------------|---|
| 1) горение    | a) combustion; b) injection; c) ignition.   |
| 2) запуск     | a) energy; b) start-up; c) volume.          |
| 3) работать   | a) inject; b) connect; c) operate.          |
| 4) обычно     | a) nearly; b) typically; c) critically.     |
| 5) весь       | a) significant; b) intermittent; c) entire. |
| 6) уникальный | a) unique; b) stationary; c) marine.        |
| 7) камера     | a) cylinder; b) chamber; c) power.          |
| 8) положение  | a) camshaft; b) passage; c) position.       |
| 9) привод     | a) drive; b) piston; c) configuration.      |
| 10) диапазон  | a) temperature; b) turbulence; c) range.    |

**Exercise 12. Translate the expressions into Russian paying attention to the prepositions.**

Initiation *of* combustion, heated *to* a temperature, *in excess of* 526 °C, *at* engine start-up, heating *of* cylinder, stored *in* the fuel, feature *of* diesel engine, type *of* engine, *in terms of* power and efficiency, *in* the range 14:1 to 22:1, controlled *by* fuel injection, *at* the correct position, power capacities ranging *from* 188 to 750, engine used *for* marine, *in* most cases, operate *at* 500 revolutions, revolutions *per* minute, significant *for* engine operation, deliver fuel *into* a chamber, goal *of* pre-chamber, combine *into* one unit.

**Exercise 13. Read the following text and translate it into Russian in written.**

1. **Chassis.** In most passenger cars through the middle of the 20th century, a pressed-steel frame (*штампованная стальная рама*) – the vehicle's chassis – formed a skeleton (*каркас*) on which the engine, wheels, axle assemblies (*мосты в сборе*), transmission, steering mechanism, brakes, and suspension members (*детали, узлы*) were mounted.

2. The body was flexibly bolted to the chassis during a manufacturing process. This process is used today for heavy-duty vehicles, such as trucks, which have a strong central frame, subjected to the forces in such activities as carrying freight, including the absorption of the movements of the engine and axle that is allowed by the combination of body and frame.

3. In modern passenger-car designs, the chassis frame and the body are combined into a single structural element. In this arrangement, called a unibody, the steel body shell is reinforced with braces that make it rigid enough to resist the forces that are applied to it.

4. Separate frames have been used for some cars to achieve better noise-isolation characteristics. The heavier-gauge steel present in modern component designs also tends to absorb energy during impacts and limit intrusion in accidents.

## Unit 20

### PETROL ENGINE

#### The Complex Subject

#### (Субъектный инфинитивный оборот)

Субъектный инфинитивный оборот (The Complex Subject), или сложное подлежащее, состоит из *существительного или личного местоимения* в именительном падеже и *инфинитива*, обозначающего действие. Эта конструкция разделена на две части *глаголом-сказуемым* в личной форме, который используется в *страдательном* или в *действительном залоге*. На русский язык данный оборот переводится сложноподчиненным предложением с вводными словами (*говорят, известно, что; по-видимому* и др.)

подлежащее	сказуемое	инфинитив	второстепенные члены предложения
Tom	is said	to be	ill.
<i>Говорят, что Том болен.</i>			
Mike	is seen	to enter	the house.
<i>Видно, как Майк входит в дом.</i>			
Her cousin	appeared	to forget	her phone number.
<i>Видимо, ее двоюродный брат забыл ее номер телефона.</i>			

В *страдательном* залоге данный оборот употребляется:

1) с глаголами *сообщения*:

to announce – объявлять

to describe – описывать

to report – сообщать

to say – говорить

to state – заявлять.

*They are reported to arrive* in two days. – *Сообщают, что они* прибудут через два дня;

2) с глаголами *мышления* (*мнение, предположение, надежда*):

to believe – полагать

to consider – считать

to expect – ожидать

to know – знать

to suppose – предполагать

to think – думать

to understand – понимать.

*Dick is known to be* a good writer. – *Известно, что Дик* хороший писатель;

3) с глаголами *чувственного восприятия*:

to see – видеть

to hear – слышать

to feel – чувствовать

to notice – замечать

to observe – замечать

to watch – наблюдать.

*Birds were heard to sing* in the garden. – *Было слышно, как птицы* поют в саду;

4) с глаголом-сказуемым в *действительном* залоге:

to seem – казаться

to prove – оказаться

to turn out – оказаться

to happen – случаться

to chance – случаться

to appear – казаться.

*She happened to be* there when the police arrived. – Она случайно оказалась там, когда прибыла полиция;

5) с глаголом-сказуемым, выраженным прилагательным с глаголом-связкой:

to be likely – вероятно

to be unlikely – маловероятно

to be sure – безусловный.

to be certain – наверняка.

*He is likely to come.* – Вероятно, он придет.

### **Exercise 1. Translate the following sentences paying attention to the Complex Subject.**

1. They are expected to come to our city tomorrow. 2. He seems to know very little about research work. 3. The doctor was expected to come in the evening. 4. They are said to know English very well. 5. She is believed to be working in Germany now. 6. You are supposed to graduate in four years. 7. The delegation is reported to have left for England. 8. The sawmill is known to produce good quality products. 9. They are known to have been good friends for many years. 10. This department store is considered to be the most popular store in the town. 11. This text happened to be very difficult for translation. 12. He was seen to leave Moscow on Friday afternoon. 13. The number of the unemployed is reported to have increased. 14. Ted was known to be a clever and hard-working student. 15. This device appeared to be very effective. 16. The new type of fuel was thought to be very expensive. 17. He appeared to be a good friend to all of us. 18. The equipment seemed to be in a very good condition. 19. The office turned out to be quite close. 20. They were sure to come to an agreement. 21. He is said to be very ill. 22. All our efforts proved to be useless. 23. He is likely to arrive in the evening. 24. She seemed to like her job.

## **The Complex Object**

### **(Объектный инфинитивный оборот)**

Объектный инфинитивный оборот (The Complex Object), или сложное дополнение, состоит из *существительного* или *личного местоимения* в объектном падеже (*me, him, her, it, us, you, them*) и *инфинитива* и употребляется лишь после глаголов, выражающих желание, восприятие, предположение, приказание, просьбу:

подлежащее	сказуемое	оборот «сложное дополнение»	второстепенные члены предложения
Mary	wanted	them to read	that book.
<i>Мэри</i>	<i>хотела,</i>	<i>чтобы они прочитали</i>	<i>эту книгу.</i>
We	heard	our friends come back	in the evening.
<i>Мы</i>	<i>услышали,</i>	<i>что наши друзья вернулись</i>	<i>вечером.</i>

Данный оборот с инфинитивом с частицей **to** употребляется:

1) после глаголов, выражающих *желание, чувства, намерение*:

to desire – желать

to hate – ненавидеть

to like – любить, нравиться

to dislike – не нравиться

to love – любить

to prefer – предпочитать

to want – хотеть

to wish – желать

would/should like – желать.

I should like us to be invited to the conference. – Я хотел бы, *чтобы нас пригласили* на конференцию;

2) после глаголов, выражающих *умственную деятельность*. В этой роли над всеми этими глаголами витает общее значение – *полагать, предполагать, считать*.

to believe – полагать

to consider – считать

to declare – заявлять

to expect – ожидать

to find – обнаруживать

to know – знать

to remember – помнить

to suppose – полагать

to think – думать

to understand – понимать.

We know him to be a good artist. – Мы знаем, *что он* хороший художник;

3) После глаголов, выражающих *побуждение (приказ, просьбу, разрешение, предупреждение)*:

to advise – советовать

to allow – позволять

to ask – просить

to command – приказывать  
to force – принуждать  
to order – приказывать  
to permit – разрешать  
to recommend – рекомендовать  
to request – просить  
to tell – велеть  
to warn – предупреждать.

I ask you not to be late this time. – Я прошу вас не опаздывать на этот раз.

Объектный инфинитивный оборот с инфинитивом бес частицы **to** употребляется:

4) после глаголов: **to make** – заставлять, **to let** – позволять.

They made her come. – Они заставили ее прийти.

Let me know when you are ready. – Дай мне знать, когда будешь готов;

5) После глаголов, выражающих *восприятие* при помощи органов чувств. Как правило, переводятся глаголами совершенного вида:

to feel – чувствовать  
to hear – слышать  
to notice – замечать  
to observe – наблюдать  
to see – видеть  
to watch – наблюдать.

I never saw him cry. – Я никогда не видел, чтобы он плакал.

**Exercise 3. Translate the following sentences paying attention to the Complex Object.**

**A.** 1. He wanted us to visit the art exhibition. 2. I expect you to tell me everything. 3. I suppose her to be about 50. 4. The teacher does not consider him to be a good student. 5. The engineer expected the work to be done in time. 6. We expect you to show good results. 7. The discovery showed the atomic nucleus to be a vast source of energy. 8. We know him to have graduated from the Institute two years ago. 9. Everybody knows him to be writing a new book. 10. We know cybernetics to be an important branch of modern technology. 11. We thought him to have taken part in their experiment. 12. Did you want the plan to be improved?

**B.** 1. We saw them play football. 2. I felt my hands tremble. 3. I heard him speak at the meeting. 4. They didn't see him enter the room. 5. We saw an old woman fall in the street. 6. Did you see the stranger go out?

7. We noticed the boy hide something in his pocket. 8. The policeman saw the woman pick up something from the floor. 9. The football fans saw the player take the ball and score the first goal. 10. The young mother watched her son play on the sand near the river. 11. The teacher let us use dictionaries at the test. 12. Let us go and have a cup of tea. 13. Mother made her sons clean their room.

**Exercise 4. Read and memorize the following words and word combinations.**

volatile fuel ['vɒlətaɪl] [fju:əl] – летучее горючее, легкоиспаряющееся топливо

pre-mix [pri:'mɪks] – предварительно смешивать

carburetor [ˌkɑ:bə'reɪtə] – карбюратор

cylinder arrangement ['sɪlɪndə ə'reɪndʒmənt] – расположение цилиндров

in-line [ɪn'laɪn] – в один ряд

V-engine [vi:'endʒɪn] – двигатель с v-образным расположением цилиндров

W-engine ['dʌblju:'endʒɪn] – трёхрядный индукторный двигатель

radial engine ['reɪdiəl 'endʒɪn] – двигатель со звездообразно расположенными цилиндрами

single ring ['sɪŋɡl rɪŋ] – одинарный кольцевой ряд

stroke [strəʊk] – такт

high voltage current [haɪ 'vɔʊltɪdʒ 'kʌrənt] – ток высокого напряжения

magneto [mæg'ni:təʊ] – магнето, индукто

ignition coil [ɪg'niʃən kɔɪl] – катушка зажигания

ignition timing [ɪg'niʃən 'taɪmɪŋ] – регулирование момента зажигания  
(в двигателях внутреннего сгорания)

Engine Control Unit ['endʒɪn kən'trəʊl 'ju:nɪt] – блок управления двигателем

radiator ['reɪdɪeɪtə] – радиатор

coolant ['ku:lənt] – охлаждающая жидкость, смазочно-охлаждающая эмульсия

ethylene glycol ['ɛθɪli:n 'ɡlɪkəl] – этиленгликоль

propylene glycol ['prɒpɪli:n 'ɡlɪkəl] пропиленгликоль

freezing point ['fri:zɪŋ pɔɪnt] – точка замерзания

boiling point ['bɔɪlɪŋ pɔɪnt] – точка кипения

antifreeze ['æntɪfri:z] – антифриз

water pump seal ['wɔ:təpʌmp si:l] – уплотнение водяного насоса

cooling system ['ku:lɪŋ 'sɪstəm] – система охлаждения

intake valve ['inteɪk, vælv] – впускной клапан  
intake stroke ['inteɪk, strəʊk] – такт впуска  
be contingent on [bi: kən'tɪndʒənt ən] – зависеть от  
compression stroke [kəm'preʃən, strəʊk] – такт сжатия  
charge [tʃɑ: dʒ] – загрузочная доза топлива  
power stroke ['paʊə, strəʊk] – рабочий ход (*двигателя*)  
exhaust valve [ɪg'zɔ: st, vælv] – выпускной клапан  
fuel management [fju: əl 'mænɪdʒmənt] – управление расходом

топлива

rotor arrangement ['rəʊtə ə'reɪndʒmənt] – конструкция ротора  
drag racing [dræg 'reɪsɪŋ] – дрег-рейсинг (*парные линейные гонки на ускорение*)

nitromethane [, naɪtrəʊ'mi: θem] – нитрометан

other than ['ʌðə, ðæn] – помимо, отличный от

**Exercise 5. Read and translate the following text.**

1. A petrol engine is an internal combustion engine with spark-ignition, designed to run on petrol and similar volatile fuels. In most petrol engines, the fuel and air are usually pre-mixed before compression (although some modern petrol engines now use cylinder-direct petrol injection). The pre-mixing was formerly done in a carburetor, but now it is done by electronically controlled fuel injection. The process differs from a diesel engine in the method of mixing the fuel and air, and in using spark plugs to initiate the combustion process. In a diesel engine, only air is compressed (and therefore heated), and the fuel is injected into very hot air at the end of the compression stroke, and self-ignites.

2. Common cylinder arrangements are from 1 to 6 cylinders in-line or from 2 to 16 cylinders in V-formation. Less common, but notable in vehicles designed for high speeds is the W-formation. Alternatives include rotary and radial engines the latter typically have 7 or 9 cylinders in a single ring, or 10 or 14 cylinders in two rings. Petrol engines run at higher speeds than diesels, partially due to their lighter pistons, connecting rods and crankshaft, and due to petrol burning more quickly than diesel. Because pistons in petrol engines have much shorter strokes than pistons in diesel engines, typically it takes less time for a piston in a petrol engine to complete its stroke than a piston in a diesel engine. However the lower compression ratios of petrol engines give petrol engines lower efficiency than diesel engines.

3. Petrol engines use spark ignition and high voltage current for the spark may be provided by a magneto or an ignition coil. In modern car engines the ignition timing is managed by an electronic Engine Control Unit. Petrol engines may be air-cooled, with fins or liquid-cooled, by a water jacket and radiator. The coolant was formerly water, but is now usually a mixture of water and either ethylene glycol or propylene glycol. These mixtures have lower freezing points and higher boiling points than pure water and also prevent corrosion, with modern antifreezes also containing lubricants and other additives to protect water pump seals and bearings. The cooling system is usually slightly pressurized to further raise the boiling point of the coolant.

4. Most vehicles today are built with piston-and-cylinder four-stroke petrol engines. In the four-stroke cycle, an ignitable mixture of gas and air are drawn through an intake valve inside the cylinder. This is known as the intake stroke. This mixture is then compressed as the piston inside the cylinder is driven upwards near the end of a second stroke, the compression stroke, with the intake valves being closed off. At the end of the compression stroke, a charge is ignited by an electric spark generated from spark plugs. What follows is a third stroke, known as a power stroke.

5. Both intake valves remain closed and as a result of ignition, the gas and air mixture inside the cylinder burn off and expand, applying pressure on the piston in a downward exhaust valve movement. As the piston ascends in a fourth and final stroke, it opens an exhaust valve where the gas byproducts from combustion are released through. This entire cycle is repeated again and again and is contingent on four-strokes of the piston and two revolutions of the crankshaft. Petrol engines can be grouped according to application, method of fuel management, ignition, piston or cylinder arrangement, rotor arrangement (Wankel engine), strokes per combustion cycle (two or four), cooling system, and valve type and location. These engines can run on fuels other than petrol/gasoline, such as liquefied petroleum gas (LPG), methanol, ethanol, bioethanol, compressed natural gas (CNG), hydrogen, and (in drag racing) nitromethane.

**Exercise 6. Answer the following questions.**

1. What fuel is the petrol engine designed to run on? 2. What is the difference in operation of the petrol engine as compared with the diesel engine? 3. What kinds of cylinder arrangements are used for building petrol engines? 4. Why do the petrol engines run at higher speeds than diesel engines? 5. Why is a mixture of water and either ethylene glycol or

propylene glycol used as coolant in petrol engines? 6. What is the intake stroke in a petrol engine? 7. How can petrol engines be grouped?

**Exercise 7. Translate the following words and word combinations into English using the text.**

Бензиновый двигатель; искровое зажигание; карбюратор; летучее топливо; прямой впрыск бензина в цилиндр; начинать процесс горения; транспортные средства; шатун; двигатель со звездообразно расположенными цилиндрами; коленчатый вал; более короткий такт; более низкий коэффициент сжатия; более низкий коэффициент полезного действия; ток высокого напряжения; катушка зажигания; блок управления двигателем; двигатель воздушного охлаждения; двигатель с жидкостным охлаждением; четырехтактный бензиновый двигатель; клапан впуска; сжатый природный газ.

**Exercise 8. Translate the words and word combination in brackets into English using the text.**

1. The (предварительное смешивание) was formerly done (в карбюраторе), but now it is done by electronically controlled (впрыск топлива). 2. (Альтернативами являются) rotary and radial engines the (последние обычно имеют) 7 or 9 cylinders in a (одно кольцо), or 10 or 14 cylinders in two rings. 3. In (современные автомобильные двигатели) the (регулирование момента зажигания) is managed by an electronic Engine Control Unit. 4. This mixture (затем сжимается) as the piston inside the cylinder is driven upwards (ближе к моменту завершения второго такта), the compression stroke, with the (впускные клапаны) being closed off.

**Exercise 9. Make up word combinations using the text and translate them.**

- |                  |                               |
|------------------|-------------------------------|
| 1) modern        | a) combustion cycle           |
| 2) method        | b) petrol burning             |
| 3) common        | c) mixture of gas             |
| 4) rotary        | d) spark ignition             |
| 5) due to        | e) byproducts                 |
| 6) use           | f) of the coolant             |
| 7) boiling point | g) and radial engines         |
| 8) ignitable     | h) cylinder arrangements      |
| 9) gas           | i) of mixing the fuel and air |
| 10) strokes per  | j) petrol engines             |

**Exercise 10. Match the words with their definitions.**

- |                |   |
|----------------|---|
| 1) petrol      | a) the movement of an object in a circular course   |
| 2) injection   | b) a liquid used to remove heat from something      |
| 3) fuel        | c) starting the combustion of fuel in a cylinder    |
| 4) crankshaft  | d) process of corroding or being corroded           |
| 5) stroke      | e) the force exerted per unit area                  |
| 6) coolant     | f) the direct introduction of fuel under pressure   |
| 7) corrosion   | g) the main shaft of an engine                      |
| 8) ignition    | h) a substance burned to provide heat or power      |
| 9) pressure    | i) the whole motion of a piston in either direction |
| 10) revolution | j) a liquid used as a fuel for motor vehicles       |

**Exercise 11. Translate the following words and word combinations into Russian.**

Method of fuel management; piston and cylinder arrangement; cooling system, exhaust valve movement; revolutions of the crankshaft; power stroke; compression stroke; electric spark plugs; piston inside the cylinder; four-stroke cycle; boiling point of the coolant; water pump and bearings; cooling system; modern antifreeze; freezing point; water jacket and radiator; magneto; rotary and radial engines; vehicles designed for high speeds, controlled fuel injection; fuel and air pre-mixture; petrol and similar volatile fuels; internal combustion engine with spark-ignition.

**Unit 21**

**COOLING SYSTEM**

**The Gerund**

**(Герундий)**

Герундий – это неличная форма глагола, которая выражает название действия и сочетает в себе признаки глагола и существительного. Герундий образуется путем прибавления к основе глагола в неопределенной форме окончания -ing:

to read – **reading**.

Так как формы, аналогичной герундию, в русском языке нет, то переводить герундий можно по-разному:

1. Reading helps you learn English. – Чтение помогает вам изучать английский язык.

2. She enjoys driving a car. – Ей доставляет удовольствие водить машину.

3. He entered the room without saying “hello”. – Он вошел в комнату, не сказав «привет».

4. Do you remember taking your final exam? – Вы помните, как вы сдавали выпускной экзамен?

5. Thank you for coming. – Спасибо, что пришли.

## The Forms of the Gerund

### (Формы герундия)

	Active	Passive
Indefinite (Simple)	writing	being written
Perfect	having written	having been written

Простая форма герундия (Indefinite or Simple Gerund) обозначает действие, которое происходит одновременно с действием глагола-сказуемого:

He likes *telling* fairy tales. – Он любит *рассказывать* сказки.

He likes *being told* fairy tales. – Он любит, *чтобы ему рассказывали* сказки.

Перфектная форма герундия (Perfect Gerund) обозначает действие, которое предшествует действию глагола-сказуемого:

He is proud of *having spoken* to this famous person. – Он гордится, что *поговорил* с этим знаменитым человеком.

He is proud of *having been spoken* to. – Он гордится, что *с ним поговорили*.

## The Functions of the Gerund

### (Функции герундия в предложении)

Ввиду того что герундий является чем-то средним между английским глаголом и существительным, он может принимать на себя различные функции в предложениях. Он может быть дополнением, обстоятельством, подлежащим, определением:

1) функция *подлежащего*:

*Running* is very useful. – *Бег* очень полезен.

Герундий, выполняющий функцию подлежащего, может стоять после сказуемого. В этом случае перед сказуемым стоит формальное подлежащее **it**:

**It is (of) no use, it is useless, it is no good** – бесполезно, **it is worth while** – стоит (потраченного времени).

It's no use *talking* about it. – Бесполезно *говорить* об этом;

2) функция *предложного дополнения*:

He is fond of *swimming*. – Он обожает *купание*

В функции *предложного дополнения* употребляется после глаголов с предлогами, чаще **of, for, in** и др. Например:

to agree on/to – соглашаться с

to complain of – жаловаться на

to consist in – заключаться в

to count on/upon – рассчитывать на

to depend on – зависеть от

to feel like – хотеть, собираться

to hear of – слышать о

to insist on – настаивать на

to keep from – удерживать(ся) от

to look forward to – предвкушать

to object to – возражать против

to persist in – упорно продолжать

to result in – иметь результатом

to succeed in – удаваться

to suspect of – подозревать в

to thank for – благодарить за

to think of – думать о

3) функция *прямого дополнения*:

He avoided *looking* at us. – Он избегал *смотреть* на нас.

В данной функции герундий употребляется в качестве *прямого дополнения* после ряда глаголов:

to admit – допускать, признавать

to avoid – избегать

to delay – откладывать

to deny – отрицать, отвергать

to dislike – не нравиться

to enjoy – наслаждаться, нравиться

to escape – убегать

to excuse – извинять(ся)

to finish – закончить  
to forgive – прощать, извинять  
to imagine – воображать  
to mention – упоминать  
to mind – возражать (в вопросах и отрицаниях)  
to postpone – откладывать  
to risk – рисковать  
to stop – прекращать  
to suggest – предлагать.

С глаголом **to go** герундий используется в некоторых характерных сочетаниях:

to go fishing – ходить на рыбалку  
to go dancing – заниматься танцами  
to go shopping – ходить за покупками  
to go skating – кататься на коньках  
to go swimming – заниматься плаванием  
to go walking – ходить на прогулку;

4) функция *обстоятельства времени* после союзов **after, before, on**:

After coming home he drank a cup of tea. – По *возвращении* домой он выпил чашку чая;

5) функция *обстоятельства образа действия* с предлогом **by**:

By doing that you'll save a lot of time. – *Поступая так*, ты сэкономишь массу времени;

6) функция *сопутствующих обстоятельств* с предлогами **without, besides, instead of**:

Mr Brown went out without saying a word. – М-р Браун вышел, *не сказав* ни слова.

Instead of stopping the rain increased. – Вместо того чтобы *прекратиться*, дождь усилился;

7) функция *обстоятельства цели* с составными предлогами **for the purpose of, with the object of, with a view to**:

Tom came to Moscow with the object of buying a car. – Том приехал в Москву для *того, чтобы купить* автомобиль;

8) функция *части составного именного сказуемого*:

My mother's hobby is making cakes. – Хобби моей матери – *делать* торты;

9) функция *определения*:

I like her manner of speaking. – Мне нравится её манера *говорения*.

В роли определения герундий обычно стоит после поясняемого существительного с различными предлогами, чаще с **of, for, in, at, about** и **to**:

apology for – извинение  
art of – искусство  
astonishment at – удивление  
chance of – шанс, возможность  
disappointment at – разочарование  
experience in – опыт  
fear of – страх  
habit of – привычка  
hope of – надежда на  
idea of – идея, мысль о  
interest in – заинтересованность в  
plan for – план  
pleasure of – удовольствие  
possibility of – возможность  
preparation for – приготовление  
reason for – причина, основание для  
right of – право на  
skill in – мастерство  
surprise at – удивление  
thought of – мысль о  
way of – способ, путь.

**Exercise 1. Translate the following sentences into Russian.**

1. The dishes are dirty. They need washing. 2. She disliked living in her old house. 3. She was thinking of buying a new one at the seaside. 4. The story was funny. He couldn't help laughing. 5. I'm used to jogging in the morning. 6. Usually she enjoyed talking to them and didn't mind helping them. 7. On reading the letter Tom hid it. 8. But she doesn't like washing and ironing. 9. John, avoid driving in rainy weather! 10. She doesn't mind working a lot, you know. 11. She enjoys driving an expensive car. 12. She has always dreamt of travelling round the world. 13. The exhibition is worth visiting. 14. She has risen to be head of the company in spite of being a woman in a man's world. 15. She loves meeting people because she can't bear being alone at all. 16. You can't do this work without getting your clothes dirty. 17. She enjoys being photographed because she thinks she's beautiful. 18. She hates being laughed at. 19. She likes being stared at because she thinks she's attractive. 20. But she hates being ignored. 21. I was tired of being a bookkeeper. 22. Let him go on reading.

**Exercise 2. Use the Gerund in the Passive Voice paying attention to the model.**

**Model:** I like *visiting* other people. – I like *being visited* by other people.

1. I don't mind sending him there. 2. I'm looking forward to showing them the place. 3. I remember asking him for help. 4. He was tired of asking questions. 5. I avoid visiting strangers. 6. The manager objects to reading this regulation. 7. They insist on letting him in. 8. Do you mind telling us how to do it? 9. I avoid asking for help. 10. Why are you afraid of asking him questions? 11. I don't mind leaving him alone. 12. Why do you object to showing them the letter?

**Exercise 3. Transform the sentences using the Gerund according to the model.**

**Model:** I want to get this information. I'm interested in it. I'm interested *in getting* this information.

1. Steve has a dream. He wants to have a house in the country. 2. Let's phone him at once. I insist on it. 3. Why must we go there? What's the use of it? 4. I often eat at restaurants. I'm fond of it. 5. We'll meet him soon and we are looking forward to it. 6. Mark couldn't hurt the child. He is incapable of it. 7. I don't ride my bike in the park any more. I've given it up. 8. Let's go by plane. I don't object. 9. Susan can't stay here anymore. She is tired. 10. Barbara likes playing tennis. She is fond of it.

**Exercise 4. Choose the correct preposition.**

1. Read the rule ... writing the exercise. (*after, before, by the time*)
2. Diana is fond ... collecting posters of pop singers. (*for, to, of*)
3. Betty likes art and she is keen ... visiting art galleries. (*in, on, about*)
4. Black is tired ... painting the wall. He has been working for 5 hours. (*of, after, for*)
5. Susan is clever ... learning English. (*of, for, at*)
6. I don't understand how David can fish for hours ... catching anything. (*with, without, on*)
7. Kate bought a book ... buying an umbrella. (*but, without, instead of*)
8. ... visiting the British Museum the tourists were very much impressed. (*After, Before, Instead of*)
9. I can't get used ... getting up early. (*for, with, to*)
10. ... hearing the news Mr White felt pleased. (*On, With, By*)
11. We were fascinated ... Ella's singing Russian songs. (*by, about, on*)
12. I like the idea ... visiting St. Petersburg this summer. (*of, to, about*)
13. Jack answered the examiners' questions ... thinking and later he regretted it. (*without, instead of, with*)

14. Thank you ... helping us In troubles. (*about, by, for*)  
 15. My friends and I dream ... going to England. (*to, of, for*)  
 16. Children went out ... switching off the light. (*with, without, before*)  
 17. We were surprised ... meeting Alice at the theatre. She was going to stay at home on that day. (*at, by, with*)  
 18. Sorry ... interrupting you, but could you show me the way to the nearest cinema? (*at, for, of*)  
 19. We have improved our English ... learning the new words and rules every day. (*by, for, with*)  
 20. Pamela is looking forward ... visiting London again. (*to, on, about*)

**Exercise 5. Put the infinitives in brackets in the Gerund Active or Passive.**

1. Why do you avoid (speak) to me? 2. Barbara tried to avoid (speak) to.  
 3. The doctor insisted on (send) the sick man to hospital. 4. The child insisted on (send) home at once. 5. Do you mind his (examine) by a heart specialist? 6. He showed no sign of (recognize) me. 7. She showed no sign of (surprise). 8. He had a strange habit of (interfere) in other people's business. 9. I was angry at (interrupt) every other moment. 10. Donald was always ready for (help) people. 11. Dick was very glad of (help) in his difficulty. 12. On (allow) to leave the room the children immediately ran out into the yard and began (play). 13. In (make) this experiment they came across some very interesting phenomena. 14. The results of the experiment must be checked and re-checked before (publish). 15. The doctor insisted on (send) the sick man to hospital. 16. He was good at (repair) cars. 17. She was sorry for (come) late. 18. The children ran out the room and began (play). 19. He seemed sorry for (be) rude. 20. The girl had no talent for (dance). 21. After (check) the students' papers, the teacher handed them back. 22. Excuse her for (break) her cup.

**Exercise 6. Read and memorize the following words and word combinations.**

- cooling system ['ku:lɪŋ 'sɪstəm] – система охлаждения  
 melting point ['meltɪŋ 'pɔɪnt] – точка плавления  
 warp [wɔ:p] – деформироваться  
 break down ['breɪk'daʊn] – разрушиться  
 engine seizure ['endʒɪn 'si:zə] – заклинивание двигателя  
 radiator ['reɪdɪeɪtə] – радиатор  
 coolant pump ['ku:lənt pʌmp] – насос системы охлаждения  
 piping ['paɪpɪŋ] – трубопровод, система труб  
 fan [fæn] – вентилятор

thermostat ['θɜ:məstæt] – термостат  
 water jacket ['wɔ:tə 'dʒækɪt] – водяная рубашка  
 passage ['pæsɪdʒ] – канал  
 distribution tube [,dɪstrɪ'bju:ʃən tju:b] – распределительный трубо-  
 провод  
 coolant ['ku:lənt] – охлаждающая жидкость  
 valve seat ['vælvsi:t] – гнездо клапана  
 draw from ['drɔ:frəm] – выкачивать  
 force [fɔ:s] – прокачивать  
 eject [ɪ'dʒekt] – сливать, наполнять  
 set of tubes [setəv 'tju:bz] – набор трубок  
 heat-exchanging core [hi:tɪks'ʃeɪndʒɪŋ,kɔ:] – теплообменная сердце-  
 вина  
 row [rəʊ] – ряд  
 sandwiched ['sænwɪdʒd] – расположенный слоями  
 fin [fɪn] – ребро, пластина (*радиатора*)  
 dissipate ['dɪsɪpeɪt] – рассеивать(ся)  
 centrifugal pump [ˌsentri'fju:gəl pʌmp] – центробежный насос  
 impeller [ɪm'pelə] – импеллер, крыльчатка  
 outward ['aʊtwəd] – наружу  
 blade [bleɪd] – лопасть  
 V-belt ['vi:belt] – клиновой ремень, V-образный ремень  
 overcooling ['əʊvə'ku:lɪŋ] – переохлаждение  
 warm-up ['wɔ:mʌp] – прогрев двигателя  
 heat operated unit [hi:t'ɔpəreɪtɪd 'ju:nɪt] – тепловой агрегат  
 enclosure [ɪn'kləʊzə] – ограждение  
 shroud [ʃraʊd] – кожух

**Exercise 7. Read and translate the following text.**

1. All internal combustion engines are equipped with some type of cooling system because of the high temperature generated during operation. High temperature is necessary to produce the high gas pressure that acts on the piston head. Power can't be produced efficiently without high temperature. The temperature in the combustion chamber is well above the melting point of iron. Therefore, if nothing is done to cool the engine during operation, valves will burn and warp, lubricating oil will break down, and bearings and pistons will overheat, resulting in engine seizure. A simple liquid-cooled cooling system consists of a radiator, coolant pump, piping, fan, thermostat, and a system of water jackets and passages in the cylinder head and cylinder block through which the coolant circulates. Some engines

are equipped with a water distribution tube inside the cooling passages. These passages direct additional coolant to the points where the temperatures are highest.

2. In the majority of heat engines the water jacket completely surrounds all cylinders along their full length. Within the jacket, narrow passages are provided between cylinders for coolant circulation. In addition, all engines are provided with water passages around the exhaust valve seat. This provides cooling for the valve when it comes in contact with the seat. Cooling of the engine parts is accomplished by keeping the coolant circulating and in contact with the metal surfaces to be cooled. The pump draws the coolant from the bottom of the radiator, forces it through the jackets and passages, and ejects it into the upper tank on the top of the radiator. The coolant then passes through a set of tubes to the bottom of the radiator from which the cooling cycle begins again. The radiator is situated in front of a fan.

3. Radiators consist of two tanks with a heat-exchanging core between them. The core is made of numerous rows of small vertical tubes that connect the upper and lower radiator tanks. Sandwiched between the rows of tubes are thin sheet metal fins. As the coolant passes through the tubes to the lower tank, the fins conduct the heat away from it and dissipate it into the atmosphere. The dissipation of the heat from the fins is aided by directing a constant airflow between the tubes and over the fins. All modern cooling systems have water pumps to circulate the coolant. The pump receives coolant from the lower tank and forces it through the water jacket into the upper radiator tank. The pump is of a centrifugal type and has an impeller with blades that force coolant outward as the impeller rotates. It is usually driven by the engine crankshaft through a V-belt.

4. The water pump starts the coolant circulating through the system as the engine is started, no matter how low the temperature. Therefore, it is necessary to install a thermostat to ensure quick warm-up and prevent overcooling in cold weather. A thermostat regulates engine temperature by automatically controlling the amount of coolant flowing from the engine block to the radiator core. The thermostat is merely a heat operated unit that controls a valve between the engine block and the radiator.

5. The fan pulls a large volume of air through the radiator core so that engine heat can be dissipated effectively. In most cases, the fan works in an enclosure called a shroud to ensure maximum efficiency of the fan. There are two methods of driving a fan. One method is to attach it to the end of the water pump shaft. The other method, becoming increasingly popular, is to

use an electric motor. When a vehicle is operated in areas where the temperature falls below 32 °F (0 °C), an antifreeze solution must be added if water is used as the coolant. The most common antifreeze is ethylene glycol. Ethylene glycol gives a maximum protection against freezing to – 65 °F (53.8 °C) when it is mixed to a solution of 60 percent with 40 percent water. This kind of solution is considered to be most efficient.

**Exercise 8. Answer the following questions.**

1. Why are all internal combustion engines fitted with a cooling system?
2. What will happen to an engine if we do not do anything to cool it during operation?
3. What does a simple liquid-cooled cooling system consist of?
4. What is the water pump in a cooling system designed for?
5. What does the radiator in a cooling system consist of?
6. What is the purpose of the impeller in the water pump of a cooling system?
7. When must the antifreeze solution be added?

**Exercise 9. Choose the right translation for the underlined part of the sentence.**

1. Some engines are equipped with a water distribution tube inside the cooling passages.

- a) внутри охлажденных каналов;
- b) внутри каналов системы охлаждения.

2. In addition, all engines are provided with water passages around the exhaust valve seat.

- a) вокруг гнезда выпускного клапана;
- b) вокруг сидения выпускного клапана.

3. The pump draws the coolant from the bottom of the radiator, forces it through the jackets and passages, and ejects it into the upper tank on the top of the radiator.

- a) насос забирает охлаждающую жидкость из нижней части радиатора;
- b) насос вытягивает охлажденную жидкость из нижней части радиатора.

4. The dissipation of the heat from the fins is aided by directing a constant airflow between the tubes and over the fins.

- a) растрчивание тепла от пластин;
- b) отводу тепла от пластин.

5. All modern cooling systems have water pumps to circulate the coolant.

- a) пульзуются водяными насосами;
- b) оснащены водяными насосами.

6. The thermostat is merely a heat operated unit that controls a valve between the engine block and the radiator.

- a) владеет клапаном между блоком цилиндров и радиатором;
- b) регулирует клапан между блоком цилиндров и радиатором.

7. The other method, becoming increasingly popular, is to use an electric motor.

- a) другой метод, который становится все более популярным;
- b) иной способ все больше и больше становится общедоступным.

**Exercise 10. Translate the following words and word combinations into English using the text.**

Самый распространенный антифриз; сердцевина радиатора; обеспечить максимальную производительность; вал водяного насоса; устройство; работающее за счет тепла; обеспечить быстрый разогрев; предотвратить переохлаждение в холодную погоду; верхняя емкость радиатора; крыльчатка с лопастями; теплообменная сердцевина; маленькие вертикальные трубочки; постоянный поток воздуха; гнездо выпускного клапана; система труб; система охлаждения двигателя; радиатор; водяной насос; термостат; водяная рубашка; смазывающее масло; вентилятор нагнетает большой объем воздуха; подшипник.

**Exercise 11. Translate the following words and word combinations into Russian.**

High temperature; temperature in the combustion chamber; above the melting point of iron; to cool the engine during operation; result in engine seizure; liquid-cooled cooling system; coolant pump; water jacket and passages; water distribution tube; passages for coolant circulation; exhaust valve seat; bottom of the radiator; top of the radiator; set of tubes, electric motor; upper and lower radiator tanks; dissipate heat into the atmosphere; centrifugal pump; prevent overcooling; ensure maximum efficiency; water pump shaft; protection against freezing; ethylene glycol; antifreeze solution.

**Exercise 12. Choose the correct preposition.**

1. The temperature *in/to* the combustion chamber is well *above/of* the melting point *of/in* iron. 2. This provides cooling *for/with* the valve when it comes *in/on* contact *with/from* the seat. 3. Radiators consist *of/from* two tanks *with/to* a heat-exchanging core *between/without* them. 4. Sandwiched *between/into* the rows *of/by* tubes are thin sheet metal fins. 5. *In/to* most cases, the fan works *in/for* an enclosure called a shroud to ensure maximum efficiency *of/with* the fan. 6. The radiator is situated *in/with* front *of/to* a fan.

## Unit 22

### LUBRICATION SYSTEM

#### The Participle I

##### (Причастие настоящего времени)

Причастие настоящего времени (The Participle I) образуется путем прибавления окончания *-ing* к глаголу в форме инфинитива без частицы *to* (см. правила орфографии в уроке 10):

#### The Forms of the Participles

##### (Формы причастий)

	Active	Passive
Participle I Indefinite	reading	being read

#### The Functions of the Participle

##### (Функции причастий)

В предложении причастие настоящего времени (The Participle I) может быть:

1) *определением*. В этой функции *Participle I Indefinite Active* соответствует русскому действительному причастию настоящего времени, оканчивающемуся на *-щий*, или действительному причастию прошедшего времени, оканчивающемуся на *-вший*. В данной функции причастие может находиться как *слева* от определяемого слова, так и *справа* от него:

*A barking dog doesn't bite.* – *Лающая* собака не кусается.

*The woman sitting by the window stood up and left.* – Женщина, *сидевшая* у окна, встала и ушла.

2) обстоятельством *времени* с союзами **when** – *когда* и **while** – *в то время как, пока*, которые на русский язык обычно не переводятся. В функции обстоятельства времени *Participle I Indefinite Active* на русский язык переводится деепричастием на *-я* и *-а*.

*When taking the decision I made a mistake.* – *Принимая* это решение, я сделал ошибку.

While unloading the ship, we found a few broken cases. – Разгружая судно, мы обнаружили несколько поломанных ящиков.

3) обстоятельством *причины*. В данной функции *Participle I Indefinite Active* соответствует русскому деепричастию на -я и -а:

a) I turned back, not *knowing* where to go. – Я повернул назад, не зная, куда идти.

4) *Participle I Indefinite Passive* в качестве *определения* в предложении соответствует русскому страдательному причастию, несовершенного вида, настоящего времени на -мый, и действительному возвратному причастию несовершенного вида, настоящего времени на -щийся. Данная форма причастия находится только *справа* от определяемого слова:

The stones *being thrown* by the boys are falling into the water. – Камни, бросаемые мальчиками, падают в воду.

The house *being built* in our street will soon be ready. – Дом, строящийся на нашей улице, скоро будет готов.

5) в функции *обстоятельства* *Participle I Indefinite Passive* соответствует в русском языке страдательному деепричастию: **being asked** – *будучи спрошенным (спрашиваемым)*. Обороты с участием *Participle I Indefinite Passive* соответствуют придаточным предложениям *причины* и *времени* с глаголом-сказуемым в страдательном залоге.

a) *Being asked* (=When he was asked...) for help, he gave us explicit instructions. – Будучи спрошенным (Когда его попросили) о помощи, он дал нам четкие инструкции.

b) *Being packed* in strong cases (= As the goods were packed in strong cases...), the goods arrived in good condition. – Будучи упакованными в крепкие ящики (= Так как товары были упакованы в крепкие ящики...), товары прибыли в хорошем состоянии;

б) обстоятельством *образа действия* или *сопутствующих обстоятельств (действий)*. В данной функции *Participle I Indefinite Active* соответствует русскому деепричастию на -я и -а:

a) He sat in the armchair *reading* a newspaper. – Он сидел в кресле, читая газету.

## The Forms of the Perfect Participles

### (Формы перфектных причастий)

	Active	Passive
Perfect Participle I	having written	having been written

## The Functions of the Perfect Participles

### (Функции перфектных причастий)

В предложении перфектное причастие (The Perfect Participle I) может быть:

1) обстоятельством *причины* в форме *Perfect Participle I Active*. Такие предложения на русский язык переводятся придаточным обстоятельственным предложением:

*Having lost the key* (= *As they had lost the key...*), they couldn't get in.  
– *Потеряв ключ* (= *Так как они потеряли ключ...*), они не могли войти в комнату.

Форма *Perfect Participle I Passive* переводится придаточным предложением со словами *так как*:

*Having been forbidden to go out*, I stayed at home. – Я остался дома, *так как мне запретили* выходить;

2) обстоятельством *времени* в форме *Perfect Participle I Active*, когда хотят подчеркнуть, что действие, выраженное причастием, предшествовало действию сказуемого предложения. На русский язык такая форма переводится деепричастием совершенного вида с окончаниями *-в* и *-я*:

*Having finished school* he went to Oxford. – *Окончив* школу, он поступил в Оксфорд.

Форма *Perfect Participle I Passive* переводится придаточным предложением со словами *после того как*:

*Having been given the toy* (= *After (When) the child was given the toy...*), the child stopped crying. – *После того как (Когда)* ребенку дали игрушку, он перестал плакать.

### Exercise 1. Translate the following sentences paying attention to the Participle I.

1. The girl standing at the window is my sister. 2. The question being discussed now is very important. 3. He sat in the arm-chair thinking about new tasks. 4. She came up to us breathing heavily. 5. The lecture being delivered by a famous scientist is listened to with great attention. 6. The singing girl is about fourteen. 7. Being built of prefabricated parts, it will soon be ready. 8. The large building being built in our street is a new school. 9. Having finished the experiment, the students left the laboratory. 10. Being busy, he postponed his trip. 11. Having been written long ago, the manuscript was impossible to read. 12. The film being shown now is very

interesting. 13. Driving a car a man tries to keep steady speed. 14. Having stated the laws of gravity, Newton was able to explain the structure of the Universe. 15. Being more efficient than human beings, computers are used extensively. 16. Having graduated from Cambridge, Newton worked there as a tutor. 17. Having been published in 1687, Newton's laws of motion are still the basis for research. 18. Being delivered by a famous scientist the lecture was listened to with great attention. 19. The hall is full of laughing people. 20. The boy stood on the bank throwing stones into the pond.

**Exercise 2. Put the infinitives given in brackets into the Active or Passive forms of the Participle I.**

1. (Impress) by the film, people kept silent. 2. (Lose) the book, the student couldn't remember the topic. 3. He spent the whole day (read) a new book. 4. (travel) around America for a month, she returned to England. 5. He watched Mike (go) out of the door and (cross) the street. 6. The question (to discuss) now is very important. 7. (Pack) in the beautiful box the flowers looked very lovely. 8. (Descent) the mountains, our students heard a man calling for help. 9. (Reject) by everybody Richard became a monk. 10. (Show) the wrong direction, the travelers soon lost their way.

**Exercise 3. Make the right choice.**

1. (Having written / writing) the dictation, Elisabeth made many mistakes. 2. (Having written / writing) the letter, Sue posted it. 3. (Building / having built) a new house, workers used all modern methods of construction. 4. (Building / having built) the house, the Browns arranged a great party for the relatives and friends. 5. (While living / having lived) in St. Petersburg for ten years I visited all its museums. 6. (While living / having lived) in St. Petersburg for ten years, I moved to Minsk. 7. (When solving / having solved) new problems, scientists do a lot of research.

**Exercise 4. Read and memorize the following words and word combinations.**

lubrication system [ˌluːbrɪˈkeɪʃən ˈsɪstəm] – система смазки  
wear [weə] – износ  
efficiency [ɪˈfɪʃənsɪ] – производительность  
friction [ˈfrɪkʃən] – трение  
big end bearing [ˈbɪɡend ˈbeərɪŋ] – подшипник большой головки  
шатунa  
main bearing [ˌmeɪn ˈbeərɪŋ] – коренной подшипник  
valve gear [ˈvælv.gɪə] – клапанный механизм, привод клапанного механизма  
tappet [ˈtæpɪt] – кулачок, эксцентрик

rocker arm ['rɒkə,ɑ:m] – качающийся рычаг (в двигателе внутреннего сгорания)

pushrod ['puʃ,rɒd] – толкатель, толкающий стержень

timing chain ['taɪmɪŋ,tʃeɪn] – цепь механизма газораспределения

timing gear ['taɪmɪŋ,giə] – распределительный механизм

connecting rod [kə'nektɪŋ,rɒd] – шатун

crankshaft ['kræŋkʃɑ:ft] – коленчатый вал

valve train ['vælv,trein] – клапанный механизм

splash lubrication system [splæʃ ,lu:brɪ'keɪʃən 'sɪstəm] – разбрызгивающая смазочная система

(forced) pressurized lubrication system ([fɔ:st]) ['prefəraɪzd ,lu:brɪ'keɪʃən 'sɪstəm] – система принудительной смазки

dip [dɪp] – погружаться

sump [sʌmp] – поддон картера; маслосборник

scoop [sku:p] – масляный черпачок

big end cap ['bɪgend 'kæp] – крышка шатуна

seal [si:l] – плотно закрывать

flooded compartment ['flʌdɪd,kəm'pɑ:tmənt] – заполненный отсек

closed loop [kləuzd lu:p] – замкнутый цикл

oil reservoir [ɔɪl] – резервуар для масла, поддон

alternator ['ɔ:l.təneɪtə] – генератор переменного тока

wet sump system [,wetsʌmp 'sɪstəm] – система смазки с мокрым картером

dry sump system [,draɪsʌmp 'sɪstəm] – система смазки с сухим картером

bottom ['bɒtəm] – днище

oil intake [ɔɪl 'ɪnteɪk] – маслозаборник

mesh filter [meʃ 'fɪltə] – сетчатый фильтр

oil pump 'rʌmp] – масляный насос

oil gallery [ɔɪl 'gæləri] – масляная магистраль, масляная разводка

groove [gru:v] – паз

drilling ['drɪlɪŋ] – отверстие

gudgeon pin ['gʌdʒən pɪn] – поршневой палец

viscosity [vɪs'kɒsəti] – вязкость

transfer [træns'fɜ:] – переносить, перемещать

temperature range ['temp(ə)rəʃə reɪndʒ] – температурный диапазон

**Exercise 5. Read and translate the following text.**

1. The purpose of the engine lubrication system is to reduce wear, noise and increase efficiency by reducing the power wasting in overcoming friction, or to make the mechanism work at all. Any engine requires lubrication in the following parts: between pistons and cylinders, small bearings, big end bearings, main bearings, valve gear, tappets, rocker arms, pushrods, timing chain or gears. In 2-stroke engines, the interior of the crankcase, therefore the crankshaft, connecting rod and bottom of the pistons are sprayed by the oil in the air-fuel-oil mixture which is then burned along with the fuel. The valve train may be contained in a compartment flooded with lubricant so that no oil pump is required.

2. The two most common lubrication systems employed in engines nowadays are splash lubrication system and forced (also called pressurized) lubrication system. In a *splash lubrication system* no oil pump is used. Instead the crankshaft dips into the oil in the sump and due to its high speed, it splashes the crankshaft, connecting rods and bottom of the pistons. The connecting rod big end caps may have an attached scoop to enhance this effect. The valve train may also be sealed in a flooded compartment, or open to the crankshaft in a way that it receives splashed oil and allows it to drain back to the sump.

3. In a *forced lubrication system*, lubrication is accomplished in a closed loop which carries motor oil to the surfaces serviced by the system and then returns the oil to a reservoir. The auxiliary equipment of an engine is typically not serviced by this loop; for instance, an alternator may use ball bearings sealed with its lubricant. The reservoir for the oil is usually the sump, and when this is the case, it is called a wet sump system. When there is a different oil reservoir the crankcase still catches it, but it is continuously drained by a dedicated pump; this is called a dry sump system.

4. On its bottom, the sump contains an oil intake covered by a mesh filter which is connected to an oil pump then to an oil filter outside the crankcase, from there it is diverted to the crankshaft main bearings and valve train. The crankcase contains at least one oil gallery to which oil is introduced from the oil filter. The main bearings contain a groove through all or half its circumference; the oil enters to these grooves from channels connected to the oil gallery. The crankshaft has drillings which take oil from these grooves and deliver it to the big end bearings. All big end bearings are lubricated this way.

5. A similar system may be used to lubricate the piston, its gudgeon pin and the small end of its connecting rod. In this system, the connecting rod big end has a groove around the crankshaft and a drilling connected to the groove which distributes oil from there to the bottom of the piston and from then to the cylinder. Typically a forced lubrication systems have a lubricant flow higher than what is required to lubricate satisfactorily, in order to assist with cooling. Specifically, the lubricant system helps to move heat from the hot engine parts to the cooling liquid (in water-cooled engines) or fins (in air-cooled engines) which then transfer it to the environment. The lubricant must be designed to be chemically stable and maintain suitable viscosity within the temperature range it encounters in the engine.

**Exercise 6. Answer the following questions.**

1. What is the purpose of the engine lubrication system? 2. Which parts of the engine require the lubrication permanently? 3. How are 2-stroke engines lubricated? 4. What lubrication systems are employed in engines nowadays? 5. How does the splash lubrication system work? 6. Are all units of the engine serviced if the forced lubrication system used? 7. How are the main bearings lubricated? 8. How is oil distributed from the crankshaft to the bottom of the piston and to the cylinder? 9. Does the lubrication system help to remove heat from the hot engine parts?

**Exercise 7. Translate the following words and word combinations into English using the text.**

Система охлаждения двигателя; повысить коэффициент полезного действия; цепь механизма газораспределения; толкатель клапана; внутренняя часть картера; днище поршня; воздушно-топливно-масляная смесь; клапанный механизм; разбрызгивающая смазочная система; система принудительной смазки; заполненный отсек; замкнутый цикл; вспомогательное оборудование; шарикоподшипник; резервуар для масла; маслозаборник; сетчатый фильтр; масляная магистраль; отверстие; поршневой палец; шатун; распределять масло.

**Exercise 8. Translate the words and word combination in brackets into Russian using the text.**

1. The (клапанный механизм) may be contained in a compartment (наполненный смазочным материалом) so that no (масляной насос) is required. 2. Instead the (коленчатый вал погружается в масло) in the sump and (из-за своей высокой скорости вращения), it splashes the crankshaft, (шатун) and bottom of the pistons. 3. The (резервуар для масла) is usually the (масляная ванна), and when this is the case, it is called a (система смазки с мокрым картером).

**Exercise 9. Make up word combinations using the text and translate them.**

- |                  |                                     |
|------------------|-------------------------------------|
| 1) make          | a) of the engine lubrication system |
| 2) compartment   | b) lubrication system               |
| 3) two most      | c) main bearings                    |
| 4) drain back    | d) end bearings                     |
| 5) crankshaft    | e) lubrication system               |
| 6) sump contains | f) to the sump                      |
| 7) all big       | g) an oil intake                    |
| 8) forced        | h) common lubrication systems       |
| 9) splash        | i) flooded with lubricant           |
| 10) purpose      | j) the mechanism work               |

**Exercise 10. Say whether the following statements are true or false. Correct the false ones using the text.**

1. The connecting rod big end caps may have an attached scoop to enhance the splashing operation. 2. In 2-stroke engines, the interior of the crankcase, crankshaft, connecting rod and bottom of the pistons are sprayed by the air-fuel mixture. 3. The crankcase contains at least one oil gallery to which oil is introduced from the oil reservoir. 4. The forced lubrication system is used to lubricate the piston, its gudgeon pin and the small end of its connecting rod. 5. The forced lubrication systems is not applied to assist with engine cooling.

**Exercise 11. Find in B the English equivalents to the Russian words in A.**

- | <b>A</b>       | <b>B</b>                                    |
|----------------|---|
| 1) трение      | a) lubrication; b) friction; c) viscosity.  |
| 2) механизм    | a) equipment; b) compartment; c) mechanism. |
| 3) коленвал    | a) crankshaft; b) crankcase; c) reservoir.  |
| 4) смазка      | a) pump; b) circumference; c) lubricant.    |
| 5) увеличивать | a) employ; b) enhance; c) contain.          |
| 6) заполненный | a) flooded; b) covered; c) burned.          |
| 7) снижающий   | a) connecting; b) bearing; c) reducing.     |
| 8) необходимый | a) required; b) diverted; c) lubricated.    |

**Exercise 12. Translate the following words and word combinations into Russian.**

Engine lubrication system; big end bearings; valve gear, two-stroke engine; connecting rod; pistons sprayed by oil; lubricant; splash lubrication system; pressurized lubrication system; scoop; sump; reservoir for the oil;

closed loop; auxiliary equipment of an engine; crankshaft main bearings; oil pump; alternator; dry sump system; wet sump system; at least one oil gallery; groove around the crankshaft; water-cooled engine; mesh filter; oil filter, cooling liquid; motor oil; grooves and channels connected to oil gallery; transfer heat to the environment; viscosity.

## Unit 23

### IGNITION SYSTEM

#### The Participle II

##### (Причастие прошедшего времени)

По способу образования причастия прошедшего времени (The Participle II) глаголы делятся на две группы: *правильные* и *неправильные*. Правильные глаголы образуют Participle II путем прибавления к форме инфинитива окончания **-ed**, например: to open + **ed** = opened (см. правила орфографии в уроке 13). У неправильных глаголов третья форма является формой причастия прошедшего времени: to begin – began – **begun**.

#### The Functions of the Participle II

##### (Функции причастия прошедшего времени)

Причастие прошедшего времени (The Participle II) соответствует русскому страдательному причастию настоящего времени оканчивающемуся на **-мый**, и страдательному причастию прошедшего времени, оканчивающемуся на **-нный**, **-тый**, а также действительным причастиям со страдательным значением, оканчивающимся на **-щийся**, **-вший(ся)**.

I buy foods *produced* in Russia. – Я покупаю продукты, *производимые* / *произведенные* в Беларуси.

I liked books *published* by Meridian-Press. – Мне нравились книги, *издающиеся* / *издававшиеся* Meridian-Press;

В предложении причастие прошедшего времени может быть:

1) *определением*. В этой функции причастие прошедшего времени (Participle II) употребляется либо перед определяемым словом (*слева от него*), либо после (*справа*).

The kids found the *stolen* diamonds in a rubbish bin. – Дети нашли *украденные* бриллианты в мусорном ведре.

The movie *watched* by Kate yesterday was interesting. – Фильм, *просмотренный* Кейт вчера, был интересным;

2) обстоятельством *причины*. В этой функции причастие прошедшего времени (The Participle II) соответствует в русском языке причастиям на *-мый, -щийся, -нный, -тый, -вший(ся)* или придаточным предложениям причины:

*Squeezed* by the ice (= *As the steamer was squeezed* by the ice) the steamer could not continue her way. – *Сжатый* льдом (= *Так как пароход был сжат* льдом), пароход не мог продолжать свой путь;

The *torn off* by the strong wind, the leaves covered the ground. – *Сорванные* сильным ветром листья устилали землю.

3) обстоятельства *времени*, где перед причастием прошедшего времени (The Participle II) употребляется союз **when**:

When given the book, read the article about animals. – Когда вам *дадут* книгу, прочтите статью о животных;

4) обстоятельством *условия*, где перед причастием прошедшего времени (The Participle II) употребляется союз **if**:

If asked, he will tell them everything. – Если его *спросят*, он им все расскажет.

5) обстоятельством *уступки*, где перед причастием прошедшего времени (The Participle II) употребляется союз **though**:

Though expected on Saturday, he arrived on Monday. – Хотя его *ожидали* в субботу, он приехал в понедельник;

6) обстоятельством *сравнения*, где перед причастием прошедшего времени (The Participle II) употребляется союз **as if (as though)**:

He suddenly stopped as if (as though) struck by the news. – Он вдруг остановился, как будто *пораженный* новостью

### **Exercise 1. Translate the following sentences paying attention to the Participle II.**

1. When told how much the trip would cost, they decided to stay at home. 2. For a moment the group stood as if turned to stone. 3. Though surprised by Tom's arrival, Miss Marple didn't show it. 4. If left to myself, I should use this chance by all means. 5. If distilled, water will become quite tasteless. 6. Though highly respected, she felt a stranger among all these people. 7. The main subject studied at our university is economics. 8. If given a chance, she will become a brilliant actress. 9. Though designed for beginners, this textbook may be used for intermediate students. 10. The letter was illegible as if written in a hurry. 11. The method followed by our

scientists was not simple. 12. Books read in childhood seem like old friends. 13. This is the book so much spoken about. 14. Here is a letter addressed to you. 15. The machines made at our plant are exported to several countries. 16. If heated to 100 °C, water turns into steam. 17. The contract signed last year was soon broken. 18. When asked, he always helped me. 19. She showed the travellers into the room reserved for them.

**Exercise 2. State the sentences in which the ending -ed is used to form the Past Indefinite or the Participle II. Translate the sentences.**

1. The first television set produced quite a sensation in 1939. The first television set produced in 1939 was a tiny nine-by-twelve inch box. 2. Newton's great work published in 1687 is called "Principia". Newton published his great work "Principia" in 1687. 3. The Russian Chemical Society organized more than a century ago is named after Mendeleev. The Russian Chemical Society organized an international conference devoted to the latest achievements in organic chemistry. 4. The energy possessed by the body due to its position is called the potential energy. The new material possessed good properties. 5. The equipment required to carry out laboratory experiments was very complex. The equipment required further improvement. 6. The car model developed a speed of 50 miles an hour. The car model developed by our student design bureau will be shown on TV.

**Exercise 3. Put the infinitives in brackets in the Participle II. Translate the sentences into Russian.**

1. The letter (write) by him was very long. 2. We are interested in the goods (produce) by this factory. 3. She didn't understand the word (say) by him. 4. He didn't see the things (keep) in her box. 5. I don't like the video game (buy) yesterday. 6. This is the house (build) many years ago. 7. The question (put) to the professor was important. 8. When (offer) to work abroad, he refused. 9. The article on agriculture (publish) in this magazine was written by Smith. 10. You can get the book (recommend) by our teacher in the library. 11. When (use) for building purposes, concrete is very important. 12. When (complete) the new building will accommodate 3000 students. 13. The explanation (give) was not complete.

**Exercise 4. Read and memorize the following words and word combinations.**

time [taɪm] – регулировать  
distributor [dɪ'strɪbjʊtə] – распределитель зажигания  
cam [kæm] – кулачок  
set of breaker points [ˌsetəv 'breɪkə pɔɪnts] – набор, комплект контактов прерывателя  
condenser [kən'densə] – конденсатор

rotor ['rəʊtə] – ротор  
distributor cap [di'strɪbjʊtə 'kæp] – крышка распределителя системы зажигания  
ignition coil [ɪg'niʃən kɔɪl] – катушка зажигания  
external [ɪk'stɜ:nəl] – дополнительный  
spark plug ['spɑ:k plʌg] – свеча зажигания  
wire ['waɪə] – провод  
lead-acid battery [led'æsid 'bætəri] – свинцово-кислотная батарея  
alternator ['ɔ:l'təneɪtə] – генератор переменного тока  
dynamo ['daɪnəməʊ] – динамо  
induction coil [ɪn'dʌkʃən kɔɪl] – индукционная катушка, индуктор  
share [ʃeə] – зд. иметь  
transformer winding [trænts'fɔ:mə 'waɪndɪŋ] – трансформаторная обмотка  
operate ['ɔ:pəreɪt] – приводить в действие  
magnetic core [mæg'netɪk kɔ:] – магнитный сердечник  
alternating current ['ɔ:l'təneɪtɪŋ 'kʌrənt] – переменный ток  
induce [ɪn'dju:s] – индуцировать, возбуждать  
step-up transformer ['stepʌp trænts'fɔ:mə] – повышающий трансформатор  
ballast resistor ['bæləst rɪ'zɪstə] – балластный резистор, добавочное сопротивление (*системы зажигания двс*)  
common point ['kɒmən 'pɔɪnt] – общий контакт  
contact breaker ['kɒntækt 'breɪkə] – прерыватель контактов (*распределителя зажигания*)  
junction ['dʒʌŋkʃən] – место соединения  
sequence ['si:kwəns] – направлять в заданной последовательности  
ignition firing sequence [ɪg'niʃən 'faɪərɪŋ 'si:kwəns] – последовательность зажигания в цилиндрах двигателя  
steady current ['stedɪ 'kʌrənt] – ток неизменной амплитуды  
current-limiting resistor ['kʌrənt'limitɪŋ rɪ'zɪstə] – токоограничивающий резистор  
coil's core [kɔɪlz kɔ:] – сердечник катушки  
primary winding's circuit ['praɪməɪ 'waɪndɪŋ 'sɜ:kɪt] – цепь первичной обмотки  
abruptly [ə'brʌptli] – резко  
collapse [kə'læps] – зд. пропадать  
magnetic flux [mæg'netɪk flʌks] – магнитный поток  
charge up [tʃɑ:dʒ] – заряжать

capacitor [kə'pæsɪtə] – конденсатор  
lie across [laɪ ə'krɒs] – соединять  
oscillating ['ɒsɪleɪtɪŋ] – колебательный  
LC circuit [elsɪ:'sɜ:kɪt] – индуктивно-ёмкостная цепь  
damped [dæmpt] – затухающий  
oscillating current ['ɒsɪleɪtɪŋ 'klərənt] – колебательный ток  
bounce [baʊns] – заставлять колебаться  
high voltage pulse [haɪ 'vɔʊltɪdʒ pʌls] – высоковольтный импульс  
output ['aʊtput] – выходная мощность, производимая мощность  
sequentially [sɪ'kwɛnʃəli] – последовательно

**Exercise 5. Read and translate the following text.**

1. Most four-stroke engines have used a mechanically timed electrical ignition system. The heart of the system is the distributor. The distributor contains a rotating cam driven by the engine's drive, a set of breaker points, a condenser, a rotor and a distributor cap. External to the distributor is the ignition coil, the spark plugs and wires linking the distributor to the spark plugs and ignition coil. The system is powered by a lead-acid battery, which is charged by the vehicle's electrical system using a dynamo or alternator. The engine operates contact breaker points, which interrupt the current to an induction coil (known as the ignition coil).

2. The ignition coil consists of two transformer windings – the primary and secondary. These windings share a common magnetic core. An alternating current in the primary induces an alternating magnetic field in the core and hence an alternating current in the secondary. The ignition coil's secondary winding has more turns than the primary. This is a step-up transformer, which produces a high voltage from the secondary winding. The primary winding is connected to the battery (usually through a current-limiting ballast resistor). Inside the ignition coil one end of each winding is connected together. This common point is taken to the contact breaker junction. The other end of the secondary winding is connected to the rotor. The distributor cap sequences the high voltage to the respective spark plug.

3. The ignition firing sequence begins with the points (or contact breaker) closed. A steady current flows from the battery, through the current-limiting resistor, through the primary coil, through the closed breaker points and finally back to the battery. This current produces a magnetic field within the coil's core. This magnetic field forms the energy reservoir that will be used to drive the ignition spark. As the engine turns, the cam inside the distributor rotates. The points ride on the cam so that as a piston reaches the top of the engine's compression cycle, the cam causes the

breaker points to open. This breaks the primary winding's circuit and abruptly stops the current through the breaker points. Without the steady current through the points, the magnetic field generated in the coil immediately collapses. This fast rate of change of magnetic flux induces a high voltage in the coil's secondary winding.

4. At the same time, current exits the coil's primary winding and begins to charge up the condenser that lies across the open breaker points. This capacitor and the coil's primary windings form an oscillating LC circuit. This LC circuit produces a damped, oscillating current which bounces energy between the condenser's electric field and the ignition coil's magnetic field. The oscillating current in the coil's primary winding produces an oscillating magnetic field in the coil. This extends the high voltage pulse at the output of the secondary winding. The oscillation continues until the circuit's energy is consumed.

5. The ignition coil's high voltage output is directed to the distributor cap. A turning rotor, located on top of the breaker cam within the distributor cap, sequentially directs the output of the secondary winding to the spark plugs. The high voltage from the coil's secondary (typically 20,000 to 50,000 volts) causes a spark to form across the gap of the spark plug. This, in turn, ignites the compressed air-fuel mixture within the engine. It is the creation of this spark which consumes the energy that was stored in the ignition coil's magnetic field.

**Exercise 6. Answer the following questions.**

1. What kind of ignition system is used in four-stroke engines? 2. What does the electrical ignition system consist of? 3. What device powers the electrical ignition system? 4. How is the alternating magnetic field induced in the core? 5. Where does the steady current flow through? 6. When does the cam cause the breaker points to open? 7. What does the LC circuit produce in the ignition system? 8. What voltage causes a spark to form across the gap of the spark plug?

**Exercise 7. Translate the following words and word combinations into Russian.**

Mechanically timed electrical ignition system; engine's drive; set of breaker points; condenser; spark plug; electrical system; alternator, interrupt the current; transformer winding; alternating magnetic field; alternating current; step-up transformer; produce high voltage; primary winding; secondary winding; current-limiting ballast resistor; contact breaker junction; drive the ignition spark; primary winding's circuit; fast rate of change of magnetic flux; oscillating LC circuit; produce a damped

oscillating current; bounce energy; condenser's electric field; high-voltage pulse; high voltage output; turning rotor.

**Exercise 8. Choose the words that have the following definitions.**

1. The device in a petrol engine for passing electric current to each spark plug in turn.

a) capacitor; b) alternator; c) distributor.

2. The long thin piece of metal that is used to carry electric current.

a) dynamo; b) wire; c) breaker.

3. The length of wire that has been wound into a series of loops.

a) coil; b) circuit; c) rotor.

4. The container consisting of one or more cells, in which chemical energy is converted into electricity and used as a source of power.

a) winding; b) mixture; c) battery.

5. The flow of electricity through a wire or circuit.

a) ignition; b) current; c) contact.

6. The apparatus for reducing or increasing the voltage of an alternating current.

a) condenser; b) transformer; c) spark.

7. The action of setting something on fire or starting to burn.

a) ignition; b) resistor; c) voltage.

8. To store electrical energy in a battery or battery-operated device.

a) cause; b) induce; c) charge.

9. The system of electrical conductors and components.

a) circuit; b) plug; c) pulse.

10. The discharge to ignite the explosive mixture in an internal-combustion engine.

a) field; b) spark; c) flux.

**Exercise 9. Translate the expressions into Russian paying attention to the prepositions.**

Heart *of* the system; cam driven *by* the engine's drive; link the distributor *to* the spark plugs; system powered *by* a lead-acid battery; consist *of* two transformer windings; alternating current *in* the primary winding; primary winding connected *to* the battery; *inside* the ignition coil; current flows *from* the battery; points ride *on* the cam; fast rate *of* change; stop the current *through* the breaker points; lie *across* the open breaker points; current *in* the coil's primary windin; *on* top of the breaker cam; gap *of* the spark plug.

**Exercise 10. Match the beginning of each sentence with its end.**

1. The distributor cap sequences the high ... .

2. These windings share ... .

3. The ignition coil's secondary winding ... .
4. This current produces a magnetic ... .
5. This fast rate of change of magnetic flux ... .
6. This extends the high voltage pulse ... .
7. The ignition coil's high voltage ... .
8. This, in turn, ignites the compressed ... .
  - a) ... air-fuel mixture within the engine.
  - b) ... output is directed to the distributor cap.
  - c) ... at the output of the secondary winding.
  - d) ... induces a high voltage in the coil's secondary winding.
  - e) ... field within the coil's core.
  - f) ... has more turns than the primary.
  - g) ... a common magnetic core.
  - h) ... voltage to the respective spark plug.

**Exercise 11. Translate the following words and word combinations into English using the text.**

Четырехтактный двигатель; катушка зажигания; свинцово-кислотная батарея; электросистема транспортного средства; две трансформаторные обмотки; первичная и вторичная обмотки; общий магнитный сердечник; свеча зажигания; переменное магнитное поле; повышающий трансформатор; постоянный ток; токоограничивающий резистор; замкнутые контакты прерывателя; зажечь свечу зажигания; верхняя точка цикла сжатия двигателя; индуцировать высокое напряжение; заряжать конденсатор; колебательное магнитное поле; сжатая воздушнотопливная смесь; магнитное поле катушки зажигания.

## Unit 24

### BASICS OF THE TRACTOR REPAIR

#### The Prepositions of Time

##### (Предлоги времени)

**After** – *после*. Указывает, что что-то произошло позже определенного действия/события:

You should relax *after* massage. – Ты должен расслабиться *после* массажа.

**At** – *в, во время*. Когда говорим о часах, определенных моментах дня, выходных и праздниках:

He will come *at* 8 o'clock. – Он придет *в* 8 часов.

**By** – *к, не позже чем в*. Обозначает срок, к которому должно быть выполнено действие:

I need this book *by* next Monday. – Эта книга нужна мне *к* следующему понедельнику:

**In** – *во время, в течение, за*. Когда говорим о месяцах, времени суток, годах, времени года:

We met each other *in* 2018. – Мы встретили друг друга *в* 2018.

**On** – *в, во время*. Когда говорим о датах, днях недели или о специальных днях:

We arrive *on* the 2d of December. – Мы прибудем 2 декабря.

**Before** – *до, перед*. Когда что-то случилось раньше определенного действия/события:

I will try to return home *before* 8. – Я постараюсь вернуться домой *до* восьми:

**During** – *в течение, во время*. Когда действие или ситуация продолжалась в течение заданного отрезка времени/периода:

They were walking *during* the day. – Они гуляли *в течение* день.

**From** – *с, от, начиная с*. Когда что-то происходило *от* и до определенного периода времени:

This cafe works *from* seven to four. – Это кафе работает *с* семи до четырех.

**For** – *в течение*. Когда говорим, как долго длится действие или ситуация:

She was cooking dinner *for* an hour and half. – Она готовила обед *в течение* полутора часов.

**Since** – *с, со времени, с тех пор как*. Когда что-то происходит или происходило в прошлом с определенного момента:

I have known him *since* school. – Я знаю его *со* школы.

**Till/until** – *до, не раньше*. Используем это слово, когда что-то происходит до определенного времени, а потом прекращается:

We should wait *until* the end of working time. – Нам следует подождать *до* конца рабочего дня.

**Within** – *в течение, в пределах*. Когда действие должно совершиться до того, как произойдет определенный момент, когда важна ограниченность периода:

I will reply *within* five working days. – Я отвечу *в течение* пяти рабочих дней.

### **Exercise 1. Translate the sentences into Russian.**

1. I would like to visit you on Thursday. 2. I like taking photographs at sunset. 3. The train will arrive in 20 minutes. 4. My granny was working as a doctor during the Great Patriotic war. 5. We have to go at 6 o'clock. 6. I hate getting up early in the morning. 7. We often visit our relatives during the Christmas vacation. 8. Bob went to bed at midnight. 9. He should fix the car by 8 p.m. 10. My dad goes fishing only in summer. 11. Sorry, Nick. I'll call you back in 5 minutes. 12. I am on holiday until Monday. 13. Pushkin was born in 1799. 14. Our class starts in the evening. 15. Her husband never works at weekends. 16. Let's travel to the mountains at Christmas. 17. My friend's birthday is on the 7th of January. 18. I hope to buy this yacht in the future. 19. We met your teacher on Friday morning. 20. Our shop is open from 9 a.m. to 6 p.m.

### **Exercise 2. Use the necessary prepositions of time.**

1. Was Easter ... May last year? 2. Is your birthday... summer? 3. I'm going to have a party ... the weekend. 4. I usually come home ... three o'clock. 5. I usually take a shower ... the evening. 6. I usually tidy my room ... Sunday. 7. I usually wash the dishes ... the afternoon. 8. I usually go to bed ...10:30. 9. I play basketball ...Tuesday and ... Friday. 10. Who was born ... March? 11. My friend was born ... October. 12. My school starts ... 8:00. 13. He was born ... the fifth of June. 14. We have Art ... Monday and ... Friday. 15. The first lesson ...Wednesday is Music. 16. I get up ... 7 o'clock. 17. We have New Year ... the first of January. 18. ... end of the year we'll have no exams. 19. I have studied English ... four years. 20. We are going to meet ... half past three. 21. The telephone rang ... midnight.

### **Exercise 3. Read and memorize the following words and word combinations.**

coolant level ['ku:lənt levl] – уровень охлаждающей жидкости  
seat belt [si:t belt] – ремень безопасности  
radiator screen ['reɪdɪeɪtə skri:n] – жалюзи радиатора  
low-maintenance [,ləu'meɪnt(ə)nəns] – неприхотливые в обслуживании  
lubricant ['lu:bri:kənt] – смазочный материал, смазка  
hydraulic fluid [haɪ'drɔ:lɪk 'flu:ɪd] – жидкость для гидравлической системы  
hydraulic oil cooler [haɪ'drɔ:lɪk ɔɪl 'ku:lə] – охладитель рабочей жидкости гидравлической системы  
coolant radiator ['ku:lənt 'reɪdɪeɪtə] – радиатор охлаждающей жидкости

routine tractor repair [ru:'ti:n 'træktə rɪ'reə] – плановый ремонт трактора

continued life [kən'tɪnju:d laɪf] – непрерывный срок службы

perform at peak level [pə'fɔ:m ət pi:k'lev(ə)] – работать на максимальном уровне

care and maintenance [keə ənd 'meɪnt(ə)nəns] – уход и техническое обслуживание

antifreeze ['æntɪfri:z] – антифриз

rust [rʌst] – коррозия; ржавчина

dent [dent] – вмятина

ding [dɪŋ] – царапина

downtime ['dauntaɪm] – простой

high-powered charger [,haɪ'paʊəd 'ʃɑ:dʒə] – зарядное устройство высокой мощности

tinkering jobs ['tɪŋkərɪŋ dʒɔbz] – ремонтные работы

sledgehammer ['sledʒ,hæmə] – кувалда

must-have [ˌmʌst'hæv] – обязательная принадлежность

toolbox ['tu:lbɒks] – инструментальный ящик

wrench set [rentʃ set] – комплект гаечных ключей

backbone ['bækbəʊn] – главная опора

failure to change ['feɪljə tu ʃeɪndʒ] – если не заменить

#### **Exercise 4. Read and translate the following text.**

1. Several basic steps are needed to ensure your tractor is in working order. First, you should check the engine and hydraulic systems' oil level and the tire pressure. If equipped, you should also inspect the coolant level, seat belt, and radiator screen. Tractors are relatively low-maintenance machines that usually run for years with little maintenance. However, some require specific lubricants and hydraulic fluids. Using the wrong oil or fluid could cause severe damage to your tractor. Check your tractor before and after each use to ensure it's still in good working order.

2. Check your fuel filter. Sometimes, the filter needs to be replaced during dusty and cold weather. Clean your tractor's engine air filter and radiator, which is vital to its function. Also, inspect the hydraulic oil cooler and coolant radiator. The routine tractor repair is critical to the continued life of a tractor. As a result, your tractors must perform at peak levels from dirty and rough conditions to uncultivated fields. However, proper care and maintenance will keep your tractors running at peak performance for years.

3. Replace the antifreeze and coolant every 1,000 hours. Keep the tractor washed and waxed to prevent rust. You also need to check for dents and

dings in the paint. A good mechanic should know how to service the hydraulics and the electrical system. The routine tractor repair can help you prevent costly downtime during critical operations. You can perform several basic checks on your tractor before calling a mechanic to fix it. One of the first things you should do is check your tractor's lubrication. A lack of lubrication can cause significant problems for your tractor.

4. The battery in a tractor is an essential part of the machine, as it powers the machine's various functions. The best way to check your battery's condition is by using a high-powered charger and inspecting the cables for cracks and mud. Also, clean any debris that may have accumulated in them. A set of tools is essential to carry out various tinkering jobs on a tractor. While more sophisticated repairs will require specialty tools, a basic set will allow most owners to accomplish their tasks. These tools include a hammer, a sledgehammer, extra nuts and bolts, and a fire extinguisher. In addition, a good pair of safety glasses is a must-have, as the cab of a tractor is a potentially dangerous place to be.

5. Besides the essential hand tools, a tractor owner should have a toolbox containing specialty tools and a complete wrench set. This toolbox will give the owner everything he needs to do basic repairs and maintenance on a tractor, saving him time and money. A tractor is the backbone of a farm, and if it breaks down, it can cause a massive headache. Whether a simple battery problem or something more complex, tractor maintenance is of utmost importance. In addition, your tractor has many parts that are interconnected. Failure to change some of them could cause the rest of your equipment to slow down.

**Exercise 5. Answer the following questions.**

1. Why can tractors run for years with little maintenance? 2. What can happen to a tractor in case of using the wrong oil or fluid? 3. What measures are critical to the continued life of a tractor? 4. How often should the antifreeze and coolant be replaced? 5. What is the best way to check your battery's condition? 6. What tools does a basic set consist of? 7. What should a tractor owner have besides the essential hand tools? 8. What happens if you failure to change some of tractor parts?

**Exercise 6. Translate the following words and word combinations into Russian.**

Working order; hydraulic systems' oil level; specific lubricants; severe damage; fuel filter; dusty and cold weather; air filter and radiator; coolant radiator; rough conditions; uncultivated fields; performance for years; prevent rust; dents and dings; a mechanic; electrical system; costly

downtime; critical operations; tractor's lubrication; essential part; check battery's condition; mud; debris; sophisticated repairs; extra nuts and bolts; dangerous; hand tools; basic repairs and maintenance; backbone of a farm.

**Exercise 7. Translate the words and word combination in brackets into English using the text.**

1. (Если имеется), you (также следует проверить) the coolant level, seat belt, and (жалюзи радиатора). 2. Clean your tractor's (воздушный фильтр и радиатор двигателя), which is vital to its (функционирования). 3. You can perform (несколько основных проверок) on your tractor before calling a mechanic (чтобы отремонтировать его). 4. (Набор инструментов) is essential to carry out (различные ремонтные работы) on a tractor. 5. In addition, your tractor has (много деталей) that are (взаимосвязанный).

**Exercise 8. Find the Russian equivalents for the following English words and word combinations.**

- |                       |                                     |
|-----------------------|-------------------------------------|
| 1) tire pressure      | a) ремонт трактора                  |
| 2) seat belt          | b) топливный фильтр                 |
| 3) wrong oil          | c) гидравлика                       |
| 4) tractor repair     | d) огнетушитель                     |
| 5) fuel filter        | e) ремень безопасности              |
| 6) prevent rust       | f) защитные очки                    |
| 7) hydraulics         | g) несоответствующее масло          |
| 8) specialty tools    | h) давление в шинах                 |
| 9) safety glasses     | i) предотвращать появление ржавчины |
| 10) fire extinguisher | j) специальные инструменты          |

**Exercise 9. Translate the expressions into Russian paying attention to the prepositions.**

Machines that run *for* years *with* little maintenance; check your tractor *before* and *after* each use; routines *for* tractor repair; continued life *of* a tractor; perform *at* peak levels; dents and dings *in* the paint; basic checks *on* a tractor; a lack *of* lubrication; cause problems *for* a tractor; battery *in* a tractor; essential part *of* a machine; a set *of* tools; a cab *of* a tractor; backbone *of* a farm; the rest *of* the equipment.

**Exercise 10. Translate the following words and word combinations into English using the text.**

Несколько основных действий; проверить уровень масла в двигателе и гидравлической системе; неприхотливые в обслуживании машины; специальные смазочные материалы и гидравлические жидкости; пыльная и холодная погода; охладитель рабочей жидкости

гидравлической системы; радиатор охлаждающей жидкости; надлежащий уход; техническое обслуживание; гидравлика; электрическая система; основные проверки; смазка трактора; сложный ремонт; кувалда; обязательная принадлежность; необходимые ручные инструменты; взаимосвязанный; оборудование.

**Exercise 11. Find in group B the synonyms to the words in group A.**

**A.** Accumulated; to inspect; problem; advanced; several; downtime; significant; debris; maintenance; to ensure.

**B.** A number of; to make certain; to check; service; substantial; refuse; standstill; difficulty; collected; progressive.

## Unit 25

### SERVICING OF THE ENGINE LUBRICATION SYSTEM

#### The Prepositions of Place

##### (Предлоги места)

**Above** – *над, выше*. Когда говорим, что кто-то или что-то находится над кем-то/чем-то:

The bats are flying *above* heads. – Летучие мыши летают *над* головами.

**In front of** – *перед, напротив*. Когда что-то или кто-то находится впереди или лицом к лицу:

He stood *in front of* the store. – Он встал *перед* магазином.

**Outside** – *снаружи*. Когда что-то или кто-то находится не внутри, но близко к чему-то:

Friends waited us *outside*. – Друзья ждали нас *снаружи*.

**Behind** – *за, позади*. Когда что-то или кто-то находится сзади:

She parked *behind* me. – Она припарковалась *за* мной.

**Below** – *под, ниже*. Когда говорим, что один предмет находится ниже другого, но не скрыт под ним:

There is a river *below* the bridge. – *Под* мостом находится река.

**Between** – *между*. Когда предмет или человек находится между какими-то объектами:

There is a child between two adults. – Малыш находится между двумя взрослыми.

**Under** – *под*. Когда говорим, что один предмет находится ниже другого, или скрыт под ним:

He hid *under* the bed. – Он спрятался *под* кровать.

**By** – у, рядом, около, возле. Когда кто-то или что-то находится очень близко к чему-то:

He is standing *by* the door. – Он стоит у двери.

**At** – в, на. Когда кто-то находится на мероприятии, встрече, дома, в учреждении либо в любом другом месте с определенной целью:

My younger sister is *at* school now. – Моя младшая сестра сейчас в школе.

**In** – в. Когда кто-то или что-то находится внутри чего-то:

I put the phone *in* a bag. – Я положила телефон в сумку.

**In** – на. Когда кто-то или что-то находится на изображениях:

There are happy people *in* the picture. – Счастливые люди на фотографии.

**On** – на. Когда кто-то или что-то находится на поверхности другого предмета:

There is a glass *on* the table. – На столе стакан.

### **Exercise 1. Translate the sentences into Russian.**

1. My husband was born in Germany. 2. The dog is sleeping on the grass in our garden. 3. Let's meet at the bus station. 4. There are two funny posters on the wall in my bedroom. 5. Have you heard some noise in the street? 6. He left his bicycle on the pavement. 7. There is a big hole in my pocket. 8. My room was on the third floor. 9. My favorite restaurant is in King Street. 10. I think I know this girl in the picture. 11. A huge fly was creeping on the picture. 12. I spend my weekends at home. 13. Look at those black clouds in the sky. 14. You should turn left at the traffic lights. 15. Sophie is at the dentist's now. 16. Tom usually has breakfast at school. 17. The cat is under the table. 18. The book is on the table.

### **Exercise 2. Use the necessary prepositions of place.**

1. There's a strange woman standing ... a tree. (под) 2. There's a motorbike ... the car (перед) and a bicycle ... it (позади), so the car is ... the yellow motorbike and the bicycle. 3. There's a bus waiting ... a bus stop. 4. There's a briefcase ... the desk. (под) 5. Can you see a camera ... the drawer? 6. There's a large picture ... the wall ... two small photos. 7. There are two bedrooms ... the flat. 8. I've got a poster of Kevin Costner ... my wall. 9. Santa Monica is ... Southern California. 10. Heidelberg is ... the River Neckar. 11. There's nobody waiting ... the bus stop. 12. I often have a coffee ... the Calypso Cafe. 13. How many misprints are there ... this book? 14. Molly is ... work at the moment. 15. He saw a nest ... the tree. 16. I'm a student ... Brighton College. 17. Is there a post-office close ... your house? 18. What subjects do you study ... school?

**Exercise 3. Read and memorize the following words and word combinations.**

- oil pump [ɔɪl 'rʌmp] – масляный насос, маслонасос  
oil cooler [ɔɪl 'ku:lə] – маслоохладитель  
oil filter [ɔɪl 'fɪltə] – масляный фильтр  
oil pan [ɔɪl pæn] – масляный поддон  
oil pressure gauge [ɔɪl 'preʃə geɪdʒ] – датчик давления масла  
oil pressure regulating valve [ɔɪl 'preʃə 'regjələɪtɪŋ vælv] – клапан регулирования давления масла  
life expectancy [laɪf ɪk'spekt(ə)nsɪ] – ожидаемый (расчётный) срок службы  
succumb to overheating and seizing [sə'klʌm tu ˌəʊvə'hi:tɪŋ ənd 'si:zɪŋ] – перегреться и заклинить.  
check [tʃek] – проверять  
flat and level terrain [flæt ənd 'lev(ə)l tə'reɪn] – ровная и горизонтальная поверхность  
dipstick ['dɪpstɪk] – щуп указателя уровня масла  
minimum mark ['mɪnɪməm mɑ:k] – минимальная точка  
drain plug [drem plʌg] – сливная пробка  
wrench [rentʃ] – гаечный ключ  
apply [ə'plaɪ] – наносить  
seal [si:l] – уплотнитель  
tighten ['taɪt(ə)n] – закрутить  
upper seal ['ʌpə si:l] – верхнее уплотнение  
top-up ['tɒpʌp] – доливать  
drained oil [dreɪnd ɔɪl] – слитое масло  
failing ['feɪlɪŋ] – дефект; неисправность  
oil pan gasket [ɔɪl pæn 'gæskɪt] – прокладка поддона картера двигателя  
dispose of [dɪs'pəʊz əv] – утилизировать  
loosely ['lu:slɪ] – неплотно  
oil pick-up [ɔɪl 'pɪkʌp] – маслозаборник  
cleaner ['kli:nə] – чистящее средство  
degreaser [dɪ'gri:sə] – обезжиривающее средство  
scraper ['skreɪpə] – скребок  
mounting surface ['maʊntɪŋ 'sɜ:fsɪs] – посадочная поверхность  
silicone gasket maker ['sɪlɪkəʊn 'gæskɪt 'meɪkə] – силиконовый прокладочный герметик  
set [set] – затвердевать

**Exercise 4. Read and translate the following text.**

1. The function of the engine lubrication system is to give a flow of clean oil, at the accurate temperature, and with the appropriate pressure, to each part of the engine. The major components of the lubrication system are the oil pump, the oil cooler (if present), the oil filter, the oil pan or sump, the oil pressure gauge, the oil pressure regulating valve. Lubrication plays a key role in the life expectancy of an internal combustion engine. If the lubricating system fails, an engine would succumb to overheating and seizing very quickly. To ensure the normal operation of the lubrication system, the following procedures should be followed.

2. *Checking the engine oil level.* Park the tractor on flat and level terrain. Withdraw the dipstick, clean it and dip it again. The oil level should be between the two marks on dipstick. Do not operate the engine if oil level is below minimum mark. If below the mark, add the appropriate oil through the filler neck until full. Always use the oil recommended by the dealer. Always use the same brand and viscosity of engine oil.

3. *Changing the engine oil and oil filter.* Run the engine to warm up the oil, then turn off the engine. Remove the drain plug of the crankcase and drain the oil. Change the engine oil filter during the oil change (using an appropriate oil-filter wrench). Apply a fine film of oil or grease to the seal of the new filter before installing it. Tighten the filter an additional 1/2 turn, by hand. Close the drain plug again using a new upper seal. Add the recommended oil according to the engine crankcase capacity. Check the oil-level again after 10 engine hours and top-up when necessary. Change the oil and filter every 250 hours or once a year, whichever occurs first. Always check the drained oil for metal particles. This might indicate an internal failing of the engine. Always mark the new filter with the engine hours and date of replacement.

4. *Replacing a leaking oil pan gasket.* Remove the oil drain plug and allow several minutes for the oil to drain into the pan. Dispose of the oil and filter properly without damaging the environment. Remove the oil pan bolts, leaving one at each corner loosely in place. Remove the pan carefully as to not damage the oil pick-up located within the oil pan. Clean the area on the lower engine block where the oil pan attaches. Also, clean the oil pan inside and out with a cleaner/degreaser. Using the scraper, gently remove any gasket material on the oil pan as well as the engine block mounting surface. Apply a thin film of silicone gasket maker to the oil pan mounting surface. Once the gasket silicone has set, place the pan gasket to the surface, applying even pressure all around. Insert all the oil pan bolts hand tight to start. Then fasten according to the recommendations in the manual. Reinstall the oil pan drain plug and add new oil.

**Exercise 5. Answer the following questions.**

1. What is the main function of the engine lubrication system? 2. What components does the lubrication system consist of? 3. Where should the oil level be on a dipstick? 4. What oil should be used for efficient tractor operation? 5. Is it recommended to change oil filter during the oil change? 6. How often must you change the oil and filter? 7. How should one dispose of the oil and filter? 8. Must one remove the pan carefully? Why? 9. Why is the scraper necessary while replacing a leaking oil pan gasket? 10. What should be done next once the gasket silicone has set?

**Exercise 6. Match the words with their definitions.**

- |              |  |
|--------------|--|
| 1. dipstick  | a) the force produced by the quantity of gas or liquid in a place or container.              |
| 2. oil       | b) a device that measures the amount or quantity of something and shows the amount measured. |
| 3. filter    | c) a metal rod with marks along used to measure the amount of oil in a car engine.           |
| 4. gasket    | d) a viscous liquid derived from petroleum for use as a lubricant.                           |
| 5. pressure  | e) a porous device for removing impurities from a liquid or gas passed through it.           |
| 6. gauge     | f) a case or covering enclosing a crankshaft.  |
| 7. crankcase | g) a flat piece of soft material to put between two joined surfaces in a pipe or engine.     |

**Exercise 7. Match the beginning of each sentence with its end.**

1. Do not operate the engine ...
  2. Always use the same brand
  3. Remove the drain plug of ...
  4. Check the oil-level again after ...
  5. Always mark the new filter with ...
  6. Clean the area on the lower engine block ...
  7. Reinstall the oil pan drain plug ...
- a) ... where the oil pan attaches
  - b) ... the engine hours and date of replacement.
  - c) ... 10 engine hours and top-up when necessary.
  - d) ... the crankcase and drain the oil.
  - e) ... and add new oil.
  - f) ... if oil level is below minimum mark.
  - g) ... and viscosity of engine oil.

**Exercise 8. Translate the following words and word combinations into Russian.**

Lubrication; accurate temperature; appropriate pressure; part of the engine; internal combustion engine; normal operation; two marks on dipstick; filler neck; viscosity of engine oil; warm up the oil; drain plug; crankcase; oil-filter wrench; a fine film of oil; upper seal; crankcase capacity; metal particles; internal failing of the engine; date of replacement; without damaging the environment; oil pick-up; within the oil pan; engine block; silicone gasket maker; even pressure; oil pan bolts.

**Exercise 9. Translate the words and word combination in brackets into English using the text.**

1. (Смазка) plays a key role in the (ожидаемый срок службы) of an (двигателя внутреннего сгорания). 2. If below the mark, (долейте соответствующее масло) through the filler neck (до полного заполнения). 3. (Нанесите тонкий слой масла) or grease to the (уплотнитель) of the (нового фильтра) before installing it. 4. (Меняйте масло и фильтр) every 250 hours or once a year, (зависимости от того, что произойдет раньше). 5. (Выверните болты масляного поддона), leaving one at each corner (неплотно) in place.

**Exercise 10. Translate the following words and word combinations into English using the text.**

Система смазки; масляный поддон; клапан регулирования давления масла; нормальная работа системы смазки; маслоохладитель; щуп указателя уровня масла; минимальная точка; заливная горловина; вязкость моторного масла; гаечный ключ; масляный фильтр двигателя; дополнительный 1/2 оборота вручную; часы работы двигателя; металлические частицы; дата замены; пробка для слива масла; болты поддона; маслозаборник; силиконовый прокладочный герметик.

## Unit 26

### SERVISING OF THE ENGINE FUEL SYSTEM

#### The Prepositions of Direction

##### (Предлоги направления)

**Into** – в. Когда кто-то или что-то попадает внутрь:  
She came *into* the castle. – Она вошла *в* замок.

**Through** – *сквозь, через*. Когда говорим о движении через, сквозь преграду, сквозь отверстие или о движении от одной стороны к другой:

The boy got into the room *through* the window. – Мальчик попал в комнату *через* окно.

He will ride *through* the swamp. Он проедет через болото.

**To** – *к*. Когда идет движение по направлению к чему-то:

I'm going *to* the theatre. – Я иду *в* театр.

**Onto** – *на*. Когда объект перемещается на какую-либо поверхность:

The bee sat *onto* my arm. – Пчела села *на* мою руку.

**Up** – *вверх*. Когда говорим о движение вверх:

We are running *up* the hill. – Мы бежим *вверх* по горке.

**Down** – *вниз*. Когда говорим о движение вниз:

We ride *down* the hill. – Мы едем *вниз* с горки.

**Along** – *вдоль, по*. Когда происходит движение вдоль какого-то предмета:

This handsome man walks *along* the avenue. – Этот харизматичный мужчина гуляет *вдоль* проспекта.

**Across** – *через*. Когда происходит движение от одной стороны чего-то к другой стороне:

He walked *across* the road. – Он прошел *через* дорогу.

**Round/around** – *вокруг*. Когда есть движение по кругу:

They run *around* the school. – Они бегают *вокруг* школы.

**Out (of)** – *из*. Когда есть движение изнутри наружу:

Tom went *out of* the house. – Том вышел *из* дома.

**Back to** – *назад к*. Когда движение происходит в обратном направлении:

After a month of living in other town, I went *back to* my home. – После месяца жизни в другом городе я вернулась домой.

**Towards** – *по направлению к, в сторону*. Когда есть движение по направлению к чему-то:

I ride *towards* the rice field. – Я еду *в сторону* рисовых полей.

**Over** – *через*. Когда происходит движение одного предмета сверху над другим:

He jumped *over* the fence. – Он перепрыгнул *через* забор

**Exercise 1. Translate the sentences into Russian.**

1. The spider is crawling along the floor. 2. It's so hot in here. Let me get out of the room. 3. Put your laptop onto the table. 4. You should walk around the corner and you'll see the pharmacy. 5. My ball rolled down the

hill and fell into the lake. 6. The lorry is moving along the road. 7. The plane is going through the clouds. 8. Sammy is trying to throw his cap onto the garage roof. 9. The horse jumped over the barrier. 10. Nick and Dave jumped into the swimming pool. 11. I've got so many bags that I can't get into the taxi. 12. Why are you always getting into the trouble? 13. You have my keys in your pocket. Please, take them out of it. 14. Matt swam across the English Channel last summer. 15. Tom put the book onto the shelf.

**Exercise 2. Use the necessary prepositions of direction.**

1. She was going ... the front door of her house. 2. The baby's going to fall ...the table. 3. I put the matches ... the table. 4. The bread is ... the cupboard. 5. He was lying ... the floor. 6. She dived ... the sea. 7. The train goes ... the tunnel. 8. They climbed ... the roof, and looked down. 9. We walked ... the end of the road. 10. In the morning we walked ... the fog.

**Exercise 3. Choose the necessary prepositions of direction**

1. The children jumped (over/above) the stone. 2. They ran (across/opposite) the road. 3. The snake moved quietly (through/across) the tall grass. 4. The mouse ran quickly (across/through) the path. 5. The cat walked slowly (on top of/along) the wall. 6. Someone pushed a letter (under/below) the door. 7. She drove (between/through) the gates. 8. I pushed my bike (over/above) the bridge. 9. Ducks are going (across/into) the road. 10. Take the cat (out of/down) the box. 11. Somebody is looking (through/across) the keyhole. 12. We came (to/onto) this city looking for a new life. 13. He took a knife (out of/towards) his pocket. 14. I turned (towards/trought) home. 15. The children ran (down/out of) the hill.

**Exercise 4. Read and memorize the following words and word combinations.**

appropriate pressure [ə'prəʊrɪət 'preʃə] – соответствующее давление  
combustion chamber [kəm'blʌʃjən 'ʃeɪmbə] – камера сгорания  
fuel transfer pump [fjuəl 'trænsfɜ: pʌmp] – топливоперекачивающий насос  
primary filter ['praɪməri 'fɪltə] – фильтр грубой очистки  
secondary filter ['sekəndəri 'fɪltə] – фильтр тонкой очистки  
injection pump [ɪn'dʒekʃn pʌmp] – топливный насос  
thoroughly ['θʌrəli] – основательно, тщательно  
injector [ɪn'dʒektə] – форсунка; инжектор  
fuel injection system [fjuəl ɪn'dʒekʃn 'sɪstɪm] – система впрыска топлива  
break the fuel up [breɪk ðə fjuəl ʌp] – распылить топливо

fine mist [faɪn mɪst] – эд. мелкораспылённое топливо  
 common-rail direct fuel injection system ['kɒmənreɪl dɪ'rekt fjuəl  
 ɪn'dʒɛkʃən 'sɪstəm] – система впрыска топлива с общей топливной  
 магистралью высокого давления  
 fuel rail [fjuəl reɪl] – направляющая-распределитель для топлива (*в  
 системах впрыска*)  
 feeding individual solenoid controlled injector-valve ['fi:dɪŋ ɪndɪ'vɪdʒuəl  
 'səʊlənɔɪd kən'trəʊld ɪn'dʒɛktə vælv] – подающий индивидуальный  
 инжекторный клапан с электромагнитным управлением  
 troubleshooting [trʌbəl'sju:tɪŋ] – нахождение и устранение  
 неисправностей  
 fuel filter assembly [fju:əl 'fɪltə ə'sembli] – топливный фильтр в сборе  
 filter base seal ring ['fɪltə beɪs si:l rɪŋ] – уплотнительное кольцо  
 основания фильтра  
 grease [grɪ:s] – густая смазка  
 mounting base ['maʊntɪŋ beɪs] – монтажное основание  
 tighten ['taɪt(ə)n] – зажимать; затягивать  
 retaining ring [rɪ'teɪnɪŋ rɪŋ] – стопорное кольцо  
 seal ring [si:l rɪŋ] – уплотнительное кольцо  
 bleed [bli:d] – прокачать; продувать; удалять  
 bleeding screw ['bli:dɪŋ sku:u] – стравливающий клапан  
 loosen ['lu:s(ə)n] – ослаблять; отпускать (*напр. болт*)  
 fuel filter bleeding screw [fjuəl 'fɪltə 'bli:dɪŋ sku:u] – винт прокачки  
 топливного фильтра.  
 engage [ɪn'geɪdʒ] – включать  
 manual pump ['mænjuəl pʌmp] – ручной насос  
 bubble free fuel ['bʌbl frɪ: fjuəl] – топливо без пузырьков  
 fuel tank tap [fjuəl tæŋk tæp] – кран топливного бака  
 drain valve [dreɪn vælv] – спускной кран  
 glass sediment bowl [glɑ:s 'sedɪmənt bəʊl] – стеклянный отстойник  
 unscrew [ʌn'skru:] – открутить  
 locking clamp ['lɒkɪŋ klæmp] – фиксирующий зажим  
 distillate ['dɪstɪlət] – дистиллят  
 lint free cloth [lɪnt frɪ: klɒθ] – тканью без ворса  
 loose [lu:s] – отцеплять; разъединять  
 cut out [kʌt aʊt] – выключать, отключать (*о приборе, двигателе*)  
 faulty ['fɔ:ltɪ] – неисправный  
 official service center [ə'fɪʃ(ə)l 'sɜ:vɪs 'sentə] – официальный  
 сервисный центр

### **Exercise 5. Read and translate the following text.**

1. The function of the fuel system is to provide a sufficient circulation of clean filtered fuel, at the appropriate pressure, towards the combustion chamber. The basic fuel system consists of a fuel tank, a fuel transfer pump, two fuel filters (a primary and secondary filter) to remove impurities from the fuel, an injection pump and injectors. Diesel fuel injection systems must accomplish five particular functions: accurately measure the amount of fuel to be injected, force and distribute the fuel into the combustion chamber, injection of the fuel must start and stop at the proper time, break the fuel up into a fine mist, create the necessary high pressure for injection. Modern tractors are nowadays equipped with a common-rail direct fuel injection system. It features a high-pressure fuel pump and fuel rail, feeding individual solenoid controlled injector-valves. Troubleshooting measures described below will be of help in timely maintenance of fuel system.

2. *Replacing the primary/secondary fuel filter.* Thoroughly clean the fuel filter assembly and surrounding area. Remove the fuel filter with an appropriate wrench. Thoroughly inspect filter base seal ring. Replace it when required. While placing a new fuel filter, fill clean fuel into the fuel filter and add some grease on the seal ring of the fuel filter. Install the new filter element onto the mounting base and then tighten. Do not over tighten retaining ring to avoid damage to the threads and the seal ring. Bleed the fuel system via loosening the fuel filter bleeding screw. Engage the manual pump until bubble free fuel comes out of the opening. Loosen the bleeding screw on the injection pump and repeat the bleeding. Change primary and secondary filters alternatively. (e.g. If primary filter is changed at 500 hours, change secondary filter at 1000 hours, again primary at 1500 hours likewise.) Always mark the new filter with the engine hours and date of replacement. Change the fuel filter more often when bad quality fuel is used or the fuel tank is wearing out.

3. *Bleeding off water and sediment from fuel tank and fuel filter.* Open the tap of the fuel tank to bleed off accumulated humidity and fuel tank residue. Close tap when clean fuel starts to come out. As for the fuel filter: close the fuel tank tap, open the drain valve of fuel filter to bleed off humidity and sediment accumulated in the filter. Close tap when clean fuel starts to come out. In case of a glass sediment bowl: unscrew the locking clamp and remove the bowl, taking care not to lose gasket or seal. Wash out the bowl with clean distillate and wipe out with clean lint free cloth. A new gasket or seal might have to be used when replacing the bowl.

4. *Locating the faulty injector.* Loose the high pressure line to each injector in turn, with the engine running at idle speed. This allows the fuel

to escape before it reaches the injector and will in effect cut out that injector and cylinder. The cylinder least affecting engine performance is usually the one with the faulty injector. Bring this injector to an official service center for overhauling. Make sure no dirt can enter the injectors or fuel lines at any time while the tractor is carrying out its operation.

**Exercise 6. Answer the following questions.**

1. What is the function of the fuel system? 2. What does the basic fuel system consists of? 3. What five particular functions does diesel fuel injection system accomplish? 4. What does a common-rail direct fuel injection system feature? 5. What should be done while placing a new fuel filter? 6. What should the manual pump be engaged for? 7. How often should the primary and secondary filters be changed? 8. How can humidity and sediment accumulated in the filter be bled? 9. How can humidity and sediment in the filter be bled in case of glass sediment bowl? 10. How can the faulty injector be located?

**Exercise 7. Translate the following words and word combinations into English using the text.**

1. Функционирование топливной системы; фильтр грубой очистки; камера сгорания; очищенное фильтрованное топливо; примеси; фильтр тонкой очистки; топливный насос; система впрыска топлива; распылять топливо; мелкораспылённое топливо; топливный фильтр в сборе; густая смазка; монтажное основание; стопорное кольцо; спускной кран; неисправный; направляющая-распределитель для топлива; стравливающий клапан; дата замены; влажность и осадок; прокладка или уплотнение; холостой ход; инжектор и цилиндр.

**Exercise 8. Translate the expressions into Russian paying attention to the prepositions.**

Circulation *of* clean fuel, remove impurities *from* the fuel; amount of fuel; distribute the fuel *into* the combustion chamber; injection of fuel; maintenance of fuel system; seal ring *of* the fuel filter; avoid damage *to* the threads; bleeding screw *on* the injection pump; filter is changed *at* 500 hours; tap *of* the fuel tank; drain valve *of* fuel filter; wash out the bowl *with* clean distillate; sediment accumulated *in* the filter.

**Exercise 9. Find in group B the antonyms to the words in group A.**

**A.** Damage; official; tighten; primary; to open; appropriate; to unscrew; clean; modern; timely; often.

**B.** Dirty; proper; old-fashioned; ill-timed; repair; loosen; secondary; seldom; to close; to screw; informal.

**Exercise 10. Translate the following words and word combinations into Russian.**

Clean filtered fuel; appropriate pressure; fuel transfer pump; remove impurities from the fuel; break the fuel up into a fine mist; common-rail direct fuel injection system; filter base seal ring; new fuel filter; mounting base; manual pump; alternatively; bad quality fuel; fuel tank; humidity and sediment; unscrew the locking clamp; gasket or seal; clean distillate; lint free cloth; faulty injector; engine running at idle speed; engine performance; official service center; injectors and fuel lines.

**Exercise 11. Insert the necessary words given below in italic.**

1. Remove the fuel filter with an appropriate ... . 2. Loosen the bleeding screw on the ... and repeat the bleeding. 3. Do not over tighten retaining ring to avoid damage to the ... and the seal ring. 4. Always mark the new filter with the ... and date of replacement. 5. Close tap when ... starts to come out. 6. A new ... or seal might have to be used when replacing the bowl. 7. Bring this injector to an official service center for ... .

*Overhauling; injection pump; clean fuel; wrench; threads; engine hours; gasket.*

## Unit 27

### SERVICING OF THE ENGINE COOLING SYSTEM

#### The Prepositions of Reason

##### (Предлоги причины)

**Because of** – *потому что, из-за*. Когда что-то происходит по какой-либо причине:

He missed the meeting *because of* a traffic jam. – Он пропустил встречу *из-за* пробки на дороге.

**Thanks to** – *благодаря*. Когда что-то положительное произошло из-за кого-то или чего-то:

I have valuable experience *thanks to* this job. – У меня есть ценный опыт *благодаря* этой работе.

**Due to** – *из-за, благодаря*. Используем, когда что-то произошло из-за чего-то (*часто с негативным оттенком*). В большинстве случаев используется в формальных, официальных случаях:

I got sick *due to* changeable weather. *Из-за* переменчивой погоды я заболела.

**Through** – *благодаря, из-за*. Когда нужно указать причину: то есть из-за кого или чего произошло то или иное событие:

I was late to work *through* my dog yesterday. – Я опоздал на работу *из-за* моей собаки вчера.

**From** – *по, из*. Когда есть мысли о чем-то или вера во что-то, либо для указания причины:

I guessed *from* his behavior that he is military. – Я догадался *по* его поведению, что он военный.

**For** – *для, за, из-за*. Когда делаем что-то для определенной цели или когда что-то происходит в результате чего-либо:

I have made him a present *for* his anniversary. – Я сделал ему подарок *на* юбилей.

**In accordance with** – *в соответствии с, согласно*. Когда что-то происходит согласно правилу или закону.

*In accordance with* my life rules I never lie. *В соответствии с* моими жизненными принципами я никогда не лгу.

**On account of** – *вследствие, из-за*. Когда что-то произошло по какой-то причине и вызвало трудности:

We couldn't draw *on account of* broken pencil. – Мы не могли рисовать *из-за* сломанного карандаша.

### **Exercise 1. Translate the sentences into Russian.**

1. He was absent because of illness. 2. He left because of you. 3. We have finished the work in accordance with her instructions. 4. In accordance with the law I have prepared a contract. 5. We couldn't sleep on account of the noise. 6. The bus was delayed on account of a snowfall. 7. We have tickets to the game thanks to you. 8. I found this apartment thanks to my friend. 9. The plane was delayed due to a technical problem. 10. The game was postponed due to rain. 11. I missed the picnic through sickness. 12. He failed his exams through not studying enough. 13. I guessed from her accent that she is French. 14. From what I've heard, the new exam will be more difficult. 15. I have bought him a cake for his birthday. 16. We could hardly see for the mist.

### **Exercise 2. Choose the necessary preposition.**

1. Unfortunately you won't succeed (*to/from*) hard work alone. 2. Dan's mom can't drink milk (*because of/to*) her allergy. 3. I need to go home earlier (*from/because of*) my sick cat. 4. Our sales increased (*for/through*) effective marketing. 5. (*For/on account of*) the accident, which happened yesterday, John couldn't participate in the discussion. 6. (*Due to/to*) her strict parents, Liz rarely went out. 7. I've lost the game. It's all (*because*

of/to) you. 8. (Thanks to/from) David's caution, the Philosopher's Stone was saved. 9. (Because of /from) what I heard the company is in deep trouble. 10. He was taken to the police station (for/in) driving under influence (of drugs or alcohol). 11. Tom will enter the College (through/from) hard work. 12. We didn't go (to/on account of) the bad weather. 13. Their shop was closed down (due to/for) the financial struggles. 14. Mike got his job (through/in accordance with) his uncle. 15. She stopped the medication (in accordance with/because of) side effects.

**Exercise 3. Read and memorize the following words and word combinations.**

engine operating temperature ['endʒɪn ɔpəreɪtɪŋ 'temp(ə)rəʃə] – рабочая температура двигателя

coolant ['ku:lənt] – охлаждающая жидкость

radiator ['reɪdɪeɪtə] – радиатор

coolant pump ['ku:lənt pʌmp] – насос системы охлаждения

pipng ['paɪpɪŋ] – трубопровод

thermostat ['θɜ:məstæt] – термостат

water jacket ['wɔ:tə,dʒækɪt] – водяная рубашка

passage ['pæsɪdʒ] – канал

centrifugal pump [ˌsentri'fju:gəl pʌmp] – центробежный насос

fan [fæn] – вентилятор

top up – наполнять доверху, доливать

expansion tank [ɪk'spæŋʃən tæŋk] – расширительный бачок

loosen ['lu:s(ə)n] – ослаблять

alleviate [ə'li:vɪeɪt] – облегчать

overheated [ˌoʊvə'hi:tɪd] – перегретый

radiator screen ['reɪdɪeɪtə skri:n] – жалюзи радиатора

steel brush [sti:l brʌʃ] – стальная щетка

fan-belt [fæn belt] – ремень привода вентилятора

belt tensioner [belt 'tenʃnə] – натяжное устройство ремённого привода

retracted position [ɪn dʌ rɪ'træktɪd pə'zɪʃ(ə)n] – отведённое положение

reverse order [rɪ'vɜ:s 'ɔ:də] – обратная последовательность

pulley ['pʊli] – шкив

deflect [dɪ'flekt] – провисать

alternator frame ['ɔ:ltənɪtə freɪm] – корпус генератора

mounting bolt ['mauntɪŋ bæʊlt] – болт крепления

lateral movement ['læt(ə)rəl 'mu:vmənt] – боковое смещение

bearing ['beərɪŋ] – подшипник

water pump seal ['wɔ:tə ɹʌmp si:l] – уплотнение водяного насоса

locating bolt [ləu'keɪtɪŋ bəʊlt] – крепежный болт

impeller [ɪm'pelə] – лопастное колесо, крыльчатка

press off [pres əf] – отжимать; перемещать

**Exercise 4. Read and translate the following text.**

1. The cooling system has four primary functions: remove the excess heat from the engine, maintain a constant engine operating temperature, increase the temperature of a cold engine as quickly as possible. The simplest type of cooling is the air-cooled, which the heat is drawn off by moving air in direct contact with the engine or cooling ribs. Nowadays nearly all multi-cylinder engines used in agricultural equipment use a liquid-cooled system. The liquid used in this type of system is called a coolant. A simple liquid-cooled system consists of a radiator, coolant pump, piping, fan, thermostat and a system of water jackets and passages in the cylinder head and block through which the coolant circulates. The water pump is a centrifugal pump that forces coolant through the engine block, the cylinder head and the radiator. Troubleshooting measures described below will be of help in timely servicing the cooling system.

2. *Topping up the coolant liquid.* Remove the cover of the expansion tank only when the engine is cool. Slowly loosen the cover to the first stage, to alleviate pressure before opening fully. Never add cold water to an overheated cooling system or engine, this could result in cylinder block cracks. Visually check coolant level in expansion tank periodically. With a cold engine, it should be at “LOW” mark. With a hot engine, it should be at “FULL”.

3. *Cleaning radiator screens and fins.* Each time dirt accumulates on the screen of the tractor front or on the lateral screens clean them with a steel brush or with compressed air. Reduce compressed air to less than 2.1 bar, (30 psi) when using for cleaning purposes. If more cleaning is needed, clean the radiator from the rear with compressed air or water.

4. *Replacing the fan-belt.* Remove the belt-tensioner from the belt. Keep the tensioner in the retracted position. Install a new belt in reverse order. Run the engine for 5 min. to warm up the cold belt. Let the hot belt cool for 15 min. before adjustment. Check the tension by pressing the belt midway between the pulleys. The belt should deflect about 10–15 mm. Adjust tension by adjusting the nut of the tensioner or apply force on the alternator frame until tension is correct. Tighten the adjusting nut first, then the alternator mounting bolt. A fan-belt should never show any serious signs of wear.

5. *Testing the condition of the water pump bearing.* Grasp the blades of the fan and check for lateral movement. If any movement is detected, the bearings and water pump seal should both be replaced. To remove the pump, the radiator needs to be drained and all locating bolts need to be removed. The water pump pulley and the impeller usually have to be pressed off. Therefore contact your dealer or a certified mechanic.

6. *Testing the condition of the thermostat.* Drain the coolant when necessary. Remove the thermostat. Measure the length of the cold thermostat. Put the thermostat in cooking water. The thermostat should open and should be 7mm longer. Use a new seal when mounting the thermostat.

**Exercise 5. Answer the following questions.**

1. What are primary functions of the cooling system? 2. What is the simplest type of cooling? 3. What does a simple liquid-cooled system consist of? 4. Why shouldn't cold water be added to an overheated cooling system? 5. What can one clean radiator screens with? 6. How many millimetres should the belt deflect? 7. What should be done if the fan has lateral movement? 8. What length of the thermostat should be in cooking water?

**Exercise 6. Translate the following words and word combinations into English using the text.**

Система охлаждения; холодный двигатель; охлаждающие ребра; многоцилиндровые двигатели; термостат; насос системы охлаждения; центробежный насос; расширительный бачок; периодически; ослабить давление; перегретый двигатель; уровень охлаждающей жидкости; горячий двигатель; сжатый воздух; натяжное устройство ремённого привода; холодный ремень; регулировочная гайка; болт крепления; подшипники; шкив водяного насоса; холодный термостат.

**Exercise 7. Translate the words and word combination in brackets into English using the text.**

1. The water pump is a (центробежный насос) that forces coolant through the (блок двигателя), the cylinder head and the (радиатор). 2. The (жидкость) used in (этот тип системы) is called a coolant. 3. If (дополнительная щистка) is needed, clean the radiator (сзади) with (сжатым воздухом или водой). 4. A (ремень привода вентилятора) should never show any serious (признаков износа). 5. (Чтобы снять насос), the radiator needs to be drained and all (крепёжные болты) need to be removed.

**Exercise 8. Translate the following words and word combinations into Russian.**

Direct contact with the engine; agricultural equipment; coolant pump; piping; fan; thermostat; system of water jackets; passages; cylinder head; timely servicing; add cold water; cylinder block cracks; steel brush; to clean the radiator; retracted position; run the engine for 5 min.; warm up the cold belt; let the hot belt cool; midway between the pulleys; apply force on the alternator frame; to tighten the adjusting nut; lateral movement; locating bolts need to be removed; certified mechanic; drain the coolant; to measure the length; cooking water.

**Exercise 9. Match the words with their definitions.**

- |               |   |
|---------------|---|
| 1. heat       | a) a large receptacle or storage chamber, especially for liquid or gas.                   |
| 2. coolant    | b) a part of a machine that bears friction, esp. between a rotating part and its housing. |
| 3. pump       | c) a machine is a circular strip of rubber that is used to drive moving parts.            |
| 4. radiator   | d) warmth or the quality of being hot.  |
| 5. tank       | e) a device that automatically regulates temperature.                                     |
| 6. belt       | f) a device that is used to force a liquid or gas to flow in a particular direction.      |
| 7. bearing    | g) a liquid or gas that is used to remove heat from something.                            |
| 8. thermostat | h) the part of the engine which is filled with water in order to cool the engine.         |

**Exercise 8. Find in group B the synonyms to the words in group A.**

**A.** To measure; new; sign; equipment; reduce; expansion; detach; adjustment; loosen; motor; primary; necessary.

**B.** Main; apparatus; weaken; engine; lessen; regulation; indication; disconnect; to calculate; essential; modern; enlargement.

## Unit 28

### SERVICING OF THE ENGINE ELECTRICAL SYSTEM

#### The Construction It is (was) ... that.

#### (Оборот It is (was) ... that.)

Когда необходимо выделить определенный член предложения (*подлежащее, дополнение, обстоятельство*), его ставят в начало предложения между **it is (was)** и **that (who, whom)**.

Например, если в предложении *I met his sisters in the park yesterday*, надо выделить подлежащее *I*, подчеркнуть, что именно я, а не кто-нибудь другой, встретил его сестер в парке, то подлежащее *I* ставится между **it is (was)** и **that (who)**. При переводе такого оборота часто пользуются словами *именно, это*:

*It was I that (who) met his sisters in the park yesterday.* – Именно (Это) я встретил его сестер в парке вчера.

Если в том же предложении надо выделить дополнение *his sisters*, то есть подчеркнуть, что я встретил именно его сестер, а не кого-нибудь другого, то дополнение *his sisters* ставится между **It was** и **that (whom)**:

*It was his sisters that (whom) I met in the park yesterday.* – Именно (Это) его сестер я встретил в парке вчера.

Если надо выделить обстоятельство места *in the park*, то есть подчеркнуть, что я встретил его сестер в парке, а не в другом месте, то обстоятельство *in the park* ставится между **It was** и **that**:

*It was in the park that I met his sisters yesterday.* – Именно (Это) в парке я встретил его сестер вчера.

Если надо выделить обстоятельство времени *yesterday*, то есть подчеркнуть, что я встретил его сестер вчера, а не в какой-нибудь другой день, то обстоятельство *yesterday* ставится между **It was** и **that**:

*It was yesterday that I met his sisters in the park.* – Именно (Это) вчера я встретил его сестер в парке.

#### Exercise 1. Translate the sentences into Russian.

1. It is she who works here. 2. It was they who called you. 3. It was me whom he wrote a letter. 4. It was him whom I sent invitations. 5. It was at Tom's party where I met my wife. 6. It was last month when he removed to the country. 7. It was he who helped me. 8. It is the unexpected that always

happens. 9. It is in the garden that my brother is working. 10. It was yesterday that my brother threw an egg at the singer. 11. It was the singer that my brother threw an egg at yesterday. 12. It was my brother that threw an egg at the singer yesterday. 13. It was an egg that my brother threw at the singer yesterday. 14. It was he who informed us about the results of their work. 15. It is my brother who is working in the garden. 16. It was my sister that cooked the cherry pie on Sunday. 17. It was steam engines that fascinated the public of the exhibition. 18. It is this farmer who obtains very high milk yields. 19. It is she who works here. 20. It is language that enables us to communicate with each other.

**Exercise 2. Read and memorize the following words and word combinations.**

direct current [dɪ'rekt 'kʌr(ə)nt] – постоянный ток  
 electrical circuit [ɪ'lektrɪk(ə)l 'sɜ:kɪt] – электрическая схема  
 charging circuit [tʃɑ:dʒɪŋ 'sɜ:kɪt] – схема зарядки  
 starting circuit ['stɑ:tɪŋ 'sɜ:kɪt] – пусковая схема  
 fuel-system circuit [fju:əl 'sɪstəm 'sɜ:kɪt] – схема топливной системы  
 lighting circuit ['laɪtɪŋ 'sɜ:kɪt] – схема освещения  
 accessory circuit [ək'ses(ə)rɪ 'sɜ:kɪt] – вспомогательная схема  
 crank [kræŋk] – заводить  
 ignition switch [ɪg'nɪʃ(ə)n swɪtʃ] – замок зажигания  
 pinion gear ['pɪnjən gɪə] – ведущая шестерня  
 mesh [meʃ] – зацепляться  
 ring gear [rɪŋ gɪə] – зубчатый венец  
 drive mechanism [draɪv 'mekənɪz(ə)m] – привод; приводной механизм  
 starter relay ['stɑ:tə 'ri:leɪ] – реле стартера  
 solenoid ['səʊlənɔɪd] – соленоид  
 wiring ['waɪərɪŋ] – электропроводка  
 energize ['enədʒaɪz] – подавать напряжение  
 excite [ɪk'saɪt] – возбуждать (*ток*);  
 alternator [ɔ:l'tɛnɛɪtə] – генератор переменного тока  
 output ['aʊtpʊt] – мощность  
 terminal ['tɜ:mɪn(ə)l] – клемма  
 sodium bicarbonate ['səʊdɪəm baɪ'kɑ:bənɪt] – бикарбонат натрия  
 electrolyte [ɪ'lektrolaɪt] – электролит  
 proprietary topping up fluid [prə'praɪətɪ 'tɔ:pɪŋ ʌp 'flu:ɪd] – специальная жидкость для долива  
 safety glasses ['seɪftɪ 'glɑ:sɪz] – защитные очки  
 failing fuse ['feɪlɪŋ fju:z] – неисправный предохранитель

current capacity ['kʌr(ə)nt kə'pæsəti] – допустимая токовая нагрузка  
colour-coded ['kʌlə kəʊdɪd] – с цветовым кодом  
higher rated fuse ['haɪə 'reɪtɪd fju:z] – предохранитель с более

высоким номиналом

fuse box ['fju:z bɒks] – блок плавких предохранителей  
control panel [kən'trəʊl 'pæn(ə)l] – панель управления  
disassemble [,dɪsə'sembəl] – разбирать  
commutator ['kɒmjuteɪtə] – коллектор  
brush [brʌʃ] – щётка  
sandpaper ['sæn(d) peɪpə] – наждачная бумага  
rough [rʌf] – шероховатый  
pitted ['pɪtɪd] – покрытый ямками  
out-of-round [aʊt əv raʊnd] – некруглый  
commutator bar ['kɒmjuteɪtə bɑ:] – коллекторная пластина  
recondition [,ri:kən'dɪʃən] – ремонтировать  
lathe [leɪð] – токарный станок  
brush holder [brʌʃ 'həʊldə] – щеткодержатель  
contact spray ['kɒntækt spreɪ] – очиститель контактов (*спрей*)  
short circuit [ˌʃɔ:t 'sɜ:kɪt] – короткое замыкание  
multimeter ['mʌltɪ mi:tə] – мультиметр, тестер  
wire harness ['waɪə 'hɑ:nɪs] – монтажный жгут  
wire diagram ['waɪə 'daɪəgræm] – схема проводки  
connector [kə'nektə] – соединительное звено  
affected circuit [ə'fektɪd 'sɜ:kɪt] – поврежденная сеть  
positive probe ['pɒzətɪv prəʊb] – положительный щуп  
load side [ləʊd saɪd] – сторона нагрузки  
clamp [klæmp] – прижать  
beep [bi:p] – подавать звуковой сигнал  
burned-out light bulb [bɜ:nd aʊt laɪt bʌlb] – перегоревшая лампочка

### **Exercise 3. Read and translate the following text.**

1. The electrical system of a tractor is designed to perform a variety of functions. Most tractors run on a 12-Volt direct current (DC) system. The common tractor electrical system contains five electrical circuits: the charging circuit, the starting circuit, the fuel-system circuit, the lighting circuit and the accessory circuit. The internal combustion engine is not capable of self-starting but is cranked by a small but powerful electric motor. This motor is called a starting motor, or starter. The battery sends current to the starter when the operator turns the ignition switch to start. This causes a pinion gear in the starter to mesh with the teeth of the ring

gear, thereby rotating the engine crankshaft for starting. The typical starting circuit consists of a battery, a starter motor and drive mechanism, an ignition switch, the starter relay or solenoid, and the wiring to connect these components. The charging system recharges the battery after engine cranking and it supplies all the electricity for the vehicle when the engine is running. The battery provides current to excite the alternator and assists in stabilizing the initial alternator output. An alternator is a generator that uses mechanical power to produce electricity.

2. *Servicing the battery.* Keep connections clean and tight. To eliminate corrosion: clean the terminals with a solution of four parts water one part sodium bicarbonate. Keep the battery always fully charged. If connecting a battery charger, connect the positive cable to the positive battery terminal first to avoid sparks. For trouble-free operation check the electrolyte level monthly and top up with distilled water or a proprietary topping up fluid. Always wear safety glasses when doing this.

3. *Replace failing fuses.* All the electrical circuits are protected by fuses. The current capacity is marked on each fuse and the fuses are also color-coded to ensure their correct installation. Do not replace an original fuse with a higher rated fuse or machine damage may occur. The fuse box is often located under the steering wheel or control panel.

4. *Starter or alternator maintenance.* If the starter or alternator is not operating properly, remove the starter or alternator, disassemble it, and check the commutator and brushes. If the commutator is dirty, it may be cleaned with a piece of extra fine sandpaper. If the commutator is rough, pitted, or out-of-round or if the insulation between the commutator bars is high, it must be reconditioned using a lathe. Brushes should be at least half of their original size. If not, replace them. The brushes should have free movement in the brush holders and make good, clean contact with the commutator. Use contact spray to clean the electric wiring.

5. *Finding a short circuit.* To get started, you'll need a multimeter, tools to access the wire harness and if possible an electrical wire diagram of your tractor. First you need to identify the circuit you're looking at. You'll need to see where it goes, what connectors it goes through, and what colour the wires are. When testing 12-V circuits, you can usually start with the fuse in the affected circuit. Disconnect the battery positive, set the positive probe on the load side of the fuse, clamp the negative probe to battery negative. If there is a short circuit the multimeter will beep. Disconnect the connector at the load. If the meter stops beeping this might indicate an internal fault in the load (a burnt-out bulb or motor)

#### **Exercise 4. Answer the following questions.**

1. How many electrical circuits does a common tractor electrical system contain? 2. What does a typical tractor starting circuit consist of? 3. What solution should be used to eliminate the corrosion of terminals? 4. How often should the battery be checked for trouble-free operation? 5. Will there be any machine damage if an original fuse is replaced with a higher rated fuse? 6. What should be done if the commutator is dirty? 7. What will happen if there is a short circuit?

#### **Exercise 5. Translate the expressions into Russian paying attention to the prepositions.**

The electrical system *of* a tractor; a variety *of* functions; tractors run *on* a 12-Volt direct current; battery sends current *to* the starter; pinion gear *in* the starter; mesh *with* the teeth *of* the ring gear; electricity *for* the vehicle; positive cable *to* the positive terminal; circuits protected *by* fuses; fuse box located *under* the steering wheel; free movement *in* the brush holders; contact *with* the commutator; electrical wire diagram *of* a tractor; start *with* positive probe *on* the load side *of* the fuse.

#### **Exercise 6. Translate the following words and word combinations into English using the text.**

Выполнять различные функции; постоянный ток; схема зарядки; схема топливной системы; вспомогательная схема; реле стартера; при работающем двигателе; генератор переменного тока; коленчатый вал; неисправный предохранитель; допустимая токовая нагрузка; предохранитель с более высоким номиналом; наждачная бумага; покрытый ямками; токарный станок; мультиметр; очиститель контактов; щеткодержатель; короткое замыкание; монтажный жгут; электричество; соединительное звено; положительный щуп; подавать звуковой сигнал; перегоревшая лампочка; внутренняя неисправность.

#### **Exercise 7. Find the Russian equivalents for the following English words and word combinations.**

- |                              |                                   |
|------------------------------|-----------------------------------|
| 1. tractor electrical system | a) панель управления              |
| 2. trouble-free operation    | b) коллектор и щетки              |
| 3. electrolyte level         | c) схема проводки                 |
| 4. distilled water           | d) цепи напряжением 12 В          |
| 5. safety glasses            | e) безотказная работа             |
| 6. commutator and brushes    | f) сторона нагрузки               |
| 7. control panel             | g) электрическая система трактора |
| 8. wire diagram              | h) уровень электролита            |
| 9. 12-V circuits             | i) защитные очки                  |
| 10. load side                | j) дистиллированная вода          |

**Exercise 8. Choose the words that have the following definitions.**

1. A cylindrical coil of wire acting as a magnet when carrying electric current.

a) circuit; b) electric motor; c) solenoid; d) circuit.

2. A container consisting of one or more cells, in which chemical energy is converted into electricity.

a) switch; b) battery; c) gear; d) spray.

3. A device, used especially in a car, that creates an electrical current that changes direction as it flows.

a) generator; b) alternator; c) load; d) starter.

4. A device that is used for charging or recharging batteries.

a) terminal; b) diagram; c) fuse; d) charger.

5. A liquid in which a solid substance has been dissolved.

a) sandpaper; b) solution; c) installation; d) commutator.

6. A piece of carbon or metal serving as an electrical contact with a moving part in a motor or alternator.

a) damage; b) brush; c) connector; d) bulb.

7. An instrument designed to measure electric current, voltage and resistance, typically over several ranges of value.

a) holder; b) multimeter; c) probe; d) cable.

**Exercise 9. Find in group B the synonyms to the words in group A.**

**A.** Mechanism; components; operation; to recondition; defect; correct; to replace; to connect; to mesh; maintenance; to identify.

**B.** To determine; to engage; to join; functioning; machine; to repair; servicing; fault; proper; parts; to substitute.

**Unit 29**

**SERVICING OF THE HYDRAULIC SYSTEM**

**Exercise 1. Read and memorize the following words and word combinations.**

oil reservoir [ɔɪl 'rezəvwa:] – резервуар для масла

hydraulic pump [haɪ'drɔ:lɪk pʌmp] – гидравлический насос

hydraulic valve [haɪ'drɔ:lɪk vælv] – гидравлический клапан

hydraulic hose [haɪ'drɔ:lɪk həʊz] – гидравлический шланг

hydraulic cylinder [haɪ'drɔ:lɪk 'sɪlɪndə] – гидравлический цилиндр

hydraulic motor [haɪ'drɔ:lɪk 'məʊtə] – гидравлический мотор

non-pressurized [nɒn preʃəraɪzɪd] – не находящийся под давлением

transfer [trænzfə:] – перекачивать

internal rod [ɪn'tɜ:nəl rɒd] – внутренний шток

retract [rɪ'trækt] – втягивать(ся)  
 escape [ɪs'keɪp] – отводить  
 directional control valve [dɪ'rekʃ(ə)n(ə)l kən'trəʊl vælv] – клапан направляющего управления  
 flow path [fləʊ pɑ:θ] – направление потока  
 pressure relief valve ['preʃə rɪ'li:f vælv] – предохранительный клапан  
 overload [ˌəʊv(ə)'ləʊd] – перегрузка  
 output force ['aʊtpʊt fɔ:s] – выходное усилие  
 exert [ɪg'zɜ:t] – создавать; оказывать  
 set value [set 'vælju:] – заданное значение  
 tolerance [ˈtɒlərəns] – допуск  
 internal wear [ɪn'tɜ:nəl weə] – внутренний износ  
 dipstick ['dɪpstɪk] – щуп для измерения уровня (*напр. масла*)  
 housing ['haʊzɪŋ] – корпус  
 drain plug [dreɪn plʌg] – сливная пробка  
 oil-filter mesh [ɔɪl 'fɪltə meʃ] – сетка масляного фильтра  
 cartridge filter ['kɑ:trɪdʒ 'fɪltə] – картриджный фильтр  
 apply [ə'plai] – наносить  
 grease [greɪs] – консистентная смазка  
 slack [slæk] – провисание  
 clamps [klæmps] – крепёжные детали, крепёж  
 twisting ['twɪstɪŋ] – скручивание  
 angle adaptor ['æŋgl ə'dæptə] – угловой адаптер

**Exercise 2. Match the words with their definitions.**

- |                |   |
|----------------|---|
| 1. engine      | a) an excessive amount of something or too great a burden or cargo.   |
| 2. pressure    | b) a powerful motor vehicle with large rear wheels, used chiefly on farms for hauling equipment and trailers. |
| 3. overload    | c) a machine with moving parts that converts power into motion.   |
| 4. tractor     | d) the continuous physical force exerted on or against an object by something in contact with it.             |
| 5. mesh        | e) the action or process of replacing someone or something.   |
| 6. filter      | f) a brace, band, or clasp for strengthening or holding things together.                                      |
| 7. replacement | g) material like a net made from wire, thread, or plastic.  |
| 8. clamp       | h) a porous device for removing impurities or solid particles from a liquid or gas passed through it.         |

**Exercise 3. Find in the text the words that mean the following:**

1. A machine or device that is used to force a liquid or gas to flow in a particular direction. (*paragraph 1*);
2. A receptacle of a machine designed to hold fluid. (*paragraph 1*);
3. A disk or short cylinder fitting closely within a tube in which it moves up and down against a liquid or gas. (*paragraph 2*);
4. A long, flexible pipe made of rubber or plastic along which a liquid or gas flows. (*paragraph 2*);
5. A point on a scale, for example a scale of amount, quantity, extent, or quality. (*paragraph 3*);
6. A system of gears and shafts by which the power from the engine reaches and turns the wheels. (*paragraph 4*);
7. The process of scraping or wearing something away. (*paragraph 5*).

**Exercise 4. Read and translate the following text.**

1. A hydraulic system uses a compressed fluid to transfer force generated at one point to another point. The basic components that make up a hydraulic system are an oil-reservoir, an hydraulic pump, the hydraulic valves, the hydraulic fluid, hydraulic hoses, a system of filters, a hydraulic cylinder or/and a hydro-motor. The hydraulic reservoir stores the non-pressurized hydraulic fluid, typically hydraulic oil. The hydraulic oil travels through a filter that collects impurities. A hydraulic pump transfers the fluid from the reservoir to the hydraulic system. This transfer raises the energy level of the fluid by increasing its pressure. The engine provides the power source for the pump. In case of a hydraulic cylinder the high-pressure fluid acts upon the internal rod and piston. Each stroke of the cylinder converts the fluid power (pressure) into work (mechanical force).

2. The reservoir oil level falls while the rod and piston are extending. When the rod and piston retract, the fluid returns to the reservoir. The metal walls of the reservoir cool the fluid by allowing heat to escape. Hydraulic valves control and steer the oil-stream. Directional control valves manage the flow path of the fluid in the system. Pressure relief valves protect the system of hoses and components against pressure overloads. They also limit the output force exerted by rotary motors and cylinders. These valves open whenever the pressure goes beyond the set value, allowing oil to flow back into the reservoir. The fluid travels from one component to the next within a hydraulic system through a hydraulic hose. Most modern farm tractors use the same oil for both the transmission and hydraulic system. As the tolerances of hydraulic components are extremely low, the quality of the hydraulic oil and filtration of the system are extremely important to prevent internal wear.

3. *Checking the hydraulic oil level.* Withdraw the dipstick and clean it. Insert dipstick fully. The oil level should be between the marks on the dipstick. Add appropriate oil if the level is low.

4. *Change the hydraulic system oil and replace the oil filter.* Remove the drain plug of the transmission housing and drain the oil. Lower the 3-point hydraulic hitch to remove oil from the circuit. After the oil is drained (and when an oil-filter mesh is present) remove the mesh and examine it for damage. Replace a damaged mesh. Clean the mesh in solvent and dry it with compressed air. Remove the cartridge filter. Apply a film of oil or grease to the edge of the new filter and install it. Tighten the filter by hand. Fill the system with transmission/hydraulic oil. Check the oil level after filling and again after 5 minutes of engine operation. Always mark the new filter with the engine hours and date of replacement.

5. *Hydraulic hose assembly.* Adequate hose length is necessary to distribute hose on flexing points and avoid abrasion. Allow enough slack in the hose to provide for the length change which will occur when pressure is applied. Avoid twisting of hose lines. Reduce the number of pipe thread joints. Use an angle adaptor to avoid sharp bends. Make sure the hose is kept away from hot parts or insulates the hose. Often clamps are required to support long hose runs or keep hoses away from moving parts. When ordering a new hose, make sure that the technical specifications of the hose and connector are correct.

**Exercise 5. Answer the following questions.**

1. What are the basic components of a hydraulic system? 2. What is a hydraulic pump designed for? 3. What does the high-pressure fluid act upon in case of a hydraulic cylinder? 4. What are the metal walls of the oil reservoir for? 5. Where does the fluid travel from one component to the next? 6. Why are the quality of the hydraulic oil and filtration of the system extremely important? 7. What should be done for checking the oil level in the hydraulic system? 8. How can the oil be drained? 9. What should be done after the oil is drained? 10. What should one do to install a new filter? 11. What is adequate hose length necessary? 12. Is any slack important in hose assembly? 13. Why are often clamps required?

**Exercise 6. Translate the words and word combination in brackets into English using the text.**

1. The (гидравлический резервуар) stores the non-pressurized hydraulic fluid, typically (гидравлическое масло).

2. This transfer raises the (уровень энергии) of the fluid by increasing its (давлени).

3. The (уровень масла) should be between the (отметки на щупе).

4. (Чистить от загрязнений) the mesh in (растворитель) and dry it with (сжатым воздухом).

5. (Проверьте уровень масла) after filling and again after (5 минут работы двигателя).

6. Often (крепёжные детали) are required to support (длинные отрезки шлангов) or keep hoses away from (движущиеся детали).

**Exercise 7. Translate the following words and word combinations into English using the text.**

Сжатая жидкость; основные компоненты; гидравлический клапан; внутренний шток; клапан направляющего управления; поворотный двигатель; предохранительный клапан; гидравлический мотор; заданное значение; внутренний износ; отметки на щупе; фильтрация; давление; консистентная смазка; гидравлический шланг; современные сельскохозяйственные тракторы; жидкость возвращается в резервуар; 3-точечная гидравлическая навесная система; картриджный фильтр; сжатый воздух; 5 минут работы двигателя; скручивание; технические характеристики шланга; корпус; поврежденная сетка.

**Exercise 8. Translate the expressions into Russian paying attention to the prepositions.**

To transfer force generated *at* one point *to* another point; a system *of* filters; to transfer the fluid *from* the reservoir *to* the hydraulic system; fluid acts *upon* the internal rod; fluid returns *to* the reservoir; system *of* hoses; remove oil *from* the circuit; clean the mesh *in* solvent; mark the new filter *with* the engine hours; distribute hose *on* flexing points.

**Exercise 9. Translate the following words and word combinations into Russian.**

To escape; to transfer; to retract; hydraulic cylinder; hydraulic pump; flow path; non-pressurized hydraulic fluid; internal rod; directional control valve; hydraulic motor; pressure relief valve; to exert; oil reservoir; overload; hydraulic hose; output force; hydraulic valve; set value; tolerance; internal wear; dipstick; transmission housing; cartridge filter; drain plug; oil-filter mesh; grease; to apply; slack; clamps; twisting; angle adaptor.

## ТАБЛИЦА НЕПРАВИЛЬНЫХ ГЛАГОЛОВ С ПЕРЕВОДОМ

	Verb	Past Simple	Past Participle
1	be [bi:] быть	was [wɔz], were [wɜ:]	been [bi:n]
2	beat [bi:t] бить	beat [bi:t]	beaten [ˈbi:tn]
3	become [bɪ'kʌm] становиться	became [bɪ'keɪm]	become [bɪ'kʌm]
4	begin [bɪ'gɪn] начинать	began [bɪ'gæn]	begun [bɪ'gʌn]
5	bleed [bli:d] кровоточить	bled [bled]	bled [bled]
6	blow [bləʊ] дуть	blew [blu:]	blown [ˈbləʊn]
7	break [breɪk] ломать	broke [brəʊk]	broken [ˈbrəʊk(ə)n]
8	bring [brɪŋ] приносить	brought [brɔ:t]	brought [brɔ:t]
9	build [bɪld] строить	built [bɪlt]	built [bɪlt]
10	burn [bɜ:n] гореть	burnt [bɜ:n]	burnt [bɜ:n]
11	burst [bɜ:st] разразиться	burst [bɜ:st]	burst [bɜ:st]
12	buy [baɪ] покупать	bought [bɔ:t]	bought [bɔ:t]
13	catch [kætʃ] ловить; успеть	caught [kɔ:t]	caught [kɔ:t]
14	choose [tʃu:z] выбирать	chose [tʃəʊz]	chosen [ˈtʃəʊz(ə)n]
15	come [kʌm] приходить	came [keɪm]	come [kʌm]
16	cost [kɔst] стоить	cost [kɔst]	cost [kɔst]
17	creep [kri:p] ползать	crept [krept]	crept [krept]
18	cut [kʌt] резать	cut [kʌt]	cut [kʌt]
19	do [du:] делать	did [dɪd]	done [dʌn]
20	draw [drɔ:] рисовать; тащить	drew [dru:]	drawn [drɔ:n]
21	dream [dri:m] мечтать; дремать	dreamt [dremt]	dreamt [dremt]
22	drink [drɪŋk] пить	drank [dræŋk]	drunk [drʌŋk]
23	drive [draɪv] водить	drove [drəʊv]	driven [ˈdrɪv(ə)n]
24	eat [i:t] есть	ate [et]	eaten [ˈi:t(ə)n]
25	fall [fɔ:] падать	fell [fel]	fallen [ˈfɔ:lən]
26	feed [fi:d] кормить	fed [fed]	fed [fed]
27	feel [fi:l] чувствовать	felt [felt]	felt [felt]
28	fight [faɪt] бороться	fought [fɔ:t]	fought [fɔ:t]
29	find [faɪnd] находить	found [faʊnd]	found [faʊnd]
30	fit [fɪt] подходить по размеру	fit [fɪt]	fit [fɪt]
31	fly [flaɪ] летать	flew [flu:]	flown [fləʊn]
32	forget [fə'get] забывать	forgot [fə'gɒt]	forgotten [fə'gɒt(ə)n]
33	forgive [fə'gɪv] прощать	forgave [fə'geɪv]	forgiven [fə'gɪv(ə)n]
34	freeze [fri:z] заморзать	froze [frəʊz]	frozen [ˈfrəʊz(ə)n]
35	get [get] получать	got [gɒt]	got [gɒt]
36	give [gɪv] давать	gave [geɪv]	given [gɪv(ə)n]
37	go [gəʊ] идти	went [went]	gone [gɒn]
38	grow [grəʊ] расти	grew [gru:]	grown [grəʊn]
39	hang [hæŋ] вешать	hung [hʌŋ]	hung [hʌŋ]
40	have [hæv] иметь	had [hæd]	had [hæd]
41	hear [hɪə] слышать	heard [hɜ:d]	heard [hɜ:d]
42	hide [haɪd] прятать	hid [hɪd]	hidden [ˈhɪd(ə)n]
43	hit [hɪt] попадать в цель	hit [hɪt]	hit [hɪt]
44	hold [həʊld] держать	held [held]	held [held]
45	hurt [hɜ:t] ушибить	hurt [hɜ:t]	hurt [hɜ:t]

46	keep [ki:p] содержать	kept [kept]	kept [kept]
47	kneel [ni:l] становиться на колени	knelt [nelt]	knelt [nelt]
48	know [nəu] знать	knew [nju:]	known [nəʊn]
49	lay [lei] класть	laid [leid]	laid [leid]
50	lead [li:d] вести	led [led]	led [led]
51	lean [li:n] наклоняться	leant [lent]	leant [lent]
52	learn [lɜ:n] учить	learnt [lɜ:nt]	learnt [lɜ:nt]
53	leave [li:v] оставлять	left [left]	left [left]
54	lend [lend] давать взаймы	lent [lent]	lent [lent]
55	let [let] позволять	let [let]	let [let]
56	lie [lai] лежать	lay [lei]	lain [lein]
57	light [lait] освещать	lit [lit]	lit [lit]
58	lose [lu:z] терять	lost [lost]	lost [lost]
59	make [meik] производить	made [meid]	made [meid]
60	mean [mi:n] значить	meant [ment]	meant [ment]
61	meet [mi:t] встречать	met [met]	met [met]
62	mistake [mɪ'steɪk] ошибаться	mistook [mɪ'stuk]	mistaken [mɪ'steɪk(ə)n]
63	pay [pei] платить	paid [peɪd]	paid [peɪd]
64	prove [pru:v] доказывать	proved [pru:vd]	proven [pru:vn]
65	put [put] положить	put [put]	put [put]
66	quit [kwɪt] прекращать ( <i>что-либо делать</i> ); оставлять	quit [kwɪt]	quit [kwɪt]
67	read [ri:d] читать	read [red]	read [red]
68	ride [raɪd] ездить верхом	rode [rəʊd]	ridden ['rɪd(ə)n]
69	ring [rɪŋ] звенеть	rang [ræŋ]	rung [rʌŋ]
70	rise [raɪz] подниматься	rose [rəʊz]	risen ['rɪz(ə)n]
71	run [rʌŋ] бежать	ran [ræn]	run [rʌŋ]
72	say [sei] говорить	said [sed]	said [sed]
73	see [si:] видеть	saw [sɔ:]	seen [si:n]
74	seek [si:k] искать	sought [sɔ:t]	sought [sɔ:t]
75	sell [sel] продавать	sold [səʊld]	sold [səʊld]
76	send [send] посылать	sent [sent]	sent [sent]
77	set [set] ставить	set [set]	set [set]
78	sew [səʊ] шить	sewed [səʊd]	sewn [səʊn]
79	shake [ʃeɪk] встряхивать	shook [ʃuk]	shaken [ˈʃeɪk(ə)n]
80	show [ʃəʊ] показывать	showed [ʃəʊd]	shown [ʃəʊn]
81	shrink [ʃrɪŋk] уменьшать	shrank [ʃræŋk]	shrunk [ʃrʌŋk]
82	shut [ʃʌt] закрывать	shut [ʃʌt]	shut [ʃʌt]
83	sing [sɪŋ] петь	sang [sæŋ]	sung [sʌŋ]
84	sink [sɪŋk] тонуть	sank [sæŋk]	sunk [sʌŋk]
85	sit [sɪt] сидеть	sat [sæt]	sat [sæt]
86	sleep [sli:p] спать	slept [slept]	slept [slept]
87	slide [slaɪd] скользить	slid [slɪd]	slid [slɪd]
88	sow [səʊ] сеять	sowed [səʊd]	sown [səʊn]
89	speak [spi:k] говорить	spoke [spəʊk]	spoken ['spəʊk(ə)n]
90	spell [spel] произносить по буквам	spelt [spelt]	spelt [spelt]
91	spend [spend] тратить	spent [spent]	spent [spent]
92	spill [spɪl] проливать	spilt [spɪlt]	spilt [spɪlt]
93	spoil [spɔɪl] портить	spoilt [spɔɪlt]	spoilt [spɔɪlt]
94	spread [spred] расстилать	spread [spred]	spread [spred]

95	spring [sprɪŋ] прыгать	sprang [spræŋ]	sprung [sprʌŋ]
96	stand [stænd] стоять	stood [stu:d]	stood [stu:d]
97	steal [sti:l] красть	stole [stəʊl]	stolen ['stəʊləŋ]
98	stick [stɪk] приклеивать; втыкать	stuck [stʌk]	stuck [stʌk]
99	sting [stɪŋ] жалить	stung [stʌŋ]	stung [stʌŋ]
100	sweep [swi:p] выметать	swept [swept]	swept [swept]
101	swell [swel] надуваться	swelled [sweld]	swollen ['swəʊləŋ]
102	swim [swɪm] плавать	swam [swæm]	swum [swʌm]
103	swing [swɪŋ] качать	swung [swʌŋ]	swung [swʌŋ]
104	take [teɪk] брать	took [tuk]	taken ['teɪk(ə)n]
105	teach [ti:tʃ] учить	taught [tɔ:t]	taught [tɔ:t]
106	tear [teə] рвать	tore [tɔ:]	torn [tɔ:n]
107	tell [tel] рассказывать	told [təʊld]	told [təʊld]
108	think [θɪŋk] думать	thought [θɔ:t]	thought [θɔ:t]
109	throw [θrəʊ] бросать	threw [θru:]	thrown [θrəʊn]
110	understand [ˌʌndə'stænd] понимать	understood [ˌʌndə'stʊd]	understood [ˌʌndə'stʊd]
111	wake [weɪk] просыпаться	woke [wəʊk]	woken ['wəʊk(ə)n]
112	wear [weə] носить	wore [wɔ:]	worn [wɔ:n]
113	weave [wi:v] ткать	wove [wəʊv] weaved [wi:vd]	woven ['wəʊv(ə)n] weaved [wi:vd]
114	weep [wi:p] плакать	wept [wept]	wept [wept]
115	wet [wet] смачивать, увлажнять	wet [wet]	wet [wet]
116	win [wɪn] выигрывать	won [wʌn]	won [wʌn]
117	wind [waɪnd] извиваться	wound [waʊnd]	wound [waʊnd]
118	withdraw [wɪð'drɔ:] взять назад; отозвать	withdrew [wɪð'dru:]	withdrawn [wɪð'drɔ:n]
119	wring [rɪŋ] скрутить; сжать	wrung [rʌŋ]	wrung [rʌŋ]
120	write [raɪt] писать	wrote [rəʊt]	written ['rɪt(ə)n]

## СОДЕРЖАНИЕ

<b>Введение</b> .....	3
<b>Unit 1</b>	
<b>Text:</b> Development of Farm Implements.	
<b>Словообразование:</b> Суффиксы -er/-or.	
<b>Грамматика:</b> The Plural Nouns. The Cardinal Numerals. The Demonstrative Pronouns. ....	4
<b>Unit 2</b>	
<b>Text:</b> Farm Mechanization.	
<b>Словообразование:</b> Суффиксы -ness, -(i)ty.	
<b>Грамматика:</b> The Possessive Case. The Ordinal Numerals. ....	12
<b>Unit 3</b>	
<b>Text:</b> Application of Farm Machinery.	
<b>Словообразование:</b> Суффиксы -ment, -hood, -ship.	
<b>Грамматика:</b> The Degrees of Comparison of Adjectives. The Constructions of Comparison. The Dates in English. ....	19
<b>Unit 4</b>	
<b>Text:</b> Combine.	
<b>Словообразование:</b> Суффиксы -ance (-ence), -ion (-tion, -ation).	
<b>Грамматика:</b> The Pronouns. The Fractional Numerals. ....	26
<b>Unit 5</b>	
<b>Text:</b> Forage Harvester.	
<b>Словообразование:</b> Суффиксы -ist, -ism.	
<b>Грамматика:</b> The Article. The Indefinite Article. The Definite Article. The Zero Article. ....	34
<b>Unit 6</b>	
<b>Text:</b> Potato Harvesting.	
<b>Словообразование:</b> Суффиксы -ly, -ward.	
<b>Грамматика:</b> The Present Indefinite Active. The Verb To Be in the Present Indefinite. The Modal Verb Must. ....	42
<b>Unit 7</b>	
<b>Text:</b> Hay Baler.	
<b>Словообразование:</b> Суффиксы -ant(-ent), -ee.	
<b>Грамматика:</b> The Past Indefinite Active. The Verb To Be in the Past Indefinite. The Modal Verbs Should, Ought to. ....	50
<b>Unit 8</b>	
<b>Text:</b> Mowers.	
<b>Словообразование:</b> Приставки anti-, counter-.	
<b>Грамматика:</b> The Future Indefinite Active. The Verb To Be in the Future Indefinite. The Modal Verb Can. ....	59

<b>Unit 9</b>	
<b>Text:</b> Haymaking Implements.	
<b>Словообразование:</b> Приставки de-, dis-.	
<b>Грамматика:</b> The Word Order. The Construction There + be. The Verb To Have in the Present, Past, Future Indefinite .....	70
<b>Unit 10</b>	
<b>Text:</b> Ploughing.	
<b>Словообразование:</b> Приставки en-(em-), mis-.	
<b>Грамматика:</b> The Present Continuous Active. The Indefinite Pronouns: Some, Any, No. The Modal Verb Have To. ....	81
<b>Unit 11</b>	
<b>Text:</b> Harrows.	
<b>Словообразование:</b> Приставки out-, re-.	
<b>Грамматика:</b> The Past Continuous Active. The Derivative Pronouns of Some, Any, No. ....	93
<b>Unit 12</b>	
<b>Text:</b> Crops Planting.	
<b>Словообразование:</b> Приставки non-, ultra-.	
<b>Грамматика:</b> The Future Continuous Active. The Construction To Be Going To. The Estimative Quantifiers. ....	101
<b>Unit 13</b>	
<b>Text:</b> Potato Planter.	
<b>Словообразование:</b> Приставки extra-, ex-.	
<b>Грамматика:</b> The Participle II. The Present Perfect Active. The Modal Verb Be To. ...	112
<b>Unit 14</b>	
<b>Text:</b> Farm Tractor.	
<b>Словообразование:</b> Приставки pre-, post-.	
<b>Грамматика:</b> The Past Perfect Active. ....	121
<b>Unit 15</b>	
<b>Text:</b> Types of Tractors	
<b>Словообразование:</b> Суффиксы -ful, -ing.	
<b>Грамматика:</b> The Future Perfect Active. The Modal Verb May. ....	129
<b>Unit 16</b>	
<b>Text:</b> Crawler Tractor.	
<b>Словообразование:</b> Приставки in-, il-, im-, ir-, un-.	
<b>Грамматика:</b> The Passive Voice. ....	137
<b>Unit 17</b>	
<b>Text:</b> Tractor Parts.	
<b>Словообразование:</b> Суффиксы -able(-ible), -ize.	
<b>Грамматика:</b> The Sequence of Tenses. The Sequence of Tenses in the Sentence.....	148

<b>Unit 18</b>	
<b>Text:</b> Engine	
<b>Словообразование:</b> Суффиксы -ate, -en.	
<b>Грамматика:</b> The Conditional Sentences. The Iversion in the Conditional Sentences. The Conjunctions of the Conditional Sentences. ....	156
<b>Unit 19</b>	
<b>Text:</b> Diesel Engine.	
<b>Словообразование:</b> Суффиксы -ics, -dom.	
<b>Грамматика:</b> The Infinitive. The Forms of the Infinitive. The Meaning of the Forms of the Infinitive. The Functions of the Infinitive. ....	165
<b>Unit 20</b>	
<b>Text:</b> Petrol Engine.	
<b>Грамматика:</b> The Complex Subject. The Complex Object. ....	173
<b>Unit 21</b>	
<b>Text:</b> Cooling System.	
<b>Грамматика:</b> The Gerund. The Forms of the Gerund. The Functions of the Gerund. ....	182
<b>Unit 22</b>	
<b>Text:</b> Lubrication System.	
<b>Грамматика:</b> The Participle I. The Forms of the Participles. The Functions of the Participle I. The Forms of the Perfect Participles. The Functions of the Perfect Participles.....	193
<b>Unit 23</b>	
<b>Text:</b> Ignition System.	
<b>Грамматика:</b> The Participle II. The Functions of the Participle II. ....	201
<b>Unit 24</b>	
<b>Text:</b> Basics of the Tractor Repair.	
<b>Грамматика:</b> The Prepositions of Time. ....	208
<b>Unit 25</b>	
<b>Text:</b> Servicing of the Engine Lubrication System.	
<b>Грамматика:</b> The Prepositions of Place. ....	214
<b>Unit 26</b>	
<b>Text:</b> Servicing of the Engine Fuel System.	
<b>Грамматика:</b> The Prepositions of Direction. ....	219
<b>Unit 27</b>	
<b>Text:</b> Servicing of the Engine Cooling System.	
<b>Грамматика:</b> The Prepositions of Reason.....	225
<b>Unit 28</b>	
<b>Text:</b> Servicing of the Engine Electrical System.	
<b>Грамматика:</b> The Construction It is (was) ... that. ....	231
<b>Unit 29</b>	
<b>Text:</b> Servicing of the Hydraulic System. ....	236
<b>Таблица неправильных глаголов с переводом</b> .....	241

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