МИНИСТЕРСТВО СЕЛЬСКОГО ХОЗЯЙСТВА
И ПРОДОВОЛЬСТВИЯ РЕСПУБЛИКИ БЕЛАРУСЬ

ГЛАВНОЕ УПРАВЛЕНИЕ ОБРАЗОВАНИЯ, НАУКИ И КАДРОВ

Учреждение образования
«БЕЛОРУССКАЯ ГОСУДАРСТВЕННАЯ
СЕЛЬСКОХОЗЯЙСТВЕННАЯ АКАДЕМИЯ»

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АНГЛИЙСКИЙ ЯЗЫК

ENGLISH FOR FARM MECHANIZATION STUDENTS

Рекомендовано учебно-методическим объединением по аграрному техническому образованию в качестве пособия для студентов учреждений высшего образования, обучающихся по специальности 1-74 06 01 Техническое обеспечение процессов сельскохозяйственного производства

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Приведены тексты и упражнения для обучения специальной лексике и развития умений чтения профессиональной литературы.

Для студентов учреждений высшего образования, обучающихся по специальности 1-74 06 01 Техническое обеспечение процессов сельскохозяйственного производства.

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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 23 уроков (Units), включающих в себя разделы, посвященнные 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 receive (получать) – a receiv**er** (получатель);

to read (читать) – a read**er** (читатель);

to edit (редактировать) – an edit**or** (редактор).

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

Model: an apparatus for cooling – a cooler

An apparatus for mixing, an apparatus for regulating, an apparatus for boiling, an apparatus for refrigerating.

Model: to listen – a listener

To read, to subscribe, to lead, to defend, to advise, to elect, to sing, to write, to produce.

Model: to visit – a visitor

To create, to initiate, to possess, to work, 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 **-s**.	book – books
существительные, оканчивающиеся на окончания -o, -ss, -sh, -x, -ch + -es	potato – potatoes, boss – bosses, brush – brushes, match – matches, box – boxes
-f, -fe переходит в v + -es	wolf – wolves, knife – knives
-y (перед ней стоит согласная) переходит в i + -es -y (перед ней стоит гласная) – + -s	lady – ladies day – days
составные существительные: schoolboy (пишется слитно)	schoolboys, copybooks
составные существительные: sister-in-law (пишется через дефис)	sister**s**-in-law (форму множественного числа обычно принимает слово, несущее основной смысл)

исключения	man – men, woman – women, foot – feet, tooth – teeth, goose – geese, mouse – mice, child – children, deer – deer, sheep – sheep
слова латинского или греческого происхождения	antenna – antennae, formula – formulae, datum – data, criterion – criteria, crisis – crises, phenomenon – phenomena

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.

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

The Cardinal Numerals

(Количественные числительные)

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

six + teen – six**teen**

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

fourteen

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

fifteen books

sixteen chairs

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

six + ty – six**ty**

seven + ty – seven**ty**

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

fifty

sixty

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

twenty-one

thirty-five

forty-seven

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

a (one) hundred

a (one) thousand

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

two hundred

three thousand

four million

Числительные **Hundred**, **thousand** и **million** могут принимать окончание **-s**, когда они выражают неопределенное количество *сотен, тысяч, миллионов*. 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.

Thousands of people greeted the Russian representatives. – Тысячи людей приветствовали Российских представителей.

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

375 – three hundred *and* seventy-five

305 – three hundred *and* 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 5. Read the following Cardinal numerals.

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.

28 books; 45 days; 84 trees; 158 computers; 483 people; 753 carpets; 809 wheels; 1,003 harrows; 5,983 students; 25,985 pages; 185,382 cups; 593,432 engines; 678,808 bytes; 1,858,004 films.

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 – *Это* 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 4. Put the nouns in italic in the plural and make the necessary changes.

1. This is ***door.*** 2. That is a black ***crow.*** 3. Is this a ***pencil***? 4. This is not a large ***house.*** 5. Are those ***books*** on the table? 6. Where are the ***students***? 7. They are red ***pencils.*** 8. Are those brown ***doors***? 9. The ***teachers*** are not in the corridor. 10. Are these small ***windows?*** 11. Those are not ***questions.*** 12. These are not ***clocks***, they are ***watches.***

Exercise 5. 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, приспосабливать

progress [prə'gres] – совершенствоваться

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

variety [və'raɪətɪ] – разнообразие

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

chaff-cutter ['ʧɑ:fˌkʌtə] – соломорезка

root-cutters ['ru:tˌkʌtə] – машина для резки корнеплодов

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

barn [bɑ:n] – амбар

steam engine ['sti:mˌendʒɪn] – паровой двигатель

internal-combustion engine [ɪn'tɜ:nəlkəmˌbʌsʧənˌendʒɪn] – двигатель внутреннего сгорания

stationary ['steɪʃənərɪ] – стационарный

mover ['mu:və] – двигатель, движитель

roller ['rəulə] – каток

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

supplementary [ˌsʌplɪ'mentərɪ] – дополнительный

fertilizer distributor ['fɜ:tɪlaɪzə dɪ'strɪbjutə] – туковысевающий аппарат

sprinkling installation ['sprɪŋklɪŋˌɪnstə'leɪʃən] – дождевальная установка

sprayer ['spreɪə] – опрыскиватель

feed-preparing machine [fi:d prɪ'peərŋ mə'ʃi:n] – кормоприготовительная машина

grinding-mill ['graɪndɪŋˌmɪl] – мельница, дробилка

manure-scraper [mə'njuə'skreɪpə] – скребковый конвейер для удаления навоза

distributing belt [dɪ'strɪbjutɪŋ belt] – раздаточный ремень

milking machine ['mɪlkɪŋməˌʃi:n] – доильный аппарат

churn [ʧɜ:n] – маслобойка

sheep-shearing unit ['ʃi:pˌʃɪərɪŋ 'ju:nɪt] – секция для стрижки овец

rearing chamber ['rɪrɪŋˌʧeɪmbə] – помещение для молодняка

repair shop [rɪ'peəʃɔp] – ремонтная мастерская

Exercise 6. Read and translate the following text.

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.

The plough still rests to be the most important tillage tool. It has been changed and improved during the centuries. In the 18th century there was an attempt to improve agricultural implements. New methods and inventions were applied to farming operations. By the 19th 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

19th 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.

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 distributers, 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 7. Agree or disagree with the following statements beginning with:

Of course, it is true because according to the text …

It is false because according to 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 20th century.

6. The farm implements are subdivided into 6 operational divisions.

Exercise 8. 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 distributers, simple devices, construction of implements, grinding-mills, power of domesticated animals, important till-age tool, change during the centuries, milking machine, grain conveyers.

Exercise 9. Make up word combinations using the text and translate them.

1) to drive	a) in agriculture
2) to became	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 10. Translate the following words and word combinations into English.

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, картофелесажалка, оборудование для стерилизации, уборочная техника, интенсивное применение, погрузочные машины.

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

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 12. Match the synonyms.

1. industry	a) engage
2. agriculture	b) motionless
3. cultivate	c) advance
4. power	d) drawback
5. invention	e) technique
6. stationary	f) farming
7. disadvantage	g) energy
8. progress	h) till
9. method	i) development
10. employ	j) manufacturing

Exercise 13. 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 14. 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 15. 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 19th 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) – soft**ness (**мягкость);

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

Exercise 1. Express in one word using the suffix *-ness*. Translate the nouns into Russian.

Model: kind – kindness.

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

Exercise 2. Express in one word using the suffix *-(i)ty*. Translate the nouns into Russian.

Model: solid – solidity.

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

The Possessive Case

(Притяжательный падеж)

единственное число существительного + **’s** (знак апострофа и буквы **s**)	famer**’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 **Но**: 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*);

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) такие наречия времени, как: today, yesterday, tomorrow. Например: today's newspaper, yesterday's excursion.

6) 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. Transform the sentences using the Possessive Case.

Model: The country house of my boss. – My boss's country house.

1. The plow of Fred. 2. The policy of our government. 3. The climate of Africa. 4. The table of the teacher. 5. The harvester of Kate. 6. The trailers of Nick and Jane.7. The toys of the children. 8. The name of his cat. 9. The newspaper of yesterday.10. The filling station of that businessman. 11. The talk of one hour. 12. The agricultural economy of Britain. 13. The handbags of these women. 14. The work of these farmers. 15. The outline of the island. 16. The weight of one ton. 17. The walk of three hours. 18. The farmstead of my uncle and aunt.

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 4. 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. 13. My son's bedroom. 14. Picasso's famous painting. 15. Pushkin's poems 16. Our boss's helicopter. 17. The students' dictionaries.

The Ordinal Numerals

(Порядковые числительные)

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

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

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

Исключения:

one – **first** (один – первый)

two – **second** (два – второй)

three – **third** (три – третий)

five – **fifth** (пять – пятый)

eight – **eighth** (восемь – восьмой)

nine – **ninth** (девять – девятый)

twelve – **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 – eight**ieth** (восемьдесят – восьмидесятый)

ninety – ninet**ieth** (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:

first = 1**st**

second = 2**nd**

third = 3**rd**

fourth = 4**th**

twenty sixth = 26**th**

hundred and first = 101**st**

Exercise 5. Match the pairs of the Ordinal numbers.

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

Exercise 6. Complete the following sentences.

1. … is the first month of the year.
2. … is the second month of spring.
3. … is the third month of summer.
4. … is the fourth month of the year.
5. May is the … month of the year.
6. January is the …month of the year.
7. February is the …month of winter.
8. August is the … month of the year.

Exercise 7. Make the word of the letters.

The first letter is **B**. The second letter is **I**. The third letter is **R**. The fourth letter is **T**. The fifth letter is **H**. The sixth letter is **D**. The seventh letter is **A**. The eighth letter is **Y**.

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

worn-out [wɔ:n'aut] – изношенный
pest control [pest kən'trəul] – борьба с вредителями
overhead costs ['əuvehed¸kɔsts] – накладные расходы
grain drill ['greɪndrɪl] – зерновая сеялка
trip [trɪp] – проход, пробег
seedbed ['si:dbed] – почва
markedly ['mɑ:kɪdlɪ] – заметно, явно
inevitable [ɪ'nevɪtəbl] – неизбежный
acreage ['eɪkərɪdʒ] – площадь земли (в акрах)
substantially [səb'stænʃəlɪ] – в значительной степени
adjusted [ə'dʒʌstɪd] – отрегулированный
complete overhaul [kəm'pli:t¸əuvə'hɔ:l] – капитальный ремонт
neglect [nɪ'glekt] – игнорировать, пренебрегать

Exercise 9. Read and translate the following text.

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.

Most operations involve several different crops with specific tillage, planning, 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.

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.

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.

Большое разнообразие тракторов, развитые страны, производители сельскохозяйственной техники, развивающиеся страны, легкая обработка почвы, длительная эксплуатация при больших нагрузках, управлять оборудованием, производственные операции, замена изношенной техники, исчезновение, уменьшить человеческий труд, необычайно короткое время, 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.

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. (Игнорируя) this can result in (затратные ремонтные процедуры) or cause (капитальный ремонт). 4. (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). 5. Smaller tractors (имеют меньшую мощность) and may cause delay in (ключевые полевые операции), resulting in a (более низкие урожаи).

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 bill, diesel tractors, key tillage operation, pest control variety, harvesting requirements, 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 ____.
7. Improvements in farm machinery are____.

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. Find the odd words in the sentences and change them for the correct ones.

1. Garden tractors are designed primarily for heavy tillage operations and are not intended for continuous heavy services. 2. Abundance of adequate equipment can delay crops' planting or harvesting in time, reducing yields and product quality. 3. The grain drill in three trips over the field does the work of preparing the seedbed, planting seed and applying fertilizers and herbicides. 4. The farm tasks can be done more rapidly and with better quality when weather and soil conditions are the most unfavourable. 5. Finally, large farms are destined to disappearing, for larger ones are of apparent advantage today. 6. Some of the time lost in doing repair work cannot be cut, prevented or eliminated.

Exercise 16. 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) – settle**ment** (поселение);

to establish (учредить) – establish**ment** (учреждение);

to embarrass (затруднить) – embarrass**ment** (затруднение).

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) – child**hood** (детство);

owner (собственник) – owner**ship** (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	big	bigger	the biggest
2)двухсложные	happy	happier	the happiest
прилагательные,	clever	cleverer	the cleverest
оканчивающиеся	simple	simpler	the simplest
на -y, -er, -ow, -le.	narrow	narrower	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, fat, powerful, efficient, dirty, beautiful, old, long, little, new, much, many, high, comfortable, deep, cold, large, short, interesting, possible, warm, young, far, busy, happy, low, tall.

The Constructions of Comparison

(Сравнительные конструкции)

than	Minsk is larger **than** Mogilev.
as … as	Mogilev is **as** large **as** Brest.
not so … as	Vitebsk is **not so** large **as** Minsk.
the more …, the better	**The more** we want, **the less** we get.

Exercise 4. 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 as (heavy) as that we had before. 10. The (many) implements a new tractor can trail, the (much) work can be done during one pass. 11. The (little) we forget, the (much) we know. 12. Hydraulic controls in this machine are (reliable) than those we saw yesterday.

Exercise 5. Choose the right variant.

1. Let's take a *later/latest* train. 2. Computers are one of the *latest/last* discoveries of the 20th century. 3. Oh, I am very sorry. I'm late – am I the *last/latest*. 4. That's a further/farther reason to do it. 5. This poem belongs

to his *latter/later* works. 6. Jane is 2 years *older/elder* than Jack. 7. Jane is *older/elder* than Jack by two years. 8. My *older/elder* brother is 5 years older/elder than me. 9. Where is the *nearest/next* post office? 10. The teacher told us about the *latest/last* elections in this country. 11. The *nearest/next* house to ours is 2 miles away.

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 ninteenth century – девятнадцатый век

the seventh and eighth centuries – седьмой и восьмой века

Возможно следующее употребление веков:

the ninetheen hundreds – девятнадцатый век.

Exercise 6. 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 [ɪ'pɪfənɪ] in Russia is on (19.01). 10. The Defender of Fatherland Day is on (23.02).

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

labour intensive ['leɪbə ɪn'tensɪv] – трудоемкий

machine intensive [mə'ʃi:n ɪn'tensɪv] – машиноемкий

concerned [kən'sɜ:nd] – рассматриваемый, данный

demanding [dɪ'mɑ:ndɪŋ] – требующий, нуждающийся

commissioned [kə'mɪʃənd] – укомплектованный

specification [ˌspesəfɪ'keɪʃən] – техническое требование

as regards [æzrɪ'gɑ:dz] – что касается

agricultural business [ˌægrɪ'kʌlʧərəl 'bɪznɪs] – сельскохозяйственное предприти е

general-purpose ['ʤenərəl 'pɜ:pəs] – универсальный

standard ['stændəd] – типовой, серийный

fall within [fɔ:lwɪ'ðɪn] – соответствовать

piece [pi:s] – образец

narrow down ['nærəu daun] – сузить, уменьшить

unit['ju:nɪt] – агрегат

reconditioned [ri:kən'dɪʃənd] – отремонтированный, восстановленный

running costs ['rʌnɪŋkɔsts] – эксплуатационные издержки

general maintenance ['ʤenərəl 'meɪntənəns] – общетехническое обслуживание

depreciation [dɪˌpri:ʃɪ'eɪʃən] – амортизация

bearing ['beərɪŋ] – значение

replacement [rɪ'pleɪsmənt] – ремонт (*замена запасных частей)*

shutdown ['ʃʌtdaun] – завершение работы

disruption [dɪs'rʌpʃən] – перерыв

sophisticated [sə'fɪstɪkeɪtɪd] – современный, передовой

ascertain [ˌæsə'teɪn] – устанавливать

earning capacity ['æ:nɪŋ kə'pæsətɪ] – рентабельность

Exercise 8. Read and translate the following text.

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:

1. **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.

2. **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.

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.

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 brakes for serious repairs, etc., ought to be planned in advance to ensure the minimum of disruption and loss of production.

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 9. 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.

Financial means, highly skilled, interruptions, combines, manufactured, operating costs,

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

Particular farmer, agricultural enterprise, production process, low in cost, rather expensive, depreciation, generalized information, specific job, specially commissioned, meet the specification, pieces of equipment, agricultural business, cattle-farm building, second-hand unit, costs of servicing, drive different machinery, continuous basis, select the bearing, regular inspection, major overhaul, operation brake, minimum of disruption, cost of labour, viable proposition, cheaper model.

Exercise 11. 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 12. Choose the right option to complete the sentences.

1. In some cases … may be specially commissioned and manufactured to the farm's specifications.

a) people; b) machines; c) heavy-duty tractors.

2. 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.

3. 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.

4. 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.

5. Operation brakes for … should be planned in advance to ensure the minimum loss of production.

a) serious remarks; b) serious preparation; c) serious repairs.

6. A more expensive machine can prove more **economical**, as far as operating cost and earning capacity are concerned.

a) ergonomical; b) econometric; c) economical.

Exercise 13. 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 14. Choose the correct preposition.

1. Most items *of/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. Operation brakes *for/before* serious repairs, etc., ought to be planned *in/after* advance to ensure the minimum *of/within* disruption and loss *of/to* production.

4. 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.

5. Maintenance operations need to be carried out *on/with* a continuous basis.

6. Another factor is the cost *of/from* labour.

Exercise 15. Read and translate the text. Speak about the role of agricultural engineers.

Agricultural engineers work in the context of agricultural production and processing. Their specialties include *power systems*[1] and machinery design; structures and *environmental science*[2] and *bioprocess engineering*[3]. They perform tasks such as planning, supervising, and managing the building of irrigation, drainage, *flood*[4] *and water control systems*[5]. They develop ways to conserve soil and water and to improve the processing of agricultural products. In addition, they may perform environmental impact assessments and interpret research results.

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[1] power systems – энергетическая система

[2] environmental science – наука об окружающей среде; энвироника

[3] bioprocess engineering – инженерия биопроцессов

[4] flood control system – система противопаводковой защиты

[5] water control system – управление водными ресурсами

Unit 4

COMBINE

Словообразование

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

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

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

to ignore (игнорировать) – ignor**ance** (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) – oppress**ion** (гнёт);

to educate (обучить) – educa**tion** (обучение);

to form (придавать форму) – form**ation (**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	
I	**me**	**my**	**mine**	**myself**
he	**him**	**his**	**his**	**himself**
she	**her**	**her**	**hers**	**herself**
it	**it**	**its**	**its**	**itself**
we	**us**	**our**	**ours**	**ourselves**
you	**you**	**your**	**yours**	**yourself / yourselves**
they	**them**	**their**	**theirs**	**themselves**

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 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 ... is better, (he/his/him). 10. Do you think that most people are happy in ... jobs? (they/their/theirs).

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
1/5 – a (one) fifth
1/8 – an (one) eighth

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 чи-

тается 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**. Нуль 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; ¼; 1/10; 7 ½; 2 ¼; 9.2416; 0.54; 0.2; 0.4; 0.02; 0.34; 1.8; 12.99; 31/7; 8 ½; 3 ¼; 4/16; 4.254; 0.63; 2.5; 1.11; 12.842; 66.6; 999.209; ⅛; ⅞; 1⅓; 9¾; 5½.

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

cutting ['kʌtɪŋ] – скашивание

threshing ['θreʃɪŋ] – обмолот

winnowing ['wɪnəuwɪŋ] – сепарация зерна воздушным потоком

chop [ʧɔp] – измельчать

bale [beɪl] – прессовать в тюки
tractor-drawn ['træktədrɔ: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'əuvə] – копировать
draper header ['dreɪpə 'hedə] – полотенная жатка
rubber apron ['rʌbə 'eɪprən] – прорезиненный полотенный конвейер
cross auger [krɔs'ɔ:gə] – поперечный шнек
throughput ['θru:put] – пропускная способность
pick-up header ['pɪkʌp 'hedə] – комбайновый подборщик
spring-tined pickup ['sprɪŋtaɪnd 'pɪkʌp] – пружинно-пальцевой подборщик
rubber belt ['rʌbə 'belt] – резиновая лента
windrow ['wɪndrəu] – полоса скошенного хлеба
corn header [kɔ:n 'hedə] – кукурузоуборочная жатка
snap roll ['snæp 'rəul] – отрывающий валец
strip [strɪp] – сдирать
ear [ɪə] – початок
husk [hʌsk] – листовая обвёртка
throat [θrəut] – горловина
feed elevator [fi:d 'elɪveɪtə] – наклонная камера
threshing drum ['θreʃɪŋ drʌm] – молотильный аппарат
grooved [gru:vd] – рифлёный
rasp bar ['rɑ:spbɑ:] – бич молотильного барабана
concave [kɔŋ'keɪv] – подбарабанье
steel bar ['sti:l bɑ:] – стальной стержень
meshed grill ['meʃtgrɪl] – сетчатое решето
fore [fɔ:] – впереди
aft [ɑ:ft] – сзади

shoe [ʃuː] – решетный стан

chaffer ['ʧæfə] – решето первой очистки, грохот

hillside levelling system ['hılsaıd 'levəlıŋ 'sıstəm] – система выравнивания на косогоре

levelling technology ['levəlıŋ tek'nələʤı] – технология выравнивания

variable transmission ['veərıəbl trænz'mıʃən] – регулируемый привод

Exercise 8. Read and translate the following text.

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.

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 heavy 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.

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.

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.

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

Chopped and spread straw, combine harvester, drawn by horse or mule, 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, conventional combines, straw-walker, drum and concave, manufactures of combines, several advantages, 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 propositions.

1. The waste straw left … … the field is either chopped and spread … the field or baled … feed and bedding … livestock. 2. Self-propelled combines could be fitted … special tracks … tires … tread almost 10in deep to assist … harvesting rice. 3. 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. 4. The cut crop is fed … the threshing mechanism … the combine, consisting … a rotating threshing drum, … which grooved steel bars are bolted. 5. … 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, отработанная солома, корм и подстилка для скота, комбайн от ВОМ, отделить зерно от мякины, самоходный комбайн, гусеницы вместо колес, предотвратить погружение в грязь, съемная жатка, серийная жатка, режущий аппарат с возвратно-поступательным движением ножа, вращающееся мотовило, скашивать культуры близко к земле, обеспечивать высокую пропускную способность, молотильный аппарат, рифлёный бич молотильного барабана, расстояние между барабаном и подбарабаньем, обычные и роторные комбайны, вращающийся молотильный барабан, несколько преимуществ, плавный ход, постоянная скорость работы двигателя, трансмиссия.

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

A	***B***
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. Dragging chains[1] 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.

[1] dragging chain – трелевочная цепь

Unit 5

FORAGE HARVESTER

Словообразование

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

Michurin – Michurin**ist** (мичуринец);

agronomy (агрономия) – agronom**ist** (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) – modern**ism** (модернизм);

hero (герой) – hero**ism** (героизм);

American (американский) – American**ism** (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. Он не имеет самостоятель-

ного значения и не переводится на русский язык. 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 – *mom* 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 *какой-то, один из, любой*).	I am a student. I've read an interesting book**.**
2. В значении *один* перед исчисляемыми существительными, обозначающими *время, вес, стоимость, расстояние.*	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 один.	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 dentist, 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 in 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 и континентов, перед 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 ... windows? 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 in ... 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 … Russia. 17. … Browns lived in this house 10 years ago.

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

forage harvester ['fɔrɪʤ 'hɑ:vɪstə] – кормоуборочный комбайн
silage harvester ['saɪlɪʤ 'hɑ:vɪstə] – силосоуборочный комбайн
forager ['fɔrɪʤə] – силосоуборочный комбайн
chopper ['ʧɔpə] – кормоизмельчитель
chop [ʧɔp] – измельчать
compact [kəm'pækt] – плотно уложить
storage silo ['stɔ:rɪʤ 'saɪləu] – цилиндрическая силосная башня
silage bag ['saɪlɪʤ bæg] – полиэтиленовый мешок для силоса
ferment [fə'ment] – ферментировать
haylage [ˈheɪlɪdʒ] – сенаж
configuration [kən¸figju'reɪʃən] – компоновка
cutterhead ['kʌtəhed] – измельчающий аппарат
chute [ʃu:t] – жёлоб выброса
flywheel ['flaɪwi:l] – маховое колесо
paddle accelerator ['pædl ək'seləreɪtə] – лопастной измельчитель
wagon ['wægən] – прицепная тележка
silo ['saɪləu] – силосная башня
grass silage [grɑ:s 'saɪlɪʤ] – силос из злаковых культур
wilt [wɪlt] – вянуть, сохнуть
windrow pickup ['wɪndrəu 'pɪkʌp] – валкоподборщик
whole crop silage ['həulkrəp 'saɪlɪʤ] – силос из растительной массы
kernel processor ['kɜ:nəl 'prəusesə] – плющилка зерна
mill rolls ['mɪlrəulz] – дробильные валки
reciprocating knife [rɪ'sɪprəkeɪtɪŋ naɪf] – нож с возвратно-поступательным движением
disc mower [dɪsk 'məuə] – ротационная косилка
saw-like blade ['sɔ:laɪk bleɪd] – пилообразный нож
kernel processor ['kɜ:nəl 'prəusesə] – измельчитель зерен
mill roll ['mɪl'rəul] – дробильный валик
factory-farm ['fæktərɪ fɑ:m] – агропромышленный

canola [kə'nəulə] – канола (*разновидность рапса*)

single chop ['sɪŋgl ʧɔp] – силосоуборочный комбайн с однократным измельчением

double chop ['dʌbl ʧɔp] – силосоуборочный комбайн с двукратным измельчением

precision chop [prɪ'sɪʒən ʧɔp] – силосоуборочный комбайн с точным регулированием длины среза

mold inhibitor ['məuld ɪn'hɪbɪtə] – фунгицид

preservative [prɪ'zɜ:vətɪv] – консервант

augment ['ɔ:gmənt] – увеличивать, ускорить

Exercise 7. Read and translate the following text.

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.

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.

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. Find the odd words in the sentences and change them for correct ones.

1. Silage is grass, corn or other plant that has been chopped into large pieces, and compacted together in a storage silo or in silage bags. 2. Forage harvesters can be implements attached to a tractor, or they can be horse drawn units. 3. Larger machines also have paddle accelerators to decrease material speed and improve unloading characteristics. 4. Because corn and grass require different types of cutting equipment, there are no headers for each type of silage. 5. Kernel processors (KP), modules consisting of four mill rolls with teeth pressed together by powerful springs. 6. When silage is made of corn or sorghum additives are extremely necessary because of the high sugar and starch levels in the plants. 7. Older machines are operated remotely and the newer types are operated by electronics.

Exercise 9. 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 10. Translate the following words and word combinations into English.

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

Exercise 11. Insert the necessary words given below the line.

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 12. Agree or disagree with the following statements beginning with:

I agree with this statement because…

That's absolutely false because...

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. Kernel processors are installed right after the cutterhead and accelerator. 5. The self-propelled forager together with a tractor or a truck are used at the factory-farm enterprises to produce silage. 6. Additives are rarely added to corn and sorghum to influence their fermentation.

Exercise 13. 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 14. 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. Older machines are operated *by/in front of* hydraulics and the newer types are operated *by/with* electronics.

4. *In/to* most forage harvesters, the KP can be quickly removed and replaced *with/from* a grass chute *for/besides* chopping non-cereal crops.

5. Because corn and grass require different types *of/for* cutting equipment, there are different headers *for/by* each type of silage.

Exercise 15. 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*.

Exercise 16. Answer the following questions.

1. What is silage? 2. What kinds of forage harvesters can you mention? 3. There are different headers for each type of silage, aren't they? 4. What do you know about Kernel processors? 5. What can you tell about the engines and headers of the modern large machines? 6. Additives are applied to all kinds of silage, aren't they?

Unit 6

POTATO HARVESTING

Словообразование

Суффикс ***-ly***, прибавляемый к прилагательному, образует наречие:

happy (счастливый) – happi**ly** (счастливо).

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

friend (друг) – friend**ly** (дружелюбный);

month (месяц) – month**ly** (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) – north**ward** (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
I **work**	I **do not work**	**Do** I **work**?
We **work**	We **do not work**	**Do** we **work**?
You **work**	You **do not work**	**Do** you **work**?
They **work**	They **do not work**	**Do** they **work**?
He **works**	He **does not work**	**Does** he **work**?
She **works**	She **does not work**	**Does** she **work**?
It **works**	It **does not work**	**Does** it **work**?

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 – do**es**, fix – fix**es**, watch – watch**es**, wash – wash**es**;

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

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

Exercise 3. 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 нахо*д*ится на доске.

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

Exercise 4. Use the verb *to be* **in the Present Indefinite.**

1. I ... a pupil. 2. My father ... not a teacher, he ... a designer. 3. … your aunt a doctor? – Yes, she ... . 4. ... they at home? - No, they ... not at home, they ... at work. 5. My brother ... a worker. He … at work. 6. ... you an engineer? – Yes, I ... . 7. … your brother a good combine operator? – No, he ... not a combine operator, he ... a turner. 8. ... your brother an adjuster? – Yes, he ... . 9. ... your friend at storehouse now? – No, she ... not in the field. 10. My ... sister … at the agricultural machinery production plant.

The Modal Verb *Must*

(Модальный глагол *must*)

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

I	must	get this tillage equipment prepared.
He	(must not)	finish tillage primary operations on time.
She		study this new tillage operation technique.
We		work hard to know how to apply this new tool.
You		prepare the tractor by Friday.
They		come to the office.

Must	I	mount rotary tillers?
	he	know draft characteristics of this tractor?
	she	use moldboard for hard soil condition?
	we	put into operation the PTO shaft?
	you	prepare the lathes by Tuesday?
	they	come to the workshop early in the morning?

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 do* as I tell you! – Ты *должен* делать так я тебе говорю (*приказ*);

2) настоятельный *совет* или *приглашение* – в этом значении он переводится на русский язык (*обязательно*) *должен*, (*обязательно) нужно*:

You *must come* and see us next week! – Вы *должны* навестить нас на следующей неделе! (*приглашение*).

You *must consult* a doctor. – Ты *должен* обратиться к врачу (*совет*).

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 5. 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 6. Put the following sentences into negative and interrogative forms.

1. We must attend a lecture on German history on Tuesday. 2. You must return my magazines on Wednesday. 3. You must take your children to the country for the weekend. 4. I must go to see your grandmother on my day off. 5. I must do it tomorrow. 6. I must answer this letter. 7. You must make your bed yourself. 7. I must ring him up at 10. 8. You must come and see our new house. It's so lovely. 9. They must know his address.

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

elevating digger ['elıveıtıŋ 'dıgə] – элеваторный картофелекопатель
tuber ['tju:bə] – клубень
vine [vaın] – вьющийся стебель,
foreign ['fɔrın] – инородный, примесный
former ['fɔ:mə] – первый (*из двух вариантов*)
conveying mechanism [kən'veıŋ 'mekənızəm] – транспортирующий механизм
bin [bın] – бункер, контейнер
discharging mechanism [dıs'ʧɑ:ʤıŋ 'mekənızəm] – выгрузной механизм
power-operated ['pauə 'ɔpəreıt] – с механическим приводом
shaker chain ['ʃeıkə ʧeın] – встряхивающий цепной транспортёр
sift out ['sıftaut] – просеивать
debris ['deıbri:] – мусор
conveyor [kən'veıə] – транспортёр
roller ['rəulə] – каток
provision [prə'vıʒən] – оборудование
linear speed ['lınıə spi:d] – скорость линейного перемещения
elevator ['elıveıtə] – цепной транспортёр
furrow ['fʌrəu] – борозда
share [ʃeə] – лемех, сошник
web [web] – полотно транспортёра
sieve out ['sıvaut] – просеивать
sorting unit ['sɔ:tıŋ 'ju:nıt] – сортировочное устройство
manned [mænd] – с обслуживающим персоналом
picking table ['pıkıŋ 'teıbl] – сортировальный стол
haulm [hɔ:m] – сухие стебли и листья
side elevator [saıd 'elıveıtə] – поперечный выгрузной транспортёр

elevator combine ['elıveıtə 'kɔmbaın] – элеваторный картофелекомбайн

riddle combine ['rıdl 'kɔmbaın] – решётный картофелекомбайн

rod-link elevator [rɔdlıŋk 'elıveıtə] – прутковый транспортёр

clod breaker [klɔd 'breıkə] – каток-глыбодроб, комкодробитель

vacuum tank ['vækjuə tæŋk] – вакуумная камера

screen [skri:n] – сито

top-removing device [tɔprı'mu:v dı'vaıs] – ботвоудаляющий механизм

tops [tɔps] – ботва (*у корнеплодов*)

catch on [kæʧ ɔn] – зацепляться

pressing conveyor ['presıŋ kən'veıə] – прессующий транспортер

clearing rod ['klıərıŋ rɔd] – очищающий прут

stolon [ˈstəʊlɒn] – столон (*подземный или стелющийся по земле боковой побег растения)*

drum conveyor [drʌm kən'veıə] – барабанный конвейер

sorting conveyor ['sɔ:tıŋ kən'veıə] – сортировочный конвейер

waste conveyor ['weıst kən'veıə] – конвейер для отходов

loading elevator ['ləudıŋ 'elıveıtə] – загрузочный элеватор

obstruct [əb'strʌkt] – затруднять проходимость; закупоривать

Exercise 8. Read and translate the international words.

Mechanical, classify, conveyor, machine, version, final, separation, material, combine, automatic, elevator, component, vacuum, productivity, mechanism, tractor.

Exercise 9. Read and translate the following text.

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.

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.

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.

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.

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 10. Agree or disagree with the following statements beginning with:

Of course, I agree with this statement because …

I disagree entirely because according to 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 pulverized soil is sifted through the screens of the riddle, and the remaining potatoes go to the rod-link conveyor of the top-removing device. 5. The clearing rods cut off the leftover potatoes while the tops are being pulled between the conveyors. 6. When the bin is filled, the tubers are loaded into a high heap nearby in the field.

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

Mechanical harvester, separation is done mechanically, two-row digger, sift out most of the soil, dropping the tubers onto the ground, 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 12. Find in the text the antonyms of the following words.

First, integration, native, inefficient, always, outdated, take up, above, front, planting, moving, large, in front of, unloading, heavy.

Exercise 13. 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 14. Complete the sentences using the text.

1. From the sorting conveyor the tubers go to … .
2. The riddle-type version can also be used on … .
3. Power for operating the conveying mechanism is generally … .
4. Sometimes a roller is mounted beneath the rear … .
5. The bulk matter coming from the sifting component goes to … .
6. Soil and crop are transferred onto a series of webs where … .

7. The higher speeds give a better cleaning action, but … .

Exercise 15. Translate the following words and word combinations into English.

Картофелеуборочный комбайн, быть доступным, окончательное разделение, вручную или механически, ВОМ трактора, отдельный двигатель, регулируемый автоматически, возможность убирать, картофелекопатель с механическим приводом, остающийся мусор, уплотнить и пригладить, оборудование для изменения линейной скорости, использовать лемех, двигаться в заднюю часть комбайна, удалять камни, машина с обслуживающим персоналом, производиться в двух модификациях, большая часть почвы, просеивать сквозь сито, примеси небольшого размера, за комбайном, бросать камни и комья на землю, самосвал, песчанистый суглинок, рабочая скорость.

Exercise 16. Answer the following questions.

1. How may 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? Give some details of their operation. 6. What soils can the potatoes harvesters be used on?

Unit 7

HAY BALER

Словообразование

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

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

to correspond (переписываться) – correspond**ent** (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, oppone.

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

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

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

Model: to address – addressee

Assign, trust, present, grant, promise, train, pay, interview, abandon.

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 посредством добавления к инфинитиву окончания **-ed**: to work – work**ed**, to like – lik**ed**.

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

2. Неправильные глаголы образуют утвердительную форму в прошедшем неопределенном времени не по правилу, так как являются исключениями, и все их формы, собранные в таблицу, нужно заучивать наизусть. В прошедшем неопределенном времени употребляется вторая форма, например: to drink – ***drank*** – drunk.

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

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. Make the following sentences negative and interrogative.

1. Tom always believed his father. 2. Mary went to Central America last month. 3. We all visited Mike's party. 4. The children were happy to rest at the seaside. 5. Mary slept at home that evening. 6. The university had a good basketball team. 7. John ran a long distance in the evening. 8. Peter and Sue met in Asia last week. 9. Sandra got up at 8 yesterday. 10. This sportsman won the World Cup last season.

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 4. Put the verb *to be* into the Past Indefinite.

1. I ... a schoolboy last year. 2. This man ... a farmer the day before yesterday. 3. My friend ... in the garden yesterday. 4. We ... in town the other day. 5. My father ... a tractor driver a week ago. 6. The pupils ... in the classroom an hour ago. 7. She ... an engineer in 1999. 8. I ... busy all day yesterday. 9. Our teacher ... young 20 years ago. 10. They ... in the park on Sunday.

The Modal Verbs *Ought to, Should*

(Модальные глаголы *ought to, should*)

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.

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.

I	should	put the engine into operation.
He/She	should (not)	link the crank to the piston.
We	ought to	cool this car's engine.
You	ought (not) to	rotate this shaft.
They		lower the pressure.

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 the 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.

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).

Exercise 5. Translate the given sentences into Russian:

A. 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.

B. 1. I think the government should help homeless people. 2. We should think twice before buying that yacht. 3. I 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. The secretary should answer the phone-calls.

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

hay baler [heɪ 'beɪlə] – пресс-подборщик (*сена, соломы*)
piece [piːs] – образец
bale [beɪl] – тюк
bind [baɪnd] (bound, bound [baund]) – вязать
twine [twaɪn] – шпагат
netting ['netɪŋ] – сетчатый материал
wire ['waɪə] – проволока
pickup ['pɪkʌp] – подборщик

metal band ['metəl bænd] – металлическая полоска
spool [spuːl] – барабан
swath [swɔθ] – валок
tine [taɪn] – палец
freely-floating ['friːlɪ 'fləutɪŋ] – свободно плавающий
spring-loaded guide [sprɪŋ'ləudɪd gaɪd] – подпружиненная направляющая
bale chamber ['beɪl 'ʧeɪmbə] – прессовальная камера
obstruction [əb'strʌkʃən] – помеха
combination [ˌkɔmbɪ'neɪʃən] – комбинированное устройство
plunger ['plʌnʤə] – поршень
asymmetrical [ˌeɪsɪ'metrɪkəl] – асимметричный
measuring device ['meʒərɪŋ dɪ'vaɪs] – измерительное устройство
spiked wheel ['spaɪkt wiːl] – гребенчатое колесо
trigger ['trɪgə] – приводить в действие
knotter ['nɔtə] – узловязатель
wrap [ræp] – обёртывать
tie off ['taɪ ɔf] – завязать узел
flat-bed ['flætbed] – безбортовой
solid ['sɔlɪd] – сплошной, цельный
slab [slæb] – слой
stack [stæk] – уложить
sheeting ['ʃiːtɪŋ] – защитное покрытие
bale wrapper [beɪl 'ræpə] – обёрточное устройство тюка

Exercise 7. Read and translate the following text.

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).

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 15x18x40 in. or (40x45x100 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.

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 8. 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. The (поток скошенной культуры) from pickup to bale chamber (должен быть без помех).

4. The (поршень и нож) are attached to a (тяжелый) asymmetrical flywheel (чтобы обеспечить дополнительное усилие) as they pack the bales.

5. This (процесс продолжается) as long as there is (масса, которую нужно спрессовать), and (шпагат) to tie it with.

6. The (задняя часть пресс-подборщика) swings open, and the (тюк выгружается).

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

Образец сельскохозяйственной техники, скошенное и сгребённое сено, перевозить, производить разные типы тюков, получать привод от ВОМ трактора, формировать свежее сено в тюки, широко расположенные пальцы подборщика, колесо подборщика, комбинированное устройство, состоящее из поршня и ножа, асимметричный маховик, дозирующее устройство, объем материала, приводить в действие узловязатели, прочный слой сена, промышленно развитые страны, сворачиваться в рулон внутри пресс-подборщика, заранее установленный размер, пластиковое защитное покрытие, пресс-подборщик с прессовальной камерой с регулируемым объемом.

Exercise 10. Match the antonyms.

1) various	a) opening
2) fresh	b) light
3) wide	c) forwards
4) heavy	d) seldom
5) likely	e) suspend
6) closing	f) improbable
7) backwards	g) liquid
8) continue	h) narrow
9) solid	i) stale
10) frequently	j) similar

Exercise 11. Find the odd words in the sentences and change them for the correct ones.

1. The baler is as a rule attached to and powered by the tractor through its wheels. 2. A hay baler is designed to turn fresh grass into bales. 3. The flow of the crop from pickup to combustion chamber must be free of obstructions. 4. The plunger and knife are attached to a light asymmetrical flywheel to provide extra force as they pack the bales. 5. The twine runs, in two parallel straight lines, around the wider sides. 6. When the bale reaches

an arbitrary, size, either netting or twine is wrapped around it to hold its shape. 7. It produces cylindrically shaped "round" or "rolled" briquettes.

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

Moisture content, bale wrapper, predetermined size, industrialized country, large round baler, plastic sheeting, rubberized belt, rectangular shape, complete slab, little risk, prevalent form 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 1.5 m width, harvest the hay, pickup tine, powered by the tractor, different type of bales, compact bales, cut and raked straw, spiked wheel, flow of hay, free of obstructions, compressed

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

A	**B**
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 14. Answer the following questions.

1. What is the purpose of the 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?

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

Farm machinery is the machinery that is used on farms *to assist with farming work*. Previously, *hand-held implements and animal-drawn machinery* were used. In modern times, *mechanized farming is the norm*. *Electric or fuel-powered machinery* carry out most of the tasks that were once carried out by men and animals. Using machinery is *less time-consuming and more cost-effective* than working by hand or using tools like scythes or animal drawn plows. *Advances in farm machinery* has revolutionized the farming industry. Whether it is a *family farm, an organic farming enterprise* or a *commercial farming corporation*, a wide range of farm machinery is used. Commercial farming uses *more sophisticated farming equipment* than the other two.

Unit 8

MOWERS

Словообразование

Приставка ***anti-***, прибавляемая к существительным или прилагательным, образует слова с отрицательным значением:

social (общественный) – **anti**social (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) – **counter**attack (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
I **shall work**	I **shall not work**	**Shall** I **work**?
We **shall work**	We **shall not work**	**Shall** we **work**?
You **will work**	You **will not work**	**Will** you **work**?
They **will work**	They **will not work**	**Will** they **work**?
He **will work**	He **will not work**	**Will** he **work**?
She **will work**	She **will not work**	**Will** she **work**?
It **will work**	It **will not work**	**Will** it **work**?

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 pen? – *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. Put the verbs in brackets in the Future Indefinite Active.

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

The Verb *To Be* in the Future Indefinite

(Глагол *to be* в будущем неопределенном времени)

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

Exercise 4. Put the verb *to be* in the Present, Past or Future Indefinite.

1. My father ... a farmer. 2. He … a twenty years ago. 3. I ... a construction worker when I grow up. 4. My sister ... not ... at home tomorrow. 5. She … at assembly shop tomorrow. 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 sheep pen now? 12. When I come home tomorrow, all my family ... on 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 буду-

щем времени вместо глагола **can** используется эквивалент **shall/will be able to**.

I We He She You They	can cannot (can't) could could not couldn't	adjust pumping systems. prepare working fluid. open the engine casing. repair a machine-tool. manufacture equipment. bring new spare parts.

Can Could	I he /she we /you /they	sharpen blades? harden steel by heating? solve this problem? use a larger drill to make a hole?

I We	shall	(not) be able	to plant potatoes. to break the feeding mechanism.
He She You They	will		to carry a spare wheel. to operate a grinding machine. to mount the plough. to harvest sugar beet.
Shall	I we	be able	to repair the fuel system? to fix the pump?
Will	he she you they		to cut threads accurately? to employ a magnetic chuck? to watch the control panel? 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 *возможность* выполнения действия:

We s*hall be able to stay* with my brother when we are in Paris. – Когда будем в Париже, мы с*можем* остановиться у моего брата;

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 child *can* grow up to be president. – *Любой* ребенок может вырасти и стать президентом;

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*?

Exercise 5. Put the following sentences in the negative and interrogative forms.

1. Peter can fulfill a carburettor adjustment to enable the latter to function without any failures. 2. The chief mechanic could make machine operation more productive yesterday. 3. His friends will be able to plow and harrow that field on Sunday to prepare the seedbed properly. 4. Our specialists can read and speak English. 5. The developers will be able to test the new subsoilers before dark. 6. Some drills can have attachments for spreading fertilizers. 7. He could buy a central-forward cultivator a day before. 8. You will be able to apply herbicides. 9. I can remove the silage from the silo to transport to the troughs. 10. He could prepare the seedbed with a field cultivator without using a plough.

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

mower ['məuə] – косилка
lawn mower [lɔ:n 'məuə] – газонокосилка
self-powered [self 'pauəd] – с автономным приводом
rotary cutter ['rəutərɪ 'kʌtə] – дисковый режущий аппарат
windrower ['wɪndrəuə] – валковая жатка
mower-conditioner ['məuə kən'dɪʃənə] – косилка-плющилка
gang [gæŋ] – агрегатировать
mount [maunt] – монтировать
sickle mower ['sɪkl 'məuə] – балочная косилка
bar [bɑ:] – 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'ləudɪd bɔ:d] – подпружиненная отводная доска

rotary mower ['rəutərɪ 'məuə] – ротационная косилка

drum mower [drʌm 'məuə] – ротационная косилка с аппаратом барабанного типа

swivel ['swɪvəl] – поворачиваться на шарнире

edge [edʒ] – режущая кромка, лезвие

reel mower [ri:l 'məuə] – ротационная косилка

reel [ri:l] – барабан

helical ['helɪkəl] – спиральный, спиралевидный

cutter-bar ['kʌtə bɑ:] – режущий брус

flail mower [fleɪl 'məuə] – косилка с цеповым аппаратом

end of chain [ˌendɔv 'ʧeɪn] – коренной конец цепи

ax-like blade ['ækslaɪk 'bleɪd] – топорообразный ударный нож

foul [faul] – загрязняться, засоряться

tough [tʌf] – жёсткий, плотный

Exercise 7. Read and translate the following text.

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.

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.

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 axis. 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 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 8. 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. Where are the reel mowers used to produce consistently short and even grass?

a) on bowling greens, lawns, gyms, and sports grounds;

b) on bowling greens, lawns, parks and sports grounds;

c) on bowling greens, landscapes, parks and sports grounds.

7. 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 9. 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) windrowers or mower-conditioners.
7. The bar rides on the ground,	g) have rotary cutters.

Exercise 10. Choose the right translation for the underlined part of the sentence.

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

a) могут адаптироваться индивидуально;

b) могут настраиваться независимо.

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

a) имеют длинную балку;

b) оснащаются длинной балкой.

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

a) отбрасывает 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 axis.

a) закреплённые на горизонтальном валу;

b) закреплённые на горизонтальной оси.

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

a) механизм для скашивания сельскохозяйственных культур и растений;

b) машина для скашивания сельскохозяйственных культур и растений.

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

Cut crops or plants, be small enough, rotary cutter, place the cut hay into windrow, mower-conditioner, equip with similar cutting unit, ground contour, powered or 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, cutting on rough terrain, horizontally rotating cylindrical reel, adjustable level, at high speed, tougher vegetation than grass, length of the chain, high inertia of the blade.

Exercise 12. 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 13. Translate the following words and word combinations into English.

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, спиралевидное лезвие, проходить за горизонтальным режущим брусом, закрепляться на регулируемом уровне, над самой поверхностью почвы, горизонтальный вал, относительно высокая инерция.

Exercise 14. Read the text and answer the question: Most modern farm tractors are truly "all purpose", aren't they?

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

HAYMAKING IMPLEMENTS

Словообразование

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

to militarize (милитаризировать) – **de**militarize (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 – <u>to displease</u>

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:

<u>*Last night*</u> he talked to her. – *Прошлой ночью* он говорил с ней.

<u>*In the quietness of the flat*</u> 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 <u>*this morning*</u>. – *Сегодня утром* я получил письмо.

Robert will return <u>*in half an hour*</u>. – 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.
9. Airport/10p.m./you'll/the/at/at/arrive:
a) You'll arrive at the airport at l0p.m;
b) You'll arrive at 10p.m. at the airport;
c) At the airport you'll arrive at 10p.m.

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 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 ... one man 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
I **have**	I **have not**	**Have** I?
We **have**	We **have not**	**Have** we?
You **have**	You **have not**	**Have** you?
They **have**	They **have not**	**Have** they?
He **has**	He **has not**	**Has** he?
She **has**	She **has not**	**Has** she**?**
It **has**	It **has not**	**Has** it**?**
I **had**	I **had not**	**Had** I?
We **had**	We **had not**	**Had** we?
You **had**	You **had not**	**Had** you?
They **had**	They **had not**	**Had** they?
He **had**	He **had not**	**Had** he?
She **had**	She **had not**	**Had** she**?**
It **had**	It **had not**	**Had** it**?**
I **shall have**	I **shall not have**	**Shall** I **have**?
We **shall have**	We **shall not have**	**Shall** we **have**?
You **will have**	You **will not have**	**Will** you **have**?
They **will have**	They **will not have**	**Will** they **have**?
He **will have**	He **will not have**	**Will** he **have**?
She **will have**	She **will not have**	**Will** she **have?**
It **will have**	It **will not have**	**Will** it **have?**

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 have … 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 [snæʧ] – хватать

toss [tɔs] – бросать

trail [treɪl] – шлейф

hay rake ['heɪ reɪk] – сенные грабли

windrow ['wɪndrəu] – валок

windrower ['wɪndrəuə] – валковая жатка

fluff up ['flʌf ʌp] – встряхивать

side delivery rake [saɪd dɪ'lɪvərɪ reɪk] – боковые грабли

gear-driven [gɪə 'drɪvən] – приводимый в движение зубчатым механизмом

chain-driven [ʧeɪn 'drɪvən] – приводимый в движение цепным приводом

reel [ri:l] – зд. сгребающее колесо

swather [ˈswɔ:θə] – валкоукладчик

sickle bar ['sɪkl bɑ:] – пальцево-ножевой режущий аппарат

reel [ri:l] – мотовило

severe transverse angle [sɪ'vɪə trænz'vɜ:s 'æŋgl] – 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 ['rəulə] – валец
split [splɪt] – раскалываться, трескаться
cell wall ['selwɔ:l] – оболочка клетки
rubber-roller ['rʌbə'rəulə] – обрезиненный валец
steel-roller [sti:l'rəulə] [kən'dɪʃənə] – стальной валец
flail conditioner [fleɪl kən'dɪʃənə] – цеповая плющилка
interlocking [ˌɪntə'lɔkɪŋ] – взаимное сцепление
raised [reɪzd] – рельефный
pattern ['pætən] – узор
main shaft ['meɪn 'ʃɑ:ft] – главный вал привода
loading-wagon ['ləudɪŋ 'wægən] – телега-подборщик
receptacle [rɪ'septəkl] – приёмный контейнер
open-top trailer ['əupəntɔp 'treɪlə] – открытый прицеп
head [hed] – жатка
tow [təu] – отбуксировать
quite a bit [kwaɪt ə bɪt] – довольно много

Exercise 8. Read and translate the following text.

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.

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.

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.

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.

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. Agree or disagree with the following statements beginning with:

Of course, it is true because according to the text …

It is false because according to 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. Nowadays the developers of farm machinery have created of mowers and conditioners a combined machine. 7. 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 wheels, 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.

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 (вальцы 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). 7. It is (тянется по полю); the (вращающиеся вилы захватывают) the grass and toss it around, (разбрасывая его) in the sun.

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

Агрегат, используемый для сеноуборки, позволять сену лучше высыхать, 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 между стенок клетки, три основных вида, разработчики сельскохозяйственной техники, с открытым верхом приёмный контейнер на колесах, непосредственно в поле, небольшая подбирающая жатка, отбуксировать в место назначения.

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. A reel helps the cut crop fall neatly *onto/over* an auger conveyor which moves it and deposits it *into/from* a windrow.
4. Tedders will only interact *with/of* mowed grass.
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 the 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[1] and the rock picker[2]. These machines clear the land of stones and weeds, and loosen the soil in readiness for planting.

[1] spading machine – лопаточная почвообрабатывающая машина
[2] rock picker – подборщик камней

Unit 10

PLOUGHING

Словообразование

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

cage (клетка) – to **en**cage (сажать в клетку);

bitter (горький) – to **em**bitter (наполнять горечью).

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

Model: rank – to enrank

brown – to embrown

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:

direct (прямой) – to **mis**direct (неправильно направлять);

fortune (везение) – **mis**fortune (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, match, 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 – lead**ing**, to pay – pay**ing**. При этом соблюдаются следующие правила орфографии:

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

2. Конечный согласный звук удваивается, если ему предшествует краткий ударный гласный: to put – pu**tt**ing, to refer – refe**rr**ing.

3. Буква **l** в конце слова всегда удваивается: to trave**l** – trave**ll**ing.

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

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

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

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. Use the correct tense: 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*)

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.

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.

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?

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.

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* <u>*pencil*</u>. – У Сью *нет* карандаша.

Exercise 4. Use the indefinite pronouns *some, any, no.*

1. There are not … powerful engines here. 2. Are there ... technical characteristics in your book? 3. There are ... flowers here in winter. 4. I can see … all-wheel drive cars in the yard. They are very reliable. 5. Are there ... new harvesters on your farm? 6. There are ... people in the park because it is cold. 7. I saw … bulldozers at the construction-site, but workers did not operate them. 8. They brought ... tractors from the nearby plant. 9. Give me ... spanners, please.

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 He /She We You They		have has had shall have will have		to screw the nut. to fix the gasket. to control the tractor. to adjust the plow. to settle the regulator.
Do Dose Did Shall Will		I he /she we you they	have	to mount a pin? to check the linkage? to connect the header? to find the sensor? to prepare machine?
I He/She We You They	do does did shall will	(not)	have	to leave the field. to make the harrow. to clean the windscreen. to build a garage. to repair an 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 5. Put in *have to* or *don't have to*.

1. Shop assistants ___ know Italian. 2. Doctors ___ work with all people. 3. Architects ___ work at night. 4. Businessmen ___ think very much. 5. Pilots ___ wear uniform. 6. Teachers ___ travel. 7. Diplomats ___ know English very well. 8. Secretaries ___ get up early. 9. Bus drivers ___ write letters. 10. Bankers ___ count money.

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

A. 1. Why __ he __ stay after classes? Mrs. Green, our teacher, gave him lines. 2. Eton is a strict school. Students there __ wear their uniform every day. 3. __ you __ learn the poem by heart? – No, I have already learned it. 4. You __ buy bread. Mum has already bought it. 5. Jimmy __ get up early. It's holiday-time. 6. Tom __ take his PE kit to school on Monday and Tuesday. He has PE lessons on these days. 7. __ we __ walk to school? – No, let's take a bus. 8. Sally has no pen. She __ ask somebody for a pen. 9. Nelly is studying literature. She __ read a lot of books.

B. 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 7. 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 8. Read and memorize the following words and word combinations.

break down ['breɪk'daun] – разлагать
aerate [eə'reɪt] – насыщать кислородом
dry out ['draɪˌaut] – высыхать
advance [əd'vɑ:ns] – достижение
mouldboard plough ['məʊldˌbɔ:d plau] – отвальный плуг
share [ʃeə] – лемех
coulter ['kəultə] – предплужник
wedge-shaped ['wedʒʃeɪpt] – клинообразный, клиновидный
tool [tu:l] – рабочий орган
cut into [kʌt 'ɪntə] – врезаться
sod [sɔd] – дёрн
strip [strɪp] – полоса
roll over [rəul 'əuvə] – переворачиваться
rest [rest] – лежать
hold against [həuld ə'genst] – упираться
next door [ˌnekst'dɔ:] – соседний, прилегающий
landside ['lændˌsaɪd] – полевая доска
furrow ['fʌrəu] – борозда
reversible plough [rɪ'vɜ:səblˌplau] – оборотный плуг
upside down [ˌʌpsaɪd'daun] – кверху корпусами
back-to-back [ˌbæktə'bæk] – задними сторонами друг к другу
chisel plough ['ʧɪzəl plau] – чизель-культиватор
hardpan ['hɑ:dpæn] – ортштейн (*твердый подпочвенный пласт*)
invert [ɪn'vɜ:t] – переворачивать
shank [ʃæŋk] – стойка
traction ['trækʃən] – тяговое усилие
ridging plough ['rɪdʒɪŋˌplau] – окучник, плуг с двусторонним корпусом
ridging [rɪdʒɪŋ] – гребневание
face away ['feɪsɪŋ ə'weɪ] – поворачиваться спиной друг к другу
mole plough ['məulˌplau] – плуг для рытья дренажных канав
under drainage [ˌʌndə'dreɪnɪdʒ] – закрытый дренаж
trench [trenʧ] – канава
wedge-shaped ['wedʒʃeɪpt] – клинообразный
tip [tɪp] – сошник
drain [dreɪn] – дренажная канава

three-point linkage ['θri:pɔɪnt 'lɪŋkɪʤ] – трёхточечное навесное устройство

mounted ['mauntɪd] – навесной

semi-mounted [ˌsemɪ 'mauntɪd] – полунавесной

stump-jump plough ['stʌmpʤʌmp 'plau] – лесной прыгающий плуг

break up ['breɪk ʌp] – распахать

weight [weɪt] – груз

linkage ['lɪŋkɪʤ] – рычажный механизм

Exercise 9. Read and translate the following text.

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.

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.

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.

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 10. Read the text and insert the necessary propositions.

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 planning … plough … a chisel plough it is important to bear … mind that 10 … 20 horsepower (7.5 to 15 kW) … shank will be required, depending … depth.

5. The sod that has been lifted … it rests … … a 45 degree angle … the next-door furrow.

6. 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 11. 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 12. Match the beginning of each sentence with its end.

1. This angle and depth can be… .
2. The plough uses a moveable weight… .
3. A tractor of sufficient power… .
4. The ploughed field is typically left… .
5. This plough is used to reduce the… .
6. A major advance in plough design… .
7. The ploughing continues when the weight… .
8. While one is working the land, the… .

a) … other is carried upside-down in the air.
b) … is returned to the earth after the obstacle is passed.
c) … is the mouldboard plough, which aids the share.
d) … effects of compaction and break up hardpan.
e) … to dry out, and is then harrowed before planting.
f) … and good traction is required.
g) … to hold the ploughshare in position.
h) … controlled automatically by modern tractors.

Exercise 13. Translate the following words and word combinations into Russian.

Purpose of ploughing, upper layer of the soil, bury weeds and remains of crops, ploughed field, cut vertically into the ground, rectangular strip of sod, 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, break up farming land, 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 imple-

ment, tractor of sufficient power, bottom of the mouldboard, controlled automatically, bringing fresh nutrients to the soil, bottom corner.

Exercise 14. Translate the words and word combination in brackets into English.

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 двигается вперед).

3. Because (он упирается) the bottom corner of the (новой борозды, которая образуется).

4. (В конце каждой борозды), the paired ploughs (оборачиваются) are, so the other can be used.

5. (Каждая из отдельно взятой стойки) are typically set from nine inches (229 mm) to twelve inches (305 mm) (на расстоянии).

6. (Окучник) has two mouldboards (установленные спиной друг к другу), cutting a deep furrow on each pass, (с высокими гребнями с обеих сторон).

7. (Плуг для рытья дренажных канав) allows underdrainage to be installed (без канав).

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

1. How can a mole plough be used to make a more permanent drain?

a) a mole plough is used to bury trenches to line with concrete slabs;

b) a mole plough can be used to bury underdrainage trenches;

c) a mole plough can be used to set flexible perforated plastic drain pipe.

2. What is the purpose of a stump-jump plough?

a) a stump-jump plough is designed to break up stumps and rocks;

b) a stump-jump plough is applied to break up tree stumps only;

c) a stump-jump plough breaks up the farmland containing stumps and rocks.

3. What types of ploughs do they produce at present?

a) they usually produce trailed ploughs;

b) they usually produce ploughs semi-mounted on a three-point linkage;

c) they usually produce mounted reversible ploughs.

4. What is the use of the tractor's hydraulic system?

a) it allows to lift and reverse the implement, to adjust the furrow depth;

b) 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.

Главная цель вспашки, верхний слой почвы, сорняки и остатки предыдущих сельскохозяйственных культур, насыщать кислородом почву, конструкция плуга, непосредственно перед лемехом, перед и низ отвала, угол в 45 градусов, контролировать направление движения плуга, нести перевернутым вверх тормашками, спаренные плуги, снизить воздействие уплотнения, работать на глубине, трактор достаточной мощности, выращивать посаженными в гребни, производить глубокую борозду, оставлять канаву глубоко под землей, подвижный вес, 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. 7. Лесной прыгающий плуг используется для подготовки земель для сельскохозяйственного пользования.

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 **out**weight (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 **re**consider (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*, **at that time yesterday** – *в то время вчера*, **this time last month** – *в это время в прошлом месяце*, **when** – *когда*, **while** – *в то время как*, **when he came** – *когда он пришел*, и др.

Exercise 3. Put the verbs in brackets in the Past Continuous Active.

1. When I came, Tom (sit) in the armchair and (read) a book. 2. The teacher met Kate when she (go) 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. 7. Sam entered the room while Dan (sleep). 8. I (sit) by the door when Sue came back. 9. It (rain) cats and dogs while I (run) towards Pat's house 10. Just as

Pete (cross) the avenue, a bike came round the comer. 11. I stared at Philly who (still / swim) in the lake.

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***.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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 4. Make the right choice.

1. We haven't … chain and slat elevators (no, any). 2. They have ... steel parts (any, no). 3. I don't want ... today, thank you (nothing, anything). 4. "I haven't got … concave," said a repairman (any, no). 5. " Didn't you buy ... hopper yesterday (any, no)? 6. I didn't see ... in the farmyard when I went out (anybody, nobody). 7. We did not harvest … crop because it was raining all day long (no, any). 8. There is ... at the maintenance station (anybody, nobody). 9. How much did you pay for these cardan shafts? – I didn't pay … (nothing, anything). 10. Have you damaged … (anything, nothing)?

Exercise 5. Put the following sentences into negative and interrogative forms.

1. They saw something interesting. 2. The engineer gave them some axles. 3. Tim will bring something to us. 4. Bruce showed some gears to Mike. 5. She was reading something. 6. He will write somebody a letter. 7. Peter has something in his garage. 8. They have some mounted plows. 9. There are some powerful tractors here.

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

break up ['breɪk ʌp] – разбить
clod [klɔd] – комок
lump [lʌmp] – глыба
fine [faɪn] – мелкий
finish ['fɪnɪʃ] – поверхность
tilth [tɪlθ] – пашня
rigid frame ['rɪʤɪd freɪm] – жёсткая рама
tine harrow ['taɪn 'hærəu] – зубовая борона
chain harrow ['ʧeɪn 'hærəu] – сетчатая борона
towing-bar ['təuɪŋ bɑ:] – жёсткая буксирная балка
disc harrow ['dɪsk 'hærəu] – дисковая борона
chop up ['ʧɔpʌp] – измельчить
cornstalk ['kɔ:nstɔ:k] – стебель кукурузы
clogging [klɔgɪŋ] – забивание
concavity [kɔn'kævətɪ] – вогнутость
stand in for ['stændɪn'fɔ:] – заменять
rough country ['rʌf 'kʌntrɪ] – неровная местность
scalloped-edged ['skɔləpt 'eʤd] – зубчатая кромка
broadcast ['brɔ:dkɑ:st] – разбросанный
offset ['ɔfset] – несимметричный, офсетный
side section ['saɪd 'sekʃən] – боковая секция
invert [ɪn'vɜ:t] – переворачивать
rotary power harrow – ротационная борона
bolt [bəult] – скреплять, скручивать болтами
rotor head ['rəutə hed] – вращающаяся головка
tine [taɪn] – зуб
adjacent [ə'ʤeɪsənt] – расположенный рядом
time [taɪm] – регулировать положение
hydraulic linkage [haɪ'drɔ:lɪk 'lɪŋkɪʤ] – навесное устройство с гидромеханизмом
levelling ['levəlɪŋ] – выравнивание
covering seed ['kʌvərɪŋ si:d] – заделка семян
dung [dʌŋ] – органическое удобрение
thatch [θæʧ] – высокая трава
sward [swɔ:d] – газон
seed drill ['si:dˌdrɪl] – рядовая сеялка
level off ['levəl ɔf] – выравнивать

operating costs ['ɔpəreɪtɪŋ kɔsts] – эксплуатационные расходы

Exercise 7. Read and translate the following text.

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.

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.

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.

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.

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 8. 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 by?
8. What part of the tractor are the rotary harrows attached to?
9. What is the use of chain harrows?

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

Выравнивать неровную поверхность, разбивать комья и глыбы, удалять сорняки и заделывать семена, навешивать на трехточечную навесную систему, обрабатывать почву для посева, комбинация двух видов борон, в зависимости от предусмотренного назначения, жесткая рама, зубовые и сетчатые бороны, в передней части агрегата, раскрошить почву, исключить забивание в процессе вспашки, специальный

вид дисковых борон, очень пересечённая местность, бетонные или стальные блоки, общее направление движения орудия, поднимать с помощью гидравлической системы, дорожно-транспортная конфигурация, сохранять естественный состав почвы, вертикально вращающиеся зубья, посредством коробки передач, вращение каждого ротора тщательно отрегулировано, передний ВОМ, в сочетании со всеми рядовыми сеялками, чрезмерное уплотнение почвы.

Exercise 10. 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 11. Find the odd words in the sentences and change them for correct ones.

1. In modern practice they are tractor-mounted implements, either trailed after the tractor or mounted on draw bar.

2. It consists of many iron or wood discs which have slight concavity and are arranged into two or four sections.

3. This sort of cultivation is normally immediately followed by broadcast fertilization and spraying.

4. The discs are also offset so that they are exactly parallel with the overall direction of the implement.

5. Adjacent tine rotors turn in the same directions and each rotor is carefully timed with its neighbour to prevent the tines hitting each other.

6. Chain harrowing can be done on pasture land to spread out fertilizer, and to break up dead material (thatch) in the sward.

Exercise 12. 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, have slight concavity, 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 gears, 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 13. Choose the correct preposition.

1. The purpose *of/to* this activity is to break up clods and lumps *of/from* soil and to provide a finer finish.

2. The tines are driven *by/about* the power take-off *through/without* a gearbox and system *of/near* gears attached *to/for* the tine rotors.

3. This sort *of/to* cultivation is normally immediately followed *by/from* broadcast fertilization and seeding.

4. It consists *of/from* many iron or steel discs which have slight concavity and are arranged *into/of* two or four sections.

5. Although it is more common *for/on* power harrows to be used *on/under* the rear hydraulic linkage, some models can also be attached *to/with* a front linkage and driven *by/before* a front-end power shaft.

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

A	**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. Agree or disagree with the following statements beginning with:

I agree with this statement because…

That's absolutely false because...

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.

6. In sports-ground maintenance light chain harrows are often used to level off the ground.

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, adjustable, adult, aerated, fiction, alcoholic, governmental.

Приставка ***ultra-***, прибавляемая к прилагательным и существительным, образует слова, значения которых указывают на чрезмерность, необычность или неприемлемость, например:

violet (фиолетовый) – **ultra**violet (ультрафиолетовый).

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

Model: modern – ultramodern

Microscope, micrometer, classical, marine, short, conservative, fashionable, radical, portable, red, reliable, sonic, weak.

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
I **shall be working**	I **shall not be working**	**Shall** I **be working**?
We **shall be working**	We **shall not be working**	**Shall** we **be working**?
He **will be working**	He **will not be working**	**Will** he **be working**?
She **will be working**	She **will not be working**	**Will** she **be working**?
It **will be working**	It **will not be working**	**Will** it **be working**?
You **will be working**	You **will not be working**	**Will** you **be working**?
They **will be working**	They **will not be working**	**Will** they **be working**

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 *естественного течения событий* независимо от воли или намерения любого, кого эти действия затрагивают:

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*.

I *shall be going* to the city centre later. Can I get you anything? – Позже я *пойду* в центр города. Тебе купить что-нибудь?

4) будущее продолженное время используется для выражения *обычных* или *повторяющихся действий в определенный момент в будущем*, например:

I think that, in the future, more and more people *will be commuting* to work by plane. – Я думаю, что в будущем все больше и больше людей *будут добираться* на работу на самолетах.

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 поне-*

дельник, **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 time. 3. My sister will be writing my homework when you come. 4. 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 be your parents 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 1 till 4 o'clock on Sunday.

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.

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 **am going to** read	I **am not going to** read	**Am** I **going to** read?
He **is going to** read	He **is not going to** read	**Is** he **going to** read?
She **is going to** read	She **is not going to** read	**Is** she **going to** read?
It **is going to** read	It **is not going to** read	**Is** it **going to** read?
We **are going to** read	We **are not going to** read	**Are** we **going to** read?
You **are going to** read	You **are not going to** read	**Are** you **going to** read?
They **are going to** read	They **are not going to** read	**Are** they **going to** 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 the 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 – *много*	
much – *много*	many – *много*
a little – *немного*	a few – *несколько*
little – *мало*	few – *мало*

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), 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.

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. Make the right choice.

1) I don't have *many / much / a lot* of friends. 2) Please be quick. I have *little / a lot of / few* time. 3) There were *much / many / a lot of* sunny days but we did not spend *much / many / few / little* time on the beach. 4) I will come soon. There is *a little / a few / few* work to do. 5) There are *a few / a little / much* roses in the garden and the rest is tress. 6) There are *a lot of / little / much* windows in my room. 7) Mary has *little / a few / much* dolls because she likes toy cars. 8) He doesn't read *many / much / a lot of* books. 9) You took *much / a little / few* photos on holiday. There is too … *much/ many / a few* salt in the soup. 10. There are … *much /a little /a few* skyscrapers in our city. 11. I've got … *much / a few / a little* albums of this singer. 12. There was very … *little/few/many/a lot of* rain last autumn.

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

planter ['plɑːntə] – сажалка, сеялка

drawbar ['drɔːbɑː] – сцепное устройство

seeding unit [rəu 'ju:nɪt] – высевающий аппарат

meter out ['mi:tə aut] – дозировать

concept ['kɔnsept] – представление

established [ɪs'tæblɪʃt] – широко известный, общепризнанный

usage ['ju:sɪʤ] – применение

marker ['mɑ:kə] – маркер

extend out [ɪk'stend aut] – простирать(ся), выдвигаться

half the width [hɑ:f ðə wɪtθ] – наполовину ширины захвата

tractor's tread should be centered – должна проходить по центру колеи трактора

single ['sɪŋgl] – отдельный

rod [rɔd] – штанга

GPS ['ʤi:pi:'es] – глобальная система навигации и определения положения

auto-steer system ['ɔ:təustɪə 'sɪstəm] – система автоматического управления

precision equipment [prɪ'sɪʒən ɪ'kwɪpmənt] – точное измерительное оборудование

accurate within ['ækjərət wɪ'ðɪn] – с точностью до

hold the seed release [həuld ðə si:d rɪ'li:s] – прекращать высев семян

run overlapping pattern [rʌn ˌəuvə'læp 'pætən] – двигаться с частичным перекрытием

seed bin [si:d bɪn] – семенной ящик

fertilizer bin ['fɜ:tɪlaɪzə 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'baut] – появляться, возникать

shortfall ['ʃɔ:tfɔ:l] – недостаток

ground driven system [graund 'drɪvən 'sɪstəm] – система привода от ходового колеса

hydraulic driven systems [haɪ'drɔ:lɪk 'drɪvən 'sɪstəm] – гидравлическая система привода

on the go [ɔnðə'gəu] – быть в движении

computer-controlled [kəm'pju:tə kən'trəuld] – управляемый компьютером

brush-belt seeding unit [brʌʃbelt si:dɪŋ 'ju:nɪt] – высевающий аппарат щёточного типа с ременным приводом

trench [trentʃ] – канавка, углубление

rearward trajectory ['rɪəwəd trə'ʤektərɪ] – направленная назад линия движения

ground speed ['graund 'spi:d] – скорость относительно земли

bounce [bauns] – отскок

roll [rəul] – перекат

seed tube ['si:d ˌtju:b] – семяпровод

bristle ['brɪsl] – щетина

cradle ['kreɪdl] – бережно удерживать

conditioner [kən'dɪʃənə] – очиститель

Exercise 8. Read and translate the following text.

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.

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.

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.

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 9. 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, seed release *over* sown area, a seed bin *for* each row, tooth spacing *according to* the type of seed, distributed *to* each row, a series *of* gears, is changed *by* the operator, to change seed quantity *on* the go.

Exercise 10. Match the antonyms.

1) planter	a) rearward
2) connected	b) lead
3) precise	c) collect
4) machine	d) remove
5) release	e) advantage
6) obstacle	f) harvester
7) installed	g) detain
8) distributed	h) inaccurate

9) follow i) separated
10) forward j) instrument

Exercise 11. Translate the following words and word combinations into English.

Сельскохозяйственное орудие, высевать зерно рядами, высевающие агрегаты, устанавливаться равномерно вдоль сеялки, разниться значительно по размеру, дозировать зерно для высева, проделывать линию, следующий проход по полю, на каждой из сторон сеялки, исключать потребность в маркере, точное измерительное оборудование, сеять зерно с точностью до 2 сантиметров, автоматически прерывать высев, объезжать препятствие, диск высевающего аппарата с зубьями, большой семенной ящик, с высокой точностью, различный тип привода, система механического привода, ведомое колесо, система гидравлического привода, менять норму высева на ходу, система привода от ходового колеса, скорость сеялки относительно земли, бережно удерживать зерно.

Exercise 12. Make up word combinations using the text and translate them.

1) brush belt conditioner	a) at the bottom
2) precise	b) seed placement
3) delivers seed	c) to the bottom of the trench
4) shortfalls	d) of the ground driven system
5) contact	e) with the ground
6) different	f) type of drive
7) allow one seed	g) in at a time
8) a certain	h) number of teeth
9) auto-steer systems	i) for the tractor
10) devices called	j) seeding units

Exercise 13. Choose the right translation for the underlined part of the sentence.

1. This technology <u>delivers seed to the bottom of the trench</u> at a rearward trajectory that truly matches the ground speed of the planter.

a) высевает зерно на дно канавки;

b) доставляет зерно на дно канавки.

2. <u>A hydraulic driven system</u> 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 подвесного колеса, которое получает привод от другого;

b) агрегат приводится в движение от небольшого подвесного колеса, которое получает привод от другого.

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 в каждый ряд 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) точное измерительное оборудование сельскохозяйственного назначения 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.

Exercise 14. 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 15. Translate the following words and word combinations into Russian.

Rows 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, 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, shed dust from the brush belt.

Exercise 16. Read and translate the following text. Speak about two types of tillage.

Tillage is often classified into two types, primary and secondary. There is some slight boundary between them: the former is deeper and more thorough (primary) and the latter is shallower and sometimes more selective of location (secondary). Primary tillage such as ploughing tends to produce a rough surface finish, whereas secondary tillage tends to produce a smoother surface finish, such as that required to make a good seedbed for many crops. Harrowing and rototilling often combine primary and secondary tillage into one operation.

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) – **extra**ordinary (выдающийся);

mural (внутристеночный) – **extra**mural (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-**ministe (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 – liv**ed**;

б) глаголы, оканчивающие в инфинитиве на **-y** с предшествующей согласной, меняют у на **i**: to study – stud**ied**.

Если же перед **-y** стоит гласная, то **-y** сохраняется: to play – pla**yed**;

в) если односложный глагол в инфинитиве оканчивается на одну согласную, перед которой стоит одна гласная, то конечная согласная удваивается: to stop – sto**pped**;

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] – equi**pped**.

Если глагол оканчивается на **l,** то **l** удваивается независимо от того, падает ли ударение на последний слог или нет: to cancel – cance**ll**ed.

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 **have worked**	I **have not worked**	**Have** I **worked**?
We **have worked**	We **have not worked**	**Have** we **worked**?
You **have worked**	You **have not worked**	**Have** you **worked**?
They **have worked**	They **have not work**ed	**Have** they **worked**?
He **has worked**	He **has not worked**	**Has** he **worked**?
She **has worked**	She **has not worked**	**Has** she **worked**?
It **has worked**	It **has not worked**	**Has** it **worked**?

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) начало действия обозначается структурой со словом **since** (**since five o'clock** – *с пяти часов*, **since Monday** – *с понедельника*, **since I saw him** – *с того момента, как я его видел*:

He has worked in a bank *since* winter. – Он работает в банке *с* зимы.

Exercise 3. Put the infinitives in brackets in the Present Perfect Active.

I (to be) to their concert twice. Their music is amazing. 2. I (not/to see) Jane since the day of her wedding. They (to come back) from their honey moon yet? 3. Where is your ID Card? – I (to lose) it. They are going to make me another one. 4. Oh, look! It's Sarah. I (not/to see) her for a long time. 5. Jane is on holiday. She (to go) to Ireland. 6. Are you going to the medical center? – I (already/to be) there today. 7. I am waiting for a very important letter. It (not/to arrive) yet? 8. My father (to start) a new job recently. He is very busy now. I (not/talk) to him for a long time already.

Exercise 4. 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. 15. He (send) his letter yesterday. 16. They (just/ buy) some postcards.

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	am	to screw the bolt.
He/She	is	to fix the o-ring.
We	are	to control the module.
You	was	to adjust the flow rate.
They	were	to settle the control unit.

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 5. Translate the following sentences into Russian.

1. You are to stay at the table until you finish your lunch. 2. The ship is to arrive at noon. 3. She is not to enter our house. 4. The government was to have reduced inflation. 5. The Prime-minister is to visit Canada. 6. You are to give up smoking. 7. We were to meet Mike near the market. 8. You are not to open the box until Christmas. 8. Who was to have done the shopping? 9. Sam is to phone after dinner.

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

seed piece ['si:dpi:s] – резаный 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 ['treɪlˌtaɪp] – прицепной
cam-actuated jaw [kæm'ækʧueɪtd ʤɔ:] – зажим, приводимый в действие кулачком
picker point ['pɪkəˌpɔɪnt] – 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:tɪlaɪzə spredŋ dɪ'vaɪs] – устройство для внесения удобрений
spear [spɪə] – пронзать, протыкать
auger ['ɔ:gə] – шнек
agitator ['ædʒɪteɪtə] – смеситель
shaker ['ʃeɪkə] – вибратор
seed hopper [ˌsi:d'hɔpə] – семенной ящик
fertilizer hopper ['fɜ:tɪlaɪzə 'hɔpə] – туковая банка
cam-actuated [kæm'ækʧueɪtd] – приводимый в действие кулачком
power takeoff ['pauə 'teɪkɔf] – механизм отбора мощности
shaft [ʃɑ:ft] – вал
frame [freɪm] – рама
axle ['æksl] – ось
sturdy ['stɜ:dɪ] – прочный
draft [drɑ:ft] – тяговое усилие
slanted ['slɑ:ntɪd] – наклонный
feeding device ['fi:dɪŋ dɪ'vaɪs] – питающее устройство
furrow ['fʌrəu] – борозда
concave [kɔŋ'keɪv] – вогнутый
covering disk ['kʌvərɪŋ dɪsk] – заделывающий диск
ridge [rɪdʒ] – гребень
band [bænd] – полоса, лента

belt-type plate feed [brʌʃbelt pleɪtfiːd] – дисковый питатель с ременным приводом

mechanical plate feed [mɪ'kænɪkəl pleɪtfiːd] – дисковый питатель с механическим приводом

spot [spɔt] – заметить

maneuverable [mə'nuːvərəbl] – манєвренный

headland ['hedlənd] – поворотная полоса

Exercise 7. Read and translate the following text.

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.

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 in. and leave the ridge over each row.

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 8. 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 9. Translate the words and word combination in brackets into English.

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).

6. The machine can be (высокоманевренный) while turning, which means that the (поворотные полосы) can be kept to a (минимальное пространство).

7. (Еще один тип высевающего аппарата) has a wheel with (приводимый в действие кулачком захватная рука с накалывающим пальцем) which are projected through the picker arm as it (проходит вверх через бункер).

Exercise 10. 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, compared *to* a mounted unit.

Exercise 11. Translate the following words and word combinations into English.

Резать из целых клубней, сажать без разрезания, навесной и прицепной, полностью автоматическая модификация, двухколесное орудие, рабочие части сажалки, сошник с дисками, заделывать борозду, смеситель и вибратор, ВОМ трактора, прочный и хорошо сконструированный, захватывать зажимом, бросать в сошник; закрыть, чтобы захватить семенной картофель, с другой стороны, 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 12. Insert the necessary words given below the line.

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.

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

A	**B**
1) без	a) without; b) because of; 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 14. Translate the following words and word combinations into Russian.

Large planting machinery, mounted or trailed planters, potato tubers and fertilizer, each hopper of the potato planter, press wheels for covering the furrow, feed the tubers to the seeding unit, frame, axle, wheels, because of the made draft, placed as low as possible, V-boot is required to open a furrow, agitator and shakers, feeding device, planter seeding unit, jaws of seeding unit, grasp a seed piece, 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., avoid damage, furrow for the fertilizer bands, cover the fertilizer, if something happens, consider the possibility, spot trouble easily, perfect weight distribution, maneuverable while turning.

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. Though *modern harvesters* and planters may do a better job or be *slightly tweaked* from their predecessors, the *combine of today still cuts, threshes, and separates grain* in the same way it has always been done. 3. However, technology is changing the way that *humans operate the machines*, as computer monitoring systems, GPS locators, and self-steer programs allow *the most advanced tractors* and implements to be *more precise and less wasteful* in the use of fuel, seed, or fertilizer. 4. *In the foreseeable future*, there may be *mass production of driverless tractors*, which use GPS maps and electronic sensors.

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, classical, revolution, elections, aeration, adolescence, war, determine, define, decode, date, contract, concert.

Приставка ***post-***, прибавляемая к глаголам, прилагательным, существительным, образует слова, означающие что-то, что было *после*, следовало *за* чем-то, например:

date (дата) – **post**date (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:

War, modern, modify, normalize, process, trigger, glacial, graduate, impressionism, revolutionary, position, entry, retirement, 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
I **had worked**	I **had not worked**	**Had** I **worked**?
We **had worked**	We **had not worked**	**Had** we **worked**?
You **had worked**	You **had not worked**	**Had** you **worked**?
They **had worked**	They **had not work**ed	**Had** they **worked**?
He **had worked**	He **had not worked**	**Had** he **worked**?
She **had worked**	She **had not worked**	**Had** she **worked**?
It **had worked**	It **had not worked**	**Had** it **worked**?

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. Put the verbs in brackets in the Past Perfect.

1. He (to maintain) row-crop tractors before he entered the agricultural firm. 2. Ralph said that he (to get) his new cotton pickers and harvesters from a local dealer. 3. The combine operator wanted to work individually because he (to repair) the harvester alone. 4. Victor did not know who (to produce) the first general-purpose tractor. 5. The engineer was informed

that the repair workers (to adjust) the last maize planter. 6. Suddenly he remembered that he (not to hitch) the equipment for land reclamation. 7. By the time the tractor reached the field, Tom (to tested) the computerized control system. 8. Before the mechanic arrived at the Agricultural Show, the organizers (to 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 4. 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.

Exercise 5. Find and correct the mistakes in using the Past Perfect or Past Indefinite.

1. They were late but the lecture didn't start yet. 2. I had remembered that I left the iron switched on. 3. The floor was slippery because Tom spilt some juice on it. 4. Mary had given me the book I hadn't read before. 5. He returned home because he didn't lock the door. 6. Before the pupils had started the exam, they had switched their mobiles off. 7. Fred gave me the car back after he used it. 8. The concert had finished and we had gone to a nice restaurant. 9. I didn't recognize Henry because he lost much weight and grew a moustache. 10. I visited so many beautiful places in China before I had come to the Great Wall.

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

multipurpose [ˌmʌltɪ'pɜːpəs] – универсальный
shovelling ['ʃʌvəlɪŋ] – работа лопатой или экскаватором
hauling [hɔːlɪŋ] – буксировка, трелёвка
power supply ['pauəsəˌplaɪ] – энергоснабжение
tilling [tɪlɪŋ] – обработка почвы
pushing ['puʃɪŋ] – сталкивание
lifting ['lɪftɪŋ] – подъём
haul [hɔːl] – тащить, тянуть

gasoline engine ['gæsəli:n 'enʤɪn] – бензиновый двигатель

tricycle type tractor ['traɪsɪkl ˌtaɪp 'træktə] – трёхколёсный трактор

closely-placed ['kləuslɪ ˌpleɪst] – близко расположенный

in vogue [ɪn'vəug] – 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 ˌtræk] – гусеничный ход

articulated tractor [ɑ:'tɪkjəleɪtɪd 'træktə] – трактор с шарнирно-сочленённой рамой

driving wheel ['draɪvɪŋ ˌwi:l] – ведущее колесо

steerable wheel ['stɪərbl ˌwi:l] – направляющее колесо

steering wheel ['stɪərɪŋ ˌwi:l] – руль, рулевое колесо

auto-steer system [ɔ:təu'stɪə 'sɪstəm] – система автоматического управления

propeller shaft – карданный вал

gearbox ['gɪəbɔks] – коробка передач

differential gear [ˌdɪfə'renʧəl gɪə] – дифференциал

oversize [ˌəuvə'saɪz] – что-л. имеющее большой размер

high clearance [haɪ'klɪərəns] – высокий клиренс

tapering lug ['teɪpərɪŋ lʌg] – конусообразный грунтозацеп

crawler ['krɔ:lə] – гусеничный трактор

caterpillar ['kætəpɪlə] – гусеничный трактор

track-laying [træk'leɪɪŋ] – гусеничный

continuous track [kən'tɪnjuəs ˌtræk] – гусеничная лента

plate [pleɪt] – плита, пластина

pivot ['pɪvət] – соединять стержнем

encircle [ɪn'sɜ:kl] – охватывать по окружности

adhesion [əd'hi:ʒən] – сцепление

grip [grɪp] – сцепление

row-crop tractor ['rəukrɔp 'træktə] – пропашной трактор

standard tractor ['stændəd 'træktə] – сельскохозяйственный трактор обычного типа

high-clearance tractor [ˌhaɪ'klɪərəns 'træktə] – высококлиренсный трактор

utility tractor [ju:'tɪllətɪ 'træktə] – трактор общего назначения

tread [tred] – ширина хода, колея

general purpose tractor ['ʤenərəl 'pɜ:pəs 'træktə] – универсальный трактор

wheatland farm tractor ['wi:tlænd fɑ:m 'træktə] – сельскохозяйственный трактор

gardening ['gɑ:dənɪŋ] – садоводство

landscaping ['lænskeɪpɪŋ] – благоустройство и озеленение

excavation [ˌekskə'veɪʃən] – выемка грунта

turf tire [ˌtɜ:f 'taɪə] – дерновая шина

agricultural tire [ˌægrɪ'kʌlʧərəl 'taɪə] – шина для сельскохозяйственной техники

hitch [hɪʧ] – прицеплять

drawbar ['drɔ:bɑ:] – сцепная серьга, брус автосцепки

two-point hitch ['tu:pɔɪnt hɪʧ] – двухточечное навесное устройство

three-point hitch ['θri:pɔɪnt hɪʧ] – трехточечное навесное устройство

Exercise 7. Read and translate the following text.

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.

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.

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.

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 8. 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, vehicle powered *by* an engine, famous *for* tricycle design machines, be *in* vogue, 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 9. Complete the sentences. Choose the suitable words from the box.

Steering wheel, general purpose, easier and safer, hitching system, steering wheel, poor grip, non-farming activities, tricycle type.

1. These can be used for … like gardening, landscaping and excavation.
2. Crawler tractors may be used on heavy, sticky soil or on very light soil that provides … for a tire.
3. The … may be a draw bar, a two-point hitch or a three-point hitch.
4. The seat and the … are set in the center of the four wheels, usually inside of the driving cab.
5. Four-wheel tractors, however, were … to handle.
6. The … tractors came next, with either a single front wheel or closely-placed double front wheels.
7. The utility tractors are usually smaller than … vehicles.

Exercise 10. Translate the following words chains.

Farm vehicle, farm machinery, farm tractors, traction vehicle, steam engine, gasoline engine, single front wheel, double front wheels, tractor manufacturer, four-wheel tractor, mechanized farming, eight-wheel drive units, caterpillar tracks, engine compartment, propeller shaft, rear-drive wheels, pneumatic rubber tires, wheel-type farm tractor, track-laying tractor, lower ground pressure, crawler tractor, high-clearance tractor, row-crop tractor, utility tractor, increased ground clearance, field work, farm equipment, two-point hitch, wheatland tractor.

Exercise 11. 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.

10. An activity or purpose natural to or intended for a person or thing.

a) function; b) navigation; c) requirement.

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

Универсальное транспортное средство, выполнять сельскохозяйственные работы, трелёвка, сталкивание, работа лопатой, боронование, вспашка, обеспечение электроэнергией, тяговое транспортное средство с механическим приводом, стационарный паровой двигатель, тянуть плуг, первое сельскохозяйственное транспортное средство, с приводом от бензинового двигателя, производитель тракторов, проще и безопаснее в применении, отвечать требованиям механизированного земледелия, множество различных функций, ведущие колеса и оси, рулевое колесо, автоматическая функция, привод передаётся через карданный вал, пневматические резиновые шины большого размера, сцепляться с грунтом, охватывать по окружности по два колеса с обеих сторон, обеспечивать лучшее сцепление, плохое сцепление с шиной, регулируемая ширина колеи, обширный участок сельскохозяйственного угодья, стандартная конструктивная особенность.

Exercise 13. Translate the following sentences into English.

1. Современный трактор является универсальным транспортным средством, которое может выполнять различные сельскохозяйственные работы. 2. Первые сельскохозяйственные тракторы применялись для обработки почвы в конце девятнадцатого века. 3. Большинство тракторов в настоящее время оснащаются двигателями внутреннего сгорания, работающими на дизельном топливе. 4. Гусеничные сельскохозяйственные тракторы, которые имеют хорошее сцепление с грунтом, применяются на всех типах почв. 5. Сельскохозяйственное оборудование и орудия для обработки почвы могут прицепляться к трактору как спереди, так и сзади.

Exercise 14. 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 wheels transmitted?
6. What the engine capacity of the most tractors?
7. What is the advantage of track-laying tractors over the wheeled?
8. What farming requirements must different kinds of tractors meet?
9. Can utility tractors be used for non-farming activities?
10. What hitching systems are farm tractors fitted with?

Exercise 15. Read and translate the text into Russian in written.

Safety Requirements During Maintenance

1. Never fuel the tractor with engine running.
2. Do not smoke when fuelling a tractor.
3. Do not fill in fuel tanks to the full. Leave some space for fuel expansion.
4. Never add gasoline or other mixtures to diesel fuel. Such combinations may create enhanced inflammability or explosion hazard.
5. Use summer and winter grades of fuel properly. Fill in the fuel tank at the end of each day to reduce night-time moisture condensation.
6. Fill in the tractor only with oils and lubricants recommended by the works. It is strictly prohibited to use other lubricants!
7. Perform all operations related to cleaning of engine and tractor, preparation for work, maintenance etc. with engine shut down and tractor braked.
8. The cooling system is functioning under pressure, which is maintained by means of a valve installed in the filling neck cover. It is dangerous to remove cover on the hot engine. To avoid burns of face and hands be careful to open the plug of radiator neck on the hot engine. First, put tight cloth on the plug and put on a gantlet.
9. To avoid burns take care when draining cooling fluid from the cooling system, hot oil from the engine, hydraulic system and transmission.
10. Take care when handling storage batteries, as electrolyte may cause burns when splashed on skin.
11. To avoid danger of explosion keep open flame sources away from engine fuel system and storage batteries.

12. Keep tractor and its equipment, especially brakes and steering equipment, in operable condition for the safety of your own and people around.

13. Do not make any alterations to the tractor or its individual components without approval of your dealer and manufacturing works.

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) – help**ful** (полезный);

to forget (забывать) – forget**ful** (забывчивый);

spoon (ложка) – spoon**ful** (полная ложка).

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

Model: beauty – beautiful

Master, duty, use, watch, thank, hope, doubt, fear, pain, basket, cup, table, pot, spade, glass, hand, room, boat.

Суффикс ***-ing,*** прибавляемый к существительным и глаголам, образует существительные, обозначающие процесс или материал:

floor (пол) – floor**ing** (половые доски);

to translate (переводить) – translat**ing** (перевод).

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

Model: to open – opening

To spell, to brush, to drum, to read, to learn, to jump, 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
I **shall have worked** We **shall have worked** You **will have worked** They **will have worked** He **will have worked** She **will have worked** It **will have worked**	I **shall not have worked** We **shall not have worked** You **will not have worked** They **will not have worked** He **will not have worked** She **will not have worked** It **will not have worked**	**Shall** I **have worked** **Shall** we **have worked** **Will** You **have worked** **Will** they **have worked** **Will** he **have worked** **Will** she **have worked** **Will** it **have worked**

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. – *Я уеду* 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 и условия, 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 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 (to start) by the time she gets to Fred's. 5. They (to finish) the plans by then. 6. Before his holiday Tom (to spend) all his money. 7. The train (to 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 (to register) all the books by the end of the week. 16. Our plant (to fulfil) its plan by the 5th of December. 18. By the end of the month the delegation (to come). 19. Do please hurry or they (to close) the door by the time we get there. 20. Our plant (to fulfil) its plan by the 5th of December.

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 He She We You They	may may not might might not	use pulleys and gears to transmit power to shafts. convey fluids through piping network. connect bars by using knuckle joint for flexibility. forget to lubricate the mechanism. apply bolts and screws to fasten this unit. disassemble and assemble this gear box.

May Might	I he she we you they	take radical and thrust bearings? rivet these three plates? keep this four-stroke-engine working? go to the automobile production shop? join these two parts by keying? start the engine?

I He She We You They	shall will	(not)	be allowed	to leave tractor unrepaired. to make the seedbed crumbly. to clean the grain elevator. to build an advanced generator. to repair an engine. to replace the piston.

Shall Will	I We He She You They	be	allowed	to prepare combine? to bring new spare part? to adjust the plough? to make a new plan? to prepare the beet harvester? 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.

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. Mum, may I have another sweet? 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. Don't throw it away, it may come in use, you never know. 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.

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

pulling ['pulɪŋ] – волочение

trailer ['treɪlə] – телега

power ['pauə] – приводить в действие

tread width ['tred wɪtθ] – ширина хода, колея

durability [ˌdjuərə'bɪlətɪ] – износоустойчивость

engineering task [ˌendʒɪ'nɪərɪŋ tɑ:sk] – задача по инженерному обеспечению

engineering tool [ˌendʒɪ'nɪərɪŋ tu:l] – техническое средство

dozer blade ['dəuzə bleɪd] – отвал бульдозера

bucket ['bʌkɪt] – ковш

hoe [həu] – скрепер

ripper ['rɪpə] – рыхлитель

engineering tractor [ˌendʒɪ'nɪərɪŋ 'træktə] – инженерный трактор

hoe-loader [həu'ləudə] – экскаватор типа «обратная лопата»

assembly [ə'semblɪ] – устройство

backhoe ['bækhəu] – обратная лопата

demolitions [ˌdɛmə'lɪʃən] – разборка, снос

retractable [rɪ'træktəbl] – убираемый, отводной

compact utility tractor [ˌkəm'pækt juː'tɪlətɪ 'træktə] – малогабаритный трактор общего назначения

horsepower ['hɔːsˌpauə] – лошадиная сила

mid-mounted [mɪd'mauntɪd] – зд. расположенный впереди

snow blower [snəu 'bləuə] – роторный снегоочиститель

rotary broom ['rəutərɪ bruːm] – вращающаяся щётка

tailor ['teɪlə] – разрабатывать с учетом

truck farming [trʌk 'fɑːmɪŋ] – товарное овощеводство

soon after [suːn 'ɑːftə] – вскоре

round [raund] – цикл

belt-drive ['beltdraɪv] – ремённый привод

transaxle [transˈaksəl] – ведущий мост в блоке с коробкой передач

feature ['fiːʧə] – техническая характеристика, параметр

with impunity [ɪm'pjuːnətɪ] – без ущерба

snagging ['snægɪŋ] – облом

underslung [ˌʌndə'slʌŋ] – подвешенный ниже оси

exhaust pipe [ɪg'zɔːst paɪp] – выхлопная труба

cowling ['kaulɪŋ] – капот двигателя

fairing ['feərɪŋ] – обтекатель

deflect [dɪ'flekt] – отклонять

slide off [slaɪd ɔf] – скользить

catch [kæʧ] – захватывать

sheetmetal [ʃiːt 'metəl] – листовой металл

spark arrestor [spɑːk ə'restə] – искрогаситель

exhaust tip [ɪg'zɔːst tɪp] – насадка выхлопной трубы

wire cage ['waɪə keɪʤ] – проволочный каркас

snag [snæg] – сук, сучок (*на дереве*)

Exercise 7. Read and translate the following text.

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 suit-

able 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**.

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.

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.

Exercise 8. Translate the expressions into Russian paying attention to the prepositions.

Tractor is used *for* pulling, tractor used *to* power a pump, 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, fitted with engineering tools such, loader assembly *on* the front,

backhoe o*n* the back, 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. CUTs are often equipped with … .
5. Several rounds of cultivating … .
6. Cultivating takes place soon after … .
7. They are powered by horizontal-crankshaft … .
8. Some buckets have retractable bottoms, enabling… .
9. 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.
h) … both a mid-mounted and a standard rear PTO.
i) … may be done over the season.

Exercise 10. Agree or disagree with the following statements beginning with:

Of course, I agree with this statement because …

I disagree entirely because according to the text …

1. Standard tractors with fixed wheels and a lower center of gravity are designed for disking, harrowing. 2. The most common attachments for the front of a tractor are dozer blades or buckets. 3. Backhoe-loaders can be used for a variety of tasks: construction, small demolitions, digging holes, loading trucks, breaking asphalt and cultivation of cotton. 4. The mid-mount PTO shaft typically rotates at/near 1800 rpm and is used to power front-mounted snow blowers or front-mounted rotary brooms. 5. A row-crop tractor essentially brings together a farm tractor and its implement into one machine. 6. The engines are generally a one- or two-cylinder petrol engines, but diesel engine models are not available. 7. Orchard tractors tailored to use in fruit orchards typically have features suited to pass under tree branches easily.

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

Pull agricultural machinery, power a pump for irrigation, a variety of farm tractors, 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 tools, the most common front attachments, most common variation, loader assembly on the front, breaking asphalt and paving roads, 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, horizontal-crankshaft engine, pass under tree branches, sheetmetal cowling, wire cage to protect the operator.

Exercise 12. 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). 5. The (износостойкость и мощность двигателя) of tractors made them very (пригодные для инженерных работ). 6. The (сельскохозяйственный трактор) is used for pulling (сельскохозяйственная техника) or trailers, for (вспашка, обработка почвы, дискование, боронование), planting, and similar tasks.

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

Буксировка сельскохозяйственной техники, сельскохозяйственный трактор, орошение участка земли, разрабатывать для определенных целей, регулируемая ширина колеи, проходить по рядам кукурузы, не раздавливая растения, фиксированные колеса, тяжелая полевая работа, износоустойчивость трактора, отвалы бульдозера и ковши, распространенное дополнительное оборудование, погрузочное оборудование, рытье ям, дробление асфальта и мощение дороги, убирающееся дно, выгружать свои грузы, предназначенный для благоустройства, а не для посадки, мощность в диапазоне от 15 до 45 л. с., навешиваемые спереди снегоочистители, делать за сезон, объединять трактор и культиватор, модели, оснащенные дизельными двигателями, фруктовый сад, более низкий общий профиль, металлический капот двигателя.

Exercise 14. State the infinitives of the given words and translate them into Russian.

Pulling, passing, breaking, cultivating, developed, harvested, designed, construction, cultivation, demolition, available, retractable, adjustable, assembly, loader, arrestor, tractor, cultivator, blower, clearance.

Exercise 15. Read and translate the text into Russian in written.

Fire Safety Requirements

1. The tractor must have firefighting tools such as a shovel and a fire extinguisher. Working on the tractor without fire-fighting equipment is prohibited. 2. The tractor park sites, fuel and lubricant storage places must have a surrounding plowed strip with a width of 3 m min. and be provided with firefighting means. 3. Avoid contamination of the manifold and silencer with dust, fuel, straw, etc. 4. Do not allow straw to be taken up by rotating parts of the machines attached to the tractor. 5. When rinsing parts and assemblies with kerosene or gasoline, take precautions to exclude ignition of vapors of the rinsing fluid. 6. Do not operate the tractor in places of high fire hazard with the hood and other protective devices removed from hot parts of the engine. 7. Do not use open fire to heat up oil in the diesel engine pan, to burn out contamination of the radiator core. 8. If there appears a seat of fire, dump sand over it, cover with tarpaulin, sackcloth or any other dense cloth. Use a carbon-dioxide fire extinguisher. Do not extinguish burning fuel with water. 9. When the engine is running, keep inflammable materials away from the exhaust manifold and muffler. 10. When making hay and straw or working in places with high fire hazard, use spark arresters in the exhaust system complete with a silencer or separated from it.

Unit 16

CRAWLER TRACTOR

Словообразование

Приставки ***in-***, ***il-***, ***im-***, ***ir-***, прибавляемые к прилагательным, образуют прилагательные с отрицательным значением:

visible (видимый) – **in**visible (невидимый);

logical (логический) – **il**logical (нелогичный);

moral (моральный) – **im**moral (аморальный);

resistible (отразимый) – **ir**resistible (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 **un**fasten (откреплять);

suitable (подходящий) – **un**suitable (неподходящий);

truth (правда) – **un**truth (неправда).

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

Model: to coil – to uncoil

To saddle, to settle, to load, to dress, to bind, changed, explored, kind, clean, fair, just, true, certain, amusing, safe, reasonable, bearable, lawful.

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 **is shown** every day. **Is** the film **shown** every day? The film **is not shown** every day.	The film **was shown** yesterday. **Was** the film **shown** yesterday? The film **was not shown** yesterday.	The film **will be shown** tomorrow. **Will** the film **be shown** tomorrow? The film **will not be shown** tomorrow.
Continuous	The film **is being shown** now. **Is** the film **being shown** now? The film **is not being shown** now.	The film **was being shown** at 5 yesterday. **Was** the film **being shown** at 5 yesterday? The film **was not being shown** at 5 yesterday.	

Perfect	The film **has** just **been shown**. **Has** the film **been shown**? The film **has not** been **shown** yet.	The film **had been shown** by 5 o'clock. **Had** the film **been shown** by 5 o'clock? The film **had not** been **shown** by 5 o'clock.	The film **will have been shown** by 5 o'clock. **Will** the film **have been shown** by 5 o'clock? The film **will** not **have been shown** 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 + III форма глагола**:

These books *are used* for work. – Эти книги *используются* для работы.

The office *is cleaned* every day. – Офис *убирается* каждый день.

2. ***Present Continuous Passive*** (настоящее длительное время) в пассивном залоге образуется по формуле: **am/is/are being + III форма глагола**:

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*.

3. ***Present Perfect Passive*** (настоящее совершенное время) в пассивном залоге образуется по формуле: **have/has been + III форма глагола**:

This coffee *has* just *been made*, help yourself. – Кофе только что *был приготовлен*, угощайтесь.

The presents *have* already *been bought.* – Подарки уже *куплены*.

4. ***Past Indefinite Passive*** (прошедшее неопределенное время) в пассивном залоге образуется по формуле: **was/were + III форма глагола**:

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.

5. ***Past Continuous Passive*** (прошедшее длительное время) в пассивном залоге образуется по формуле: **was/were being + III форма глагола**:

At six o'clock a story *was being told*. – В шесть часов историю *рассказывали*.

They *were being watched* carefully. – *За* ними внимательно *наблюдали*;

6. ***Past Perfect Passive*** (прошедшее совершенное время) в пассивном залоге образуется по формуле: **had been + III форма глагола**:

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;

7. ***Future Indefinite Passive*** (будущее неопределенное время) в пассивном залоге образуется по формуле: **shall/will be + III форма глагола**:

The car *will be repaired* tomorrow. – Автомобиль *будет отремонтирован* завтра.

The article *will be written* next week. – Статья *будет написана* на следующей неделе;

8. ***Future Perfect Passive*** (будущее совершенное время) в пассивном залоге образуется по формуле: **shall/will have been + III форма глагола**:

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 *переводят**ся*** 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 following sentences into Russian.

1. A new house is being built here. 2. The proposal is being heatedly discussed for an hour. 3. This copy had not been read by Monday. 4. She was given a clock. 5. His name was not mentioned at the meeting. 6. The work has not been done yet. 7. The books will have been returned to the library by next Saturday. 8. You are not allowed to smoke here. 9. The girl

wasn't allowed to go to the concert. 10. They were not invited to the party. 11. The letter has been sent off. 12. The tape-recorder is already repaired. 13. The letter must be answered at once.

Exercise 4. Put the following sentences into the Present Indefinite Passive.

1. Ice hockey (play) in Canada. 2. The earned money (keep) in the safe. 3. Chicken sandwiches (make) for children. 4. The washing-machine (use) every day. 5. All his holidays (spend) in the countryside.

Exercise 5. Put the following sentences into the Past Indefinite Passive.

1. The monuments (ruin) in 1943. 2. A big bunch of flowers (send) for her birthday. 3. The novel "War and peace" (write) by Leo Tolstoy. 4. The famous painting "Sunflowers" (paint) by Van Gogh. 5. The coats (leave) in the wardrobe.

Exercise 6. Put the following sentences into the Present Perfect Passive.

1. He (arrest) after a fight in a nightclub. 2. My son (award) the Medal of courage. 3. Your tea and biscuits (serve). 4. Thousands of new cars (manufacture) this year. 5. Our flight (delay).

Exercise 7. Use the following sentences in the Passive Voice according to the model given.

Model: Shakespeare *wrote* "Romeo and Juliet". – "Romeo and Juliet" *was written* by Shakespeare.

1. Popov invented radio in Russia. 2. Every four years people elect a new president in the USA. 3. The police caught a bank robber an hour ago. 3. Sorry, we don't allow dogs in our safari park. 4. The postman will leave my letter by the door. 5. My mum has made a delicious cherry pie for dinner. 6. George didn't repair my clock. 7. Wait a little, my neighbor is telling an interesting story. 8. My son can write some more articles about football.

Exercise 8. Put the following sentences in the Passive Voice

1. Nobody has used this room for ages. 2. We will give you the keys tomorrow. 3. Someone is interviewing Dr. Johnson at the moment. 4. By the time I arrived, someone had already opened all your letters. 5. We talk about the problems at dinner. 6. Mary had not switched the light off by the time we came. 7. The students will have translated article into English before the teacher returns. 8. Tom has told his wife everything.

Exercise 9. Put the following sentences in the Passive Voice paying attention to the preposition.

Model: We often speak *about* her. – She is often spoken *about*.

1. We thought about our friend all the time. 2. The doctor will operate on him in a week. 3. The teacher sent for the pupil's parents. 4. They have looked for the newspaper everywhere. 5. Nobody is sleeping in the bed. 6. The neighbour has asked for the telegram. 7. Everybody listened to the lecturer with great attention. 8. The senior students laughed at the freshman. 9. The group spoke to the headmistress yesterday. 10. The young mothers will look after their babies with great care. 11. They have sent for Jim.

Exercise 10. Translate the following sentences.

1. You are to stay at the table until you finish your lunch. 2. The ship is to dock at noon. 3. She is not to enter our house. 4. The government was to have reduced inflation. 5. The Prime-minister is to visit Canada. 6. You are to give up smoking. 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. Sam is to phone after dinner.

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 [rɪʧ sɔɪl] – плодородная почва
exert force [ɪg'zɜ:t fɔ:s] – прилагать силу
tracked vehicle [trækt 'vɪəkl] – гусеничное транспортное средство
segment ['segmənt] – сегмент, звеньев
roller ['rəulə] – каток
sink [sɪŋk] – увязать, застревать
continuous track [kən'tɪnjuəs træk] – замкнутая сплошная лента
compact [ˌkəm'pækt] – уплотнять
conceive [kən'si:v] – задумывать, замышлять
monumental [ˌmɔnju'mentəl] – важный
modular-chain link ['mɔdjələʧeɪn lɪŋk] – звенья блочно-модульной цепи
enclosed [ɪn'kləuzd] – замкнутый
manganese alloy steel ['mæŋgəni:z 'ælɔɪ sti:l] – марганцевый сплав
durability [ˌdjuərə'bɪlətɪ] – износоустойчивость
track roller [træk 'rəulə] – опорный каток гусеницы
set to ['set tu:] – прижимать
cushion ['kuʃən] – смягчать
toothed drive wheel [tu:θt'draɪv wi:l] – зубчатое ведущее колесо
drive sprocket ['draɪv 'sprɔkɪt] – ведущая звёздочка

hole [həul] – вырез
link [lɪŋk] – звено
non-powered wheel [nɔn'pauəd wi:l] – неведущее колесо
idler ['aɪdlə] – ленивец
chevron tread ['ʃevrən tred] – протектор елочкой
tension ['tenʃən] – натяжение
rather than ['rɑ:ðəðæn] – вместо
steering ['stɪərɪŋ] – управление направлением движения
steering wheel ['stɪərɪŋˌwi:l] – рулевое колесо
planetary differential ['plænɪtərɪ ˌdɪfə'renʃəl] – планетарный дифференциал
transmission pinion [trænz'mɪʃən 'pɪnjən] – малая шестерня трансмиссии
bevel gear ['bevəlˌgɪə] – коническая зубчатая передача
dual differential ['dju:əlˌdɪfə'renʃəl] – двойной дифференциал
uninterrupted [ʌnˌɪntər'ʌptɪd] – непрерывный
final drive ['faɪnəl draɪv] – конечная передача, последнее звено привода
outboard ['autbɔ:d] – внешний
inboard [ˌɪn'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 ['mʌltɪʃæŋk 'rɪpə] – многозубый рыхлитель
dozer blade ['dəuzə bleɪd] – отвал бульдозера
crawler loader ['krɔ:lə 'ləudə] – гусеничный погрузчик

Exercise 12. Read and translate the following text.

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.

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. Rather than 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.

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.

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. Read and translate the given words and state their parts of speech.

Enabling, sinking, safely, tracked, supported, continuous, conceived, reworked, designer, monumental, compaction, disadvantage, wheeled, complexity, durability, suspension, difference, non-powered, smoothly, agricultural, differential, planetary, transmission, uninterrupted, outboard, inboard, tighter, attachment, toothed, especially, transmitting.

Exercise 14. Find the Russian equivalents for the following English words and word combinations.

1) loading equipment	a) превосходное сцепление
2) spread weight	b) постоянный привод
3) lay out flat	c) грунтовое давление
4) wheeled vehicle	d) марганцевый сплав
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
10). superior traction	j) погрузочное оборудование

Exercise 15. Translate the following words and word combinations into Russian.

Move on tracks instead of wheels, exert force per unit area, traverse over moist ground, at the front, at the back, be supported by rollers, be conceived and built, modern crawler tractor, compact the soil, suffer from compaction, complexity of the tracks, expense in repair, increase strength and durability, mount on suspension, toothed drive wheel, holes in the track links, both ends of the tracks, rubber tracks, linked steel plates, reinforced rubber belt, less maximal ground pressure, damage paved road, 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 16. Find in B the English equivalents to the Russian words in A.

A	***B***
1) распределять	a) compact; b) adapted; c) spread.
2) проезжать	a) create; b) traverse; c) increase.
3) колесный	a) wheeled; b) paved; c) supported.
4) сельское хозяйство	a) turning; b) farming; c) steering.
5) производитель	a) designer; b) loader; c) manufacturer.
6) прямо	a) straight; b) tight; c) equipment.

7) разнообразный	a) reworked; b) segment; c) different.
8) везде	a) throughout; b) between; c) broad.
9) напряжение	a) traction; b) pressure; c) tension.
10) благополучно	a) instead; b) mainly; c) safely.

Exercise 17. Put each word in the correct blank.

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 18. Translate the following words and word combinations into English.

Вес транспортного средства, единица площади на грунте, между передней и задней частью, корректировать и перерабатывать конструкцию, современный гусеничный трактор, что касается преимуществ, значимо для сельского хозяйства, недостатки транспортного средства, расходы на ремонт, зубчатое ведущее колесо, двигаться ровно, армированная резиновая лента, по сравнению со стальными траками, создавать меньше шума, дорога с покрытием, основная разница заключается в рулевом управлении, планетарный дифференциал, ускорять одну гусеницу, коническая зубчатая передача, малая шестерня трансмиссии, двойной дифференциал, непрерывный привод, последнее звено привода, обеспечивать меньший радиус разворота, различные строительные транспортные средства, однозубый рыхлитель.

Exercise 19. 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 …
8. This keeps it from sinking in areas …
9. While turning, power is shifted …

a) … remains the same throughout the turn.
b) … large objects from the ground or to loosen soils.
c) … they are not as solid as steel tracks.
d) … where the soil suffers from compaction.
e) … vehicle utilizes a planetary differential.
f) … manganese alloy steel to increase strength and durability.
g) … mounted to the rear of the vehicle.
h) … where wheeled vehicles of the same weight would sink.
i) … to the outboard track speeding it up.

Exercise 20. 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) – eat**able** (съедобный);
to resist (противостоять) – resist**ible** (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 (материал) – to material**ize** (осуществлять)

summary (краткая сводка) – to summar**ize** (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.

Mother *will tell* me what I *will have* to do. – Мать *скажет* мне, что мне *придётся* сделать.

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 дополнительного придаточного предложения тоже *должно* стоять в одном из прошедших времен. Данные правила также соблюдаются при переводе прямой речи в косвенную речь:

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 *goes* to the cinema. – Ник *говорит*, он *ходит* в кино.

Nick *said* that he *went* to the cinema. Ник *сказал*, он *ходил* 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 *читала* 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 *did* 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. 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. She 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 4. 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 at school. 10. We didn't expect that he … (showed/will show/would show) us the film.

Exercise 5. Read and memorize the following words and word combinations.

torque [tɔːk] – вращающий момент, крутящий момент
drive wheel [draɪv wiːl] – ведущее колесо
transmission system [trænz'mɪʃən 'sɪstəm] – трансмиссия
drive [draɪv] – привод
disengaged [ˌdɪsɪn'geɪʤd] – выведенный из зацепления, разомкнутый
gear down ['gɪədaun] – снижать скорость
sprocket ['sprɔkɪt] – звёздочка
right angle ['raɪtˌæŋgl] – прямой угол
clutch [klʌʧ] – сцепление
gearbox ['gɪəbɔks] – коробка передач
plate [pleɪt] – диск сцепления
gripping surface ['grɪpɪŋ 'sɜːfɪs] – поверхность сцепления

key [kiː] – заклинивать, закреплять (*при помощи шпонки*)
input shaft ['ɪnput ʃɑːft] – ведущий вал
clamp [klæmp] – зажимать
rearmost ['rɪəməust] – самый задний
hold off ['həuldɔf] – отводить
multi plate clutche ['mʌltɪpleɪtˌklʌʧ] – многодисковое сцепление
alternately [ɔːl'tɜːnətlɪ] – поочерёдно
gearbox output ['gɪəbɔks 'autput] – выводной вал коробки передач
straight shafting [streɪt 'ʃɑːftɪŋ] – линия валов, трансмиссионная передача
rear axle [rɪə 'æksl] – задний мост, задняя ось
slip [slɪp] – проскальзывать, буксовать
final drive ['faɪnəl draɪv] – главная передача
bulky ['bʌlkɪ] – большой, объемный
power take-off ['pauə 'teɪkɔf] – отбора мощности
spline [splʌɪn] – шлиц, паз
drawbar ['drɔːbɑː] – сцепная серьга, брус автосцепки
pin [pɪn] – штырь, палец
loop [luːp] – петля
clevis ['klevɪs] – скоба
swinging drawbar ['swɪŋɪŋ 'drɔːbɑː] – маятниковое сцепное приспособление
offset ['ɔfset] – смещенный
arm [ɑːm] – рычаг
three-point hitch ['θriːpɔɪntˌhɪʧ] – трёхточечное навесное устройство
attaching point [ə'tæʧɪŋˌpɔɪnt] – место крепления
lifting arm ['lɪftɪŋˌɑːm] – подъёмный рычаг
stabilizer ['steɪbəlaɪzə] – стабилизатор
tilting [tɪltɪŋ] – качание
top link ['tɔplɪŋk] – центральная тяга
attachment device [ə'tæʧmənt dɪ'vaɪs] – крепежное приспособление
post [pəust] – супорт

Exercise 6. Read and translate the following text.

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°.

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 cutch 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.

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.

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 be 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.

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 7. 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 kept in mind while designing the transmission components?
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 8. Make up word combinations using the text and translate them.

1) give the required	a) to the hitch
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
10) connect implements	j) wheel or sprocket speeds

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

Sequence of gears and shafts, tractor drive wheels, 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, gear-

box input shaft, rearmost gripping surface, straight shafting to a differential, ends of the rear axles, allow the tractor to turn, 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 10. Match the synonyms from line A and B.

A) transmit, function, engine, drive, strong, fitted, permit, rotate, incidentally, component, implement, compose.

B) consist, tool, part, allow, by the way, motor, transfer, power, sturdy, revolve, purpose, equipped.

Exercise 11. Read and translate the given words and state their parts of speech.

Transmission, specification, component, straight, whereby, through, temporarily, alternately, incidentally, movable, differential, faster, rearmost, hydraulic, movement, input, output, wheeled, disengaged, attached, disengaging, shafting, to rotate, therefore, namely, forward.

Exercise 12. Translate the expressions into Russian paying attention to the prepositions.

Functions *of* the system, ratio *of* sprocket speed, right angle *at* 90°, cutch 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, connected *to* an implement, speed *of* the shaft, attached *with* a pin, equipped *with* a swinging drawbar, be set *at* the center, orientation *of* the implement, *on* the ends *of* the posts

Exercise 13. Find the odd words in the sentences and change them for correct ones.

1. One of the functions of the transmission system is to transmit the drive from the crankshaft to the wheel axles through an angle of 80°. 2. The plate is keyed to a shaft which drives the transmission, that is, in practice, the differential input shaft. 3. The tractor driving wheels are on the ends of the rear axles and the purpose of the gearbox is to permit one of them to rotate faster than the other. 4. The purpose of the final drive in the transmission system is to store power, that is, torque and speed. 5. The implement can be with difficulty attached and removed, allowing the tractor to be used for other purposes on a daily basis. 6. The top link is movable, but is usually actuated by the tractor's hydraulic system.

Exercise 14. 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 (дифференциал) is therefore included in the (трансмиссия) to allow the tractor (поворачиваться) and, incidentally, it also (позволяет одному колесу скользить больше, чем другому). 4. The (назначение главной передачи) in the transmission system is (передавать привод), that is, (крутящий момент) and (скорость). 5. The PTO (может быть подсоединен к орудию) that is either towed by a (сцепной серьгой или навесной трехточечной системой).

Exercise 15. Translate the following words and word combinations into English.

Последовательность шестерен и валов, крутящий момент двигателя, ведущие колеса трактора, разъединять постоянно или временно, снижать скорость вращения коленчатого вала, передавать привод под прямым углом, привод от двигателя к трансмиссии, диапазон передаточных чисел скорости вращения коленвала, между двумя поверхностями сцепления, задняя лицевая часть маховика двигателя, диск сцепления шпоночно закреплен на валу, многодисковое сцепление трактора, в центре задней оси, быть составной частью трансмиссии, размеры и технические характеристики, в зависимости от нагрузки, вал имеет 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, гидросистема трактора, обеспечивать подъем и опускание, соединительное устройство.

Unit 18

ENGINE

Словообразование

Суффикс ***-ate***, прибавляемый к существительным и к прилагательным образует глаголы:

active (активный) – to activ**ate** (активизировать);

oxygen (кислород) – to oxygen**ate** (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 black**en** (чернеть);

height (высота) – to height**en** (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.

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.

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

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. They will all 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 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 she had had a car she … (drive) there. 10. You wouldn't have got wet if you … (put on) your mackintosh.

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

reciprocating [rɪ'sɪprəkeɪtɪŋ] – возвратно-поступательный, поршневой

engine block ['enʤɪn blɔk] – блок двигателя, блок цилиндров

cast [kɑ:st] – литой, отлитый

straight engine [streɪt 'enʤɪn] – однорядный двигатель

boxer engine ['bɔksə 'enʤɪn] – оппозитный двигатель

V-engine [vi:'enʤɪn] – двигатель с v-образным расположением цилиндров

occasionally [ə'keɪʒənəlɪ] – иногда

W-engine ['dʌblju: 'enʤɪn] – трёхрядный индукторный двигатель

water-cooled ['wɔ:təku:ld] – с водяным охлаждением,

water jacket ['wɔ:tə¸ʤækɪt] – водяная рубашка

air-cooled ['eəku:ld] – с воздушным охлаждением

fin [fɪn] – ребро, пластина (*цилиндра, радиатора*)

protrude away [prə'tru:d ə'weɪ] – выступать

slide [slaɪd] – зд. двигаться

head [hed] – головка цилиндра

concave [kɔŋ'keɪv] – вогнутый

deflector head [dɪ'flektə¸hed] – поршень с отражателем для свежего заряда (порции) топлива

gudgeon pin ['gʌʤən¸pɪn] – поршневой палец

exert force [ɪg'zɜ:t fɔ:s] – прилагать силу

circumference [sə'kʌmfərəns] – окружность
crankcase ['kræŋkˌkeɪs] – картер двигателя
cylinder head ['sɪlɪndəˌhed] – головка цилиндра
stud [stʌd] – шпилька
exhaust duct [ɪg'zɔ:st dʌkt] – вытяжной канал
intake duct ['ɪnteɪk dʌkt] – приточный канал
opposite ['ɔpəzɪt] – расположенный, находящийся напротив
spark plug ['spɑ:kˌplʌg] – свеча зажигания
SI engine ['esaɪ 'enʤɪn] – двигатель с искровым зажиганием
injector [ɪn'ʤektə] – инжектор, форсунка
CI engine ['si:aɪ 'enʤɪn] – двигатель с воспламенением от сжатия, дизель
carburetor [ˌkɑ:bə'reɪtə] – карбюратор
head gasket [hed 'gæskɪt] – прокладка головки блока цилиндров
camshaft ['kæmʃɑ:ft] – распределительный вал, кулачковый вал
desmodromic mechanism [desmə'drɔmɪc 'mekənɪzəm] – десмодромный газораспределительный механизм
stem [stem] – шток
rocker arm ['rɔkə ɑ:m] – коромысло клапана (*в двигателе*)
pushrod ['puʃrɔd] – толкатель клапана
crankcase ['kræŋkˌkeɪs] – картер двигателя
sump [sʌmp] – маслосборник
cavity ['kævətɪ] – пространство
main bearing [meɪn 'beərɪŋ] – коренной подшипник
bulkhead ['bʌlkhed] – перегородка
detachable cap [dɪ'tæʧəbl 'kæp] – съёмная крышка
connecting rod [kə'nektɪŋˌrɔd] – тяга, шатун
offset ['ɔfset] – смещенный
small end ['smɔ:lˌend] – верхняя головка шатуна
detachable half [dɪ'tæʧəbl hɑ:f] – съёмная половина
removable bolt [rɪ'mu:vəbl bəult] – съемный болт
big end ['bɪgˌend] – нижняя головка шатуна
exhaust manifold [ɪg'zɔ:st 'mænɪfəuld] – выпускной коллектор
intake manifold ['ɪnteɪk 'mænɪfəuld] – впускной коллектор
port [pɔ:t] – отверстие, проход
catalytic converter [ˌkætə'lɪtɪk kən'vɜ:tə] – каталитический дожигатель выхлопных газов
muffler ['mʌflə] – глушитель
tailpipe ['teɪlpaɪp] – выхлопная труба

Exercise 7. Read and translate the following text.

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.

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.

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.

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.

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.

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. 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 1to 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. A head gasket prevents the gas from:

a) leaking between the piston head and the engine block;

b) leaking between the cylinder head and the engine spark plug;

c) leaking between the cylinder head and the engine block.

6. 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.

7. The big end has a detachable half to allow:

a) assembly around the camshaft;

b) assembly around the crankshaft;

c) assembly around the combustion chamber.

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

Reciprocating internal combustion engine, cast aluminium, cylinders arranged in 1 or 2 rows, contemporary engine, 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, flat or concave head, deflector head, piston rings, numerous bolts or studs, indirect injection, short intake and exhaust ducts, intake valve, exhaust valve, combustion gases, single spark plug, direct injection, carburetor, head gasket, opening and closing of the valve, several camshafts, stem of the valve, rocker arm, sump, reciprocating motion, connecting rod, offset section of the crankshaft, reciprocating motion, circular motion, detachable half, removable bolt, air filter, exhaust system.

Exercise 10. Translate the words and word combination in brackets into English.

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). 5. Bulkheads in the (картер двигателя) form (половину каждого коренного подшипника); the other half is a detachable cap. 6. The (впускной коллектор) connects to the (воздушный фильтр) directly, or to (карбюратор) when one is present, (который затем подсоединен) to the air filter.

Exercise 11. Match the words with their definitions.

1) tailpipe	a) the process of burning something.
2) carburetor	b) a piston chamber in a motor.
3) crankshaft	c) the force exerted on or against an object.
4) valve	d) a ring-shaped or circular object.
5) bolt	e) a cylinder moving up and down in an engine.
6) piston	f) a threaded pin that screws into a nut.
7) ring	g) a device for controlling the passage of fluid.
8) pressure	h) a shaft driven by a crank.
9) cylinder	i) a device for mixing air with liquid fuel.
10) combustion	j) the rear section of the exhaust pipe of a vehicle

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

Блок цилиндров, производить из литого алюминия, водяная рубашка, располагать цилиндры в один, два и три ряда, оппозитный двигатель, современный двигатель, однорядный двигатель, двухтактный двигатель, охлаждающая жидкость, давление газа в камере сгорания, днище поршня, прилагать силу на днище поршня, давление передается на поршневой палец, окружность поршня, предотвратить утечку газов, система вентиляции, улетучиваться после работы поршня, создавать загрязнение, приточный канал, многочисленные болты и шпильки, на противоположной стороне, вытяжной канал, прямой впрыск, две свечи зажигания на один цилиндр, кулачковые валы и пружины, шток клапана, толкатель клапана, собирать падающее масло, преобразовывать возвратно-поступательное движение поршня, коренной подшипник, впускной коллектор, путь отработавших газов.

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

A	***B***
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) непрямой	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 14. 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?

Unit 19

DIESEL ENGINE

Словообразование

Суффикс ***-ics***, прибавляемый к существительным, образует слова, обозначающие название наук:

linguist (лингвист) – linguist**ics** (лингвистика).

Exercise 1. Translate the following nouns into Russian.

Strategics, aeronautics, ballistics, diplomatics, physics, dynamics, mathematics, pedagogics, dialectics, kinematics, automatics, mechanics.

Суффикс ***-dom***, прибавляемый к существительным и к прилагательным, образует существительные, указывающие на состояние или собирательность:

bore (скучный человек) – bore**dom** (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 чис-

ло. 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 **to help** her friend. Мери (*всегда*) рада помочь своей подруге.
Indefinite Passive	Mary is (*always*) glad **to be helped**. Мери (*всегда*) рада, когда ей помогают.
Continuous Active	Mary is glad **to be helping** her friend *now*. Мери рада, помогает своей подруге *сейчас*.
Perfect Active	Mary is glad **to have helped** her friend. Мери рада, что помогла своей подруге.
Perfect Passive	Mary is glad **to have been helped**. 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;

3) *часть составного глагольного сказуемого*:

a) в сочетании с модальными глаголами:

He *can speak* English. – Он *говорит* по-английски;

b) в сочетании со многими другими глаголами, которые без инфинитива не передают полного смысла. К числу таких глаголов относятся: **to begin** – *начинать*, **to continue** – *продолжать*, **to like** – *любить*, **to want** – *хотеть*, **to intend** – *намереваться*, **to try** – *стараться*, **to hope** – *надеяться*, **to promise** – *обещать*, **to decide** – решать и др.:

I *hope to see* him soon. – Я *надеюсь увидеть* его скоро;

c) в сочетании с *прилагательными* с глаголом-связкой:

I am *happy to hear* it. – Я *счастлив слышать* это;

4) *прямое дополнение*:

I told him *to go* there. – Я сказал ему *идти* туда;

5) *определение*:

a) после *существительных*

I have no *desire to go* there. – У меня нет *желания идти* туда;

b) 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;

c) инфинитив в функции определения употребляется также для указания назначения предмета:

He brought me *a book to read*. – Он купил мне *книгу для чтения*;

6) инфинитив употребляется в функции *обстоятельства*:

a) для выражения *цели*:

I went there *to watch* the sunrise. – Я пошел туда, чтобы *посмотреть* на восход;

b) для выражения *следствия* (со словами **too**, **enough**):

It is *too* cold *to bathe* today. – Сегодня *слишком* холодно, чтобы *купаться*.

Tom is old *enough to merry*. – Том *достаточно* взрослый, чтобы *жениться*;

c) 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.

Exercise 4. Translate the following sentences into Russian and state the Infinitive functions.

1. She forgot to lock the door. 2. He refused to help them. 3. She seemed to like her job. 4. I want to go home. 5. He asked her to speak slowly. 5. Sue helped me to wash the windows. 6. She reminded him to buy cheese. 7. She is afraid to go there alone. 8. We are ready to start. 9. You were lucky to find that book. 10. She was reluctant to go. 11. He is eager to be invited to the show. 12. Can you give me a book to read? 13. I have a lot of work to do today. 14. Give him something to eat. 15. I have no intention to work there anymore. 16. To find him was difficult. 17. To know the rules is necessary. 18. To ask him for help was a mistake. 19. It is necessary to know the rules. 20. It was difficult to find him. 21. It was important for Victor to be present at the meeting. 22. It is difficult for him to live alone. 23. He went to London in order to study English. 24. She came here to study. 25. She is old enough to understand it. 26. He did it to help her. 27. Press Enter to start the installation. 28. I was too tired to notice it.

Exercise 5. Read and memorize the following words and word combinations.

aftercool ['ɑːftəkul] – доохладить наддувочный воздух

turbocharge [ˈtəːbəʊʧɑːʤ] – производить наддув

intermittent [ˌɪntə'mɪt(ə)nt] – прерывистый

compression ratio [kəm'preʃən 'reɪʃɪəu] – степень сжатия

supplemental [ˌsʌplɪ'mentəl] – дополнительный

constant-volume process ['kɔnstənt 'vɔljuːm 'prəuses] – изохорический процесс

top dead centre ['tɔpded 'sentə] – верхняя мёртвая точка

power output ['pauə 'autput] – выходная мощность

after-cooler ['ɑːftəkulə] – доохладитель

power capacity ['pauə kə'pæsətɪ] – мощность

heavy-duty truck ['hevɪ'djuːtɪ trʌk] – грузовой автомобиль большой грузоподъёмности

in excess of [ɪnɪk'ses ɔv] – свыше

marine [mə'riːn] – морской флот, транспорт

revolution [revə'luːʃən] – оборот

critical ['krɪtɪkəl] – важный

pre-combustion chamber [priːkəm'bʌsʧən 'ʧeɪmbə] – предкамера

pre-chamber [priː'ʧeɪmbə] – предкамера

orifice ['ɔrɪfɪs] – отверстие

combustion cup [kəm'bʌsʧən kʌp] – чашка сгорания

fuel line [fjuːəl laɪn] – топливопровод
consistent [kən'sɪstənt] – последовательный

Exercise 6. Read and translate the following text.

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.

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.

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.

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 oper-

ate 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.

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. Are the medium diesel engines so important for human activity? 7. The large diesel engines can perform very heavy operations, can't it? 8. 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, air temperature, supplemental heating, chemical energy, outstanding feature, enhance performance, 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, reliability and durability, mechanical and electronic injection system, indirect injection configuration, narrow air passage, better air/fuel mixing, engine's smoother and quieter running, single orifice injector, combustion cup, high-pressure fuel line.

Exercise 9. Find the odd words in the sentences and change them for the correct ones.

1. The air must be heated to a temperature lower than the temperature at which the injected fuel can ignite.

2. It converts the chemical energy stored in the air into mechanical energy.

3. At first the fuel is burned in a nearly constant-volume process while the piston is near bottom dead centre.

4. The small engines have power-output values of more than 188 kilowatts or 252 horsepower.

5. They may operate at as low as 500 revolutions per second when reliability and durability are critical.

6. Generally the goal of the pre-chamber is to create less turbulence for better air/fuel mixing.

7. In this system the injector and the pump are combined into one unit positioned below each cylinder controlled by the camshaft.

Exercise 10. 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 11. Translate the following words and word combinations into English.

Двигатель с воспламенением от сжатия, воздух, нагретый сжатием, нагреть до температуры, температура воздуха обычно выше 526 °C, преобразовывать химическую энергию, самая выдающаяся конструктивная особенность, двигатель с турбонагнетателем и доохладителем, увеличить коэффициент полезного действия дизельного двигателя, системы впрыска топлива, на основе четырехтактного цикла, степень сжатия в диапазоне от 14:1 до 22:1, весь процесс сгорания, верхняя мертвая точка, три группы дизельных двигателей, значение выходной мощности, механический привод, стационарные электрические генераторы, работать со скоростью вращения коленвала в 500 оборотов в минуту, система непрямого впрыска, узкий воздушный канал, большая

мощность и более легкий старт, форсунка и насос объединены в один агрегат, топливопровод высокого давления.

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

A	***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 13. Agree or disagree with the following statements beginning with:

Of course, I agree with this statement because …

I disagree entirely because according to 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 14. Read the following text and translate it into Russian in written.

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*) were mounted.

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.

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.

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 залоге*. На русский язык данный оборот переводится сложноподчиненным предложением с вводными словами (*известно, что; по-видимому* и др.)

Существительное или личное местоимение	+	глагол-сказуемое	+	инфинитив
Tom		is said		to be ill.
Mike		is seen		to enter the house.
He		turned out		to be a tourist

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* он 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* поют птички 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. Ted was known to be a clever and hard-working student. 14. The number of the unemployed is reported to have increased. 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.

Exercise 2. Change the complex sentences for the simple ones using the Complex Subject according to the model.

Model: It is said that he is an Olympic champion. –

He is said to be an Olympic champion.

1. It is said that she is a good doctor. 2. It is known that they are good friends. 3. It is reported that the expedition will arrive in two days. 4. It is known that this library has a big collection of manuscripts. 5. It is expected that our pupils will have new computers this year. 6. It was heard that the film was a great success. 7. It was seen that the car stopped near the house. 8. It was expected that the document would be signed next week. 9. It is believed that our team will be the winner. 10. It is an-nounced that the new law will be published in some newspapers. 11. People consider the climate there to be very good. 12. It is said that the book is very popular with young people. 13. It seems that the students know the subject well. 14. It so happened that I was present at the opening session. 15. The young engineers are reported to have participated in the ceremony of opening a new department of the research laboratory.

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, us, you, them) и *инфинитива* и употребляется лишь после глаголов, выражающих желание, восприятие, предположение, приказание, просьбу.

1		2		3		4
Подлежащее	+	Сказуемое	+	оборот «сложное дополнение»	+	второстепенные члены предложения
She		wanted		them to read		that book

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 me clean my room.

Exercise 4. Read and memorize the following words and word combinations.

volatile fuel ['vɔlətaɪl] [fju:əl] – летучее горючее, легкоиспаряющееся топливо

pre-mix [pri:'mɪks] – предварительно смешивать

carburetor [ˌkɑ:bə'reɪtə] – карбюратор

cylinder arrangement ['sɪlɪndə ə'reɪnʤmənt] – расположение цилиндров

in-line [ɪn'laɪn] – в один ряд

V-engine [vi:'enʤɪn] – двигатель с v-образным расположением цилиндров

W-engine ['dʌblju: 'enʤɪn] – трёхрядный индукторный двигатель

radial engine ['reɪdɪəl 'enʤɪn] – двигатель со звездообразно расположенными цилиндрами

single ring ['sɪŋgl rɪŋ] – одинарный кольцевой ряд

stroke [strəuk] – такт

high voltage current [haɪ 'vəultɪʤ 'kʌrənt] – ток высокого напряжения

magneto [mæg'ni:təu] – магнето, индукто

ignition coil [ɪg'nɪʃən kɔɪl] – катушка зажигания

ignition timing [ɪg'nɪʃən 'taɪmɪŋ] – регулирование момента зажигания (*в двигателях внутреннего сгорания*)

Engine Control Unit ['enʤɪn kən'trəul 'ju:nɪt] – блок управления двигателем

radiator ['reɪdɪeɪtə] – радиатор

coolant ['ku:lənt] – охлаждающая жидкость, смазочно-охлаждающая эмульсия

ethylene glycol [ˈɛθɪli:nˈglʌɪkɔl] – этиленгликоль

propylene glycol ['prəupɪˌli:nˈglʌɪkɔl] пропиленгликоль

freezing point ['fri:zɪŋˌpɔɪnt] – точка замерзания

boiling point ['bɔɪlɪŋˌpɔɪnt] – точка кипения

antifreeze ['æntɪfri:z] – антифриз

water pump seal ['wɔ:təpʌmpˌsi:l] – уплотнение водяного насоса

cooling system ['ku:lɪŋ 'sɪstəm] – система охлаждения

intake valve ['ɪnteɪkˌvælv] – впускной вентиль

intake stroke ['ɪnteɪkˌstrəuk] – такт впуска

contingent [kən'tɪndʒənt] – зависящий от

compression stroke [kəm'preʃənˌstrəuk] – такт сжатия

charge [ʧɑ:ʤ] – загрузочная доза топлива

power stroke ['pauəˌstrəuk] – рабочий ход (*двигателя*)

exhaust valve [ɪg'zɔ:stˌvælv] – выпускной клапан

fuel management [fju:əl 'mænɪʤmənt] – управление расходом топлива

rotor arrangement ['rəutə ə'reɪnʤmənt] – конструкция ротора

drag racing [dræg 'reɪsɪŋ] – драг-рейсинг (*парные линейные гонки на ускорение*)

nitromethane [ˌnaɪtrəu'mi:θeɪn] – нитрометан

other than ['ʌðəˌðæn] – помимо

Exercise 5. Read and translate the following text.

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.

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.

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.

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.

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 the petrol engines be grouped?

Exercise 7. Translate the following words and word combinations into English.

Бензиновый двигатель, искровое зажигание, летучее топливо, прямой впрыск бензина в цилиндр, карбюратор, контролировать с помощью электронного устройства, смешивание топлива с воздухом, начинать процесс горения, транспортные средства, предназначенные для больших скоростей, двигатель со звездообразно расположенными цилиндрами, шатун, 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, более низкая точка замерзания, смазочный материал, уплотнение водяного насоса, четырехтактный бензиновый двигатель, клапан впуска, оказать давление на поршень, сжатый природный газ.

Exercise 8. Translate the words and word combination in brackets into English.

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. Because (поршни) in petrol engines (имеют такты гораздо короче) than pistons in diesel engines, typically (уходит меньше времени) for a piston in a petrol engine (завершить свой такт) than a piston in a diesel engine.

4. In (современные автомобильные двигатели) the (регулирование момента зажигания) is managed by an electronic Engine Control Unit.

5. (Эти смеси) have lower freezing points and (более высокие точки кипения) than pure water and also (предотвращают коррозию), with modern antifreezes also (содержат смазочные материалы) and other additives to protect water pump seals and (подшипники).

6. 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. Translate the following words and word combinations into Russian.

Method of fuel management, piston and cylinder arrangement, cooling system, run on liquefied petroleum gas, exhaust valve movement, revolutions of the crankshaft, power stroke, compression stroke, fuel mixture inside the cylinder, electric spark plugs, end of compression stroke, 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, shorter strokes, rotary and radial engines, vehicles designed for high speeds, initiate the combustion process, controlled fuel injection, fuel and air pre-mixture, petrol and similar volatile fuels, internal combustion engine with spark-ignition.

Exercise 11. 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 12. Read the text and insert the necessary propositions.

1. … a diesel engine, only air is compressed, and the fuel is injected … very hot air … the end … the compression stroke, and self-ignites. 2. As the piston ascends … a fourth and final stroke, it opens an exhaust valve where the gas byproducts … combustion are released through. 3. … the four-stroke cycle, an ignitable mixture … gas and air are drawn … an intake valve inside the cylinder. 4. Petrol engines use spark ignition and high voltage current … the spark may be provided … a magneto or an ignition coil. 5. The process differs … a diesel engine … the method … mixing the fuel and air, and … using spark plugs to initiate the combustion process. 6. … the end … the compression stroke, a charge is ignited … an electric spark generated … spark plugs.

Exercise 13. Translate the following sentences into English.

1. Бензиновые двигатели могут работать на разных видах топлива, что позволяет использовать в разных областях. 2. Бензиновые двигатели работают на основе двухтактного и четырёхтактного цикла. 3. Топливно-воздушная смесь воспламеняется внутри цилиндра с помощью электрической свечи зажигания. 4. Антифриз предотвращает замерзание охлаждающей жидкости в системе охлаждения двигателя внутреннего сгорания. 5. Блок управления двигателем обеспечивает стабильную и эффективную работу двигателя с искровым зажиганием.

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 раз-

личные 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 into Russian the following sentences.

1. She has always dreamt of living in a small house by the sea. 2. She disliked living in her old house. 3. She was thinking of buying a new one at the seaside. 4. Now, she enjoys living in a beautiful new house. 5. She misses seeing the neighbours of course. 6. Usually she enjoyed talking to them and didn't mind helping them. 7. She likes cooking and is very good at it. 8. But she doesn't like washing and ironing. 9. She hates getting up early, but she has to. 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. But she hates flying and she's never been overseas. 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. She loves talking to the press and appearing on TV shows. 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.

Exercise 2. Transform the following sentences using the Gerund.

Model: There is little hope that we will arrive in time. – There is little hope of (our) *arriving* in time.

1. I insist that we start right away.2. I have no doubts that he will keep his promise. 3. I have no doubts that he has kept his promise. 4. I was surprised that he noticed the difference. 5. She is afraid that she will lose him. 6. I was ashamed that I couldn't avoid the accident. 7. Do you mind if I smoke? 8. The boss wants you to resign. – The boss insists… . 9. She's afraid that she has drunk too much. 10. We don't want him to be promoted. – We object… . 11. He says he said nothing. He denies… . 12. Everybody must attend the meeting. You can't avoid… . 13. The old man sailed out to sea again and again. – The old man kept on… . 14. I bought a house. I didn't rent an apartment. – Instead of… . 15. Excuse me if I was rude. 16. There is no chance that he will return before midnight. 17. He went home. He hadn't finished the work.

Exercise 3. Put the infinitives in brackets in the Gerund Active or Passive.

1. Why do you avoid (to speak) to me? 2. She tried to avoid (to speak) to. 3. The doctor insisted on (to send) the sick man to hospital. 4. The child insisted on (to send) home at once. 5. Do you mind him (to examine) by a heart specialist? 6. He showed no sign of (to recognize) me. 7. She showed no sign of (to surprise). 8. He had a strange habit of (to interfere) in other people's business. 9. I was angry at (to interrupt) every other moment. 10. He was always ready for (to help) people. 11. He was very glad of (to help) in his difficulty. 12. On (to allow) to leave the room the children immediately ran out into the yard and began (to play). 13. In (to make) this experiment they came across some very interesting phenomena. 14. The results of the experiment must be checked and re-checked before (to publish).

Exercise 4. Read and memorize the following words and word combinations.

cooling system ['kuːlɪŋ 'sɪstəm] – система охлаждения
melting point ['meltɪŋ 'pɔɪnt] – точка плавления
warp [wɔːp] – деформироваться
break down ['breɪk'daun] – разрушиться

engine seizure ['enʤɪn 'siːʒə] – заклинивание двигателя
radiator ['reɪdɪeɪtə] – радиатор
coolant pump ['kuːlənt pʌmp] – насос системы охлаждения
piping ['paɪpɪŋ] – трубопровод, система труб
fan [fæn] – вентилятор
thermostat ['θɜːməstæt] – термостат
water jacket ['wɔːtə 'ʤækɪt] – водяная рубашка
passage ['pæsɪʤ] – канал
distribution tube [ˌdɪstrɪ'bjuːʃən tjuːb] – распределительный трубопровод
coolant ['kuːlənt] – охлаждающая жидкость
valve seat ['vælvsiːt] – гнездо клапана
draw from ['drɔːfrɔm] – выкачивать
force [fɔːs] – нагнетать
eject [ɪ'ʤekt] – сливать, наполнять
set of tubes [setɔv 'tjuːbz] – набор трубок
heat-exchanging core [hiːtɪks'ʧeɪnʤɪŋˌkɔː] – теплообменная сердцевина
row [rəu] – ряд
sandwiched ['sænwɪʤd] – расположенный слоями
fin [fɪn] – ребро, пластина (*радиатора*)
dissipate ['dɪsɪpeɪt] – рассеивать(ся)
centrifugal pump [ˌsentrɪ'fjuːgəl pʌmp] – центробежный насос
impeller [ɪm'pelə] – импеллер, крыльчатка
outward ['autwəd] – наружу
blade [bleɪd] – лопасть
V-belt ['viːbelt] – клиновой ремень, V-образный ремень
overcooling ['əuvə'kuːlɪŋ] – переохлаждение
warm-up ['wɔːmʌp] – прогрев двигателя
heat operated unit [hiːt 'ɔpəreɪtɪd 'juːnɪt] – тепловой агрегат
enclosure [ɪn'kləuʒə] – ограждение
shroud [ʃraud] – кожух

Exercise 5. Read and translate the following text.

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.

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.

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.

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.

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.

Exercise 6. Answer the following questions.

1. Why are all internal combustion engines fitted with a type of 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. The water jacket is very important for the majority of heat engines, isn't it? 5. What is the water pump in a cooling system designed for? 6. What does the radiator in a cooling system consist of? 7. How does the radiator function? 8. What is the purpose of the impeller in the water pump of the cooling system? 9. Is it necessary to install a thermostat in the cooling system? 10. How can the fan be driven? 11. When must the antifreeze solution be added?

Exercise 7. Translate the following words and word combinations into Russian.

High temperature, high gas pressure, act on the piston head, 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, cylinder head, cylinder block, water distribution tube, passages for coolant circulation, exhaust valve seat, bottom of the radiator, top of the radiator, set of tubes, electric motor, heat-exchanging core, upper and lower radiator tanks, dissipate heat into the atmosphere, direct a constant airflow, centrifugal pump, prevent overcooling, large volume of air, ensure maximum efficiency, water pump shaft, protection against freezing, ethylene glycol, antifreeze solution.

Exercise 8. Complete the sentences. Choose the suitable words from the box.

Cycle, shroud, impeller, circulation, numerous rows, coolant, pressure.

1. High temperature is necessary to produce the high gas ___ that acts on the piston head. 2. These passages direct additional ___ to the points

where the temperatures are highest. 3. Within the jacket, narrow passages are provided between cylinders for coolant ___ . 4. The coolant then passes through a set of tubes to the bottom of the radiator from which the cooling ___ begins again. 5. The core is made of ___ of small vertical tubes that connect the upper and lower radiator tanks. 6. The pump is of a centrifugal type and has an ___ with blades that force coolant outward as the impeller rotates. 7. In most cases, the fan works in an enclosure called a ___ to ensure maximum efficiency of the fan.

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 охлаждающих 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 выкачивает охлаждающую жидкость из нижней части радиатора;

b) насос вытягивает охлаждающую 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) растрачивание тепла от пластин;

b) рассеяние тепла от пластин.

5. All modern cooling systems have water pumps to circulate the coolant.

a) растрачивание тепла от пластин;

b) рассеяние тепла от пластин.

6. The thermostat is merely a heat operated unit that controls a valve between the engine block and the radiator.

a) управляет клапаном между блоком цилиндров и радиатором;

b) регулитует клапан между блоком цилиндров и радиатором.

7. The other method, becoming increasingly popular, is to use an electric motor.

a) другой метод все больше и больше становится популярным;

b) другой метод все больше и больше становится общедоступным.

Exercise 10. 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. The pump receives coolant *from/in* the lower tank and forces it through the water jacket *into/about* the upper radiator tank. 6. *In/to* most cases, the fan works *in/for* an enclosure called a shroud to ensure maximum efficiency *of/with* the fan.

Exercise 11. Translate the following words and word combinations into English.

Самый распространенный антифриз, максимальная защита, вентилятор нагнетает большой объем воздуха, сердцевина радиатора, обеспечить максимальную производительность, вал водяного насоса, устройство, работающее за счет тепла, обеспечить быстрый разогрев, предотвратить переохлаждение в холодную погоду, прокачивать охлаждающую жидкость, верхняя емкость радиатора, крыльчатка с лопастями, теплообменная сердцевина, маленькие вертикальные трубочки, соединять верхнюю и нижнюю емкости радиатора, постоянный поток воздуха, большинство тепловых двигателей, гнездо выпускного клапана, система труб, радиатор, водяной насос, термостат, водяная рубашка, система охлаждения двигателя, смазывающее масло, подшипник.

Exercise 12. Read the following text and translate it into Russian in written.

Farm Automation and Robotics

A rapidly developing aspect of automation on the farm is the plotting[1] of cereal yields by the combine harvester. This is based on satellite positioning techniques and produces 'yield-maps' showing variations in yield across the field and which may be used to control fertilizer and spray applications automatically and according to crop need.

There are a number of robotic milking plants installed in the country where the cow comes to the milking machine unattended[2]. Vehicles are also

in use which will work unattended in the field and recognize and spray individual plants, or follow rows of plants for hoeing[3] more accurately than could be achieved by a human driver. Automatic machines which recognize shape and smell are used in quality control, harvesting, packaging and animal welfare systems. In addition, there are many semi-automatic devices which assist human control, rather than fully replace the operators of large and complex machines. The main value of robotics in agriculture is not to replace human labour but to make arduous[4] jobs safer and more acceptable and enhance the quality of the final product.

[1] plotting – составление карты
[2] unattended – без сопровождения
[3] hoeing – рыхление
[4] arduous – трудный, тяжёлый

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 Act*ive соответствует русскому причастию на *-щий*, *-вший*. В данной функции причастие может находиться как *слева* от определяемого слова, так и *справа* от него:

A *smiling* girl. – *Улыбающаяся* девочка.

The men *building* our house with me are my friends. – Люди, *строящие* наш дом вместе со мной, – мои друзья.

В то время как *Participle I Indefinite Passive* соответствует русскому причастию на *-мый*, и *-щийся*. Данная форма причастия находится только *справа* от определяемго слова:

The house *being built* in our street is a new building of school. – Дом, *строящийся* на нашей улице – это новое здание школы;

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.

Participle I Indefinite Passive соответствует в русском языке страдательному деепричастию:

Being asked (=*When he was asked…*) whether he intended to return soon, he answered that he would be away for about three months. – *Будучи спрошен* (= *Когда его спросили…*), намерен ли он скоро возвратиться, он ответил, что будет отсутствовать около трех месяцев;

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.

В функции обстоятельства *Participle I Indefinite Passive* соответствует в русском языке страдательному деепричастию:

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;

4) 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. Having been sent to the wrong address, the letter didn't rich him. 3. He sat in the arm-chair thinking. 4. She came up to us breathing heavily. 5. The hall was full of laughing people. 6. The singing girl was about fourteen. 7. Having read the book, I gave it to Pete. 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. Having been built of concrete, the house was always cold in winter. 11. Driving a car a man tries to keep steady speed. 12. Having stated the laws of gravity, Newton was able to explain the structure of the Universe. 13. Being more efficient than human beings, computers are used extensively. 14. Having graduated from Cambridge, Newton worked there as a tutor. 15. Having been published in 1687, Newton's laws of motion are still the basis for research.

Exercise 2. Put the infinitives given in brackets into the Passive or Active forms of the Participle I.

1. (To impress) by the film, they kept silent. 2. (To lose) the book, the student couldn't remember the topic. 3. He spent the whole day (to read) a book. 4. (To travel) around America for a month, she returned to England. 5. He watched Mike (to go) out of the door and (to cross) the street. 6. The question (to discuss) now is very important. 7. (To pack) in the beautiful box the flowers looked very lovely. 8. (To descent) the mountains, they heard a man calling for help. 9. (To reject) by everybody he became a monk. 10. (To show) the wrong direction, the travelers soon lost their way.

Exercise 3. Make the right choice.

1. (Having written / writing) the dictation, she made many mistakes. 2. (Having written / writing) the letter, she posted it. 3. (Building / having built) a new house, builders used all modern methods of construction. 4. (Building / having built) the house, they 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 [ˌluːbrɪ'keɪʃən 'sɪstəm] – система смазки

wear [weə] – износ

efficiency [ɪ'fɪʃənsɪ] – производительность

friction ['frɪkʃən] – трение

big end bearing ['bɪgend 'beərɪŋ] – подшипник большой головки шатуна

main bearing [ˌmeɪn 'beərɪŋ] – коренной подшипник

valve gear ['vælvˌgɪə] – клапанный механизм, привод клапанного механизма

tappet ['tæpɪt] – кулачок, эксцентрик

rocker arm ['rɔkəˌɑ:m] – качающийся рычаг (*в двигателе внутреннего сгорания*)

pushrod ['puʃˌrɔd] – толкатель, толкающий стержень

timing chain ['taɪmɪŋˌʧeɪn] – цепь механизма газораспределения

timing gear ['taɪmɪŋˌgɪə] – распределительный механизм

connecting rod [kə'nektɪŋˌrɔd] – шатун

crankshaft ['kræŋkʃɑ:ft] – коленчатый вал

valve train ['vælvˌtreɪn] – клапанный механизм

splash lubrication system [splæʃ ˌlu:brɪ'keɪʃən 'sɪstəm] – разбрызгивающая смазочная система

(forced) pressurized lubrication system ([fɔ:st]) ['preʃəraɪzdˌlu:brɪ'keɪʃən 'sɪstəm] – система принудительной смазки

dip [dɪp] – погружаться

sump [sʌmp] – масляная ванна

scoop [sku:p] – масляный черпачок

big end cap ['bɪgend 'kæp] – крышка шатуна

seal [si:l] – плотно закрывать

flooded compartment ['flʌdɪdˌkəm'pɑ:tmənt] – заполненный отсек

closed loop [kləuzd lu:p] – замкнутый цикл

oil reservoir [ɔɪl] – резервуар для масла, поддон

alternator ['ɔ:ltəneɪtə] – генератор переменного тока

wet sump system [ˌwetsʌmp 'sɪstəm] – система смазки с мокрым картером

dry sump system [ˌdraɪsʌmp 'sɪstəm] – система смазки с сухим картером

bottom ['bɔtəm] – днище

oil intake [ɔɪl 'ɪnteɪk] – маслозаборник

mesh filter [meʃ 'fɪltə] – сетчатый фильтр

oil pump 'pʌmp] – масляный насос

oil gallery [ɔɪl 'gælərɪ] – масляная магистраль, масляная разводка

groove [gru:v] – паз

drilling ['drılıŋ] – отверстие
gudgeon pin ['gʌdʒən pın] – поршневой палец
viscosity [vıs'kɔsətı] – вязкость
transfer [træns'fɜ:] – переносить, перемещать

Exercise 5. Read and translate the following text.

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.

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.

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.

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.

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.

Система охлаждения двигателя, снизить износ, повысить коэффициент полезного действия, потеря мощности при преодолении трения, между поршнями и цилиндрами, подшипник большой головки шатуна, цепь механизма газораспределения, толкатель клапана, внутренняя часть картера, днище поршня, воздушно-топливно-масляная смесь, клапанный механизм, разбрызгивающая смазочная система, система принудительной смазки, моторное масло, обрызгивать коленчатый вал, заполненный отсек, замкнутый цикл, вспомогательное оборудование, шарикоподшипник, система смазки с мокрым картером, резервуар для масла, маслозаборник, сетчатый фильтр, масляная магистраль, отверстие, поршневой палец, шатун, распределять масло, содействовать.

Exercise 8. Translate the words and word combination in brackets into Russian.

1. Any (двигатель нуждается в смазке) in the following parts: between

pistons and cylinders, (малые подшипники), big end bearings, (коренные подшипники), valve gear, (кулачки), rocker arms, (толкатели), timing chain or gears.

2. The (клапанный механизм) may be contained in a compartment (наполненный смазочным материалом) so that no (масляной насос) is required.

3. Instead the (коленчатый вал погружается в масло) in the sump and (из-за своей высокой скорости вращения), it splashes the crankshaft, (шатуны) and bottom of the pistons.

4. The (резервуар для масла) is usually the (масляная ванна), and when this is the case, it is called a (система смазки с мокрым картером).

5. The (коленчатый вал имеет отверстия) which (забирают масло из этих пазов) and deliver it to the (подшипникам больших головок шатуна).

6. The lubricant (должен быть разработан) to be chemically stable and (сохранять подходящую вязкость) within the (диапазона температур) it encounters in the engine.

Exercise 9. Agree or disagree with the following statements beginning with:

Of course, it is true because according to the text …

It is false because according to 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 10. 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 11. Find in B the English equivalents to the Russian words in A.

A	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.
9) вспомогательный	a) common; b) auxiliary; c) different.
10) жидкость	a) loop; b) sump; c) liquid.

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

Engine lubrication system, reduce power wasting in overcoming friction, big end bearings, valve gear, two-stroke engine, connecting rod and bottom of the piston, pistons sprayed by oil, compartment flooded with lubricant, splash lubrication system, pressurized lubrication system, attached scoop, drain back to the sump, sealed in a flooded compartment, reservoir for the oil, closed loop, auxiliary equipment of an engine, crankshaft main bearings, oil pump, alternator, dry sump system, at least one oil gallery, groove around the crankshaft, water-cooled engine, lubricate satisfactorily, oil filter, mesh filter, cooling liquid, motor oil, grooves and channels connected to oil gallery, transfer heat to the environment.

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 = open**ed** (см. правила орфографии в уроке 13). У неправильных глаголов третья форма является формой причастия прошедшего времени: to begin – began – **begun**.

Причастие прошедшего времени (The Participle II) соответствует русскому страдательному причастию настоящего времени, оканчивающемуся на ***-мый***, и прошедшего времени, оканчивающемуся на ***-нный***, ***-тый***, а также действительным причастиям со страдательным значением, оканчивающимся на ***-щийся*** и ***-вшийся***.

The Functions of the Participle II

(Функции причастия прошедшего времени)

В предложении причастие прошедшего времени (The Participle II) может быть:

1) *определением*. В этой функции причастие прошедшего времени (Participle II) употребляется либо перед определяемым словом (слева от него), либо после (справа). На русский язык переводится причастием страдательного залога на *-мый, -щийся, -нный, -тый, -вшийся:*

Forgotten letter was on the table. – *Забытое* письмо было на столе.

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, -вшийся* 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;

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 sptopped 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. Dick bowed low when presented to Donald. 8. If given a chance, she will become a brilliant actress. 9. Though designed for beginners, this textbook may be used for intermediate students as well. 10. The letter was illegible as if written in a hurry. 11. The method followed by our scientists was not simple. 12. If asked he will explain you everything. 13. This is the book so much spoken about. 14. When completed in 1897, Jefferson's building was the largest library in the world. 15. If compared to today's TV program, the first black-and-white pictures were bad. 16. If heated to 100 ºC, water turns into steam.

Exercise 2. State the function of the ending -ed. 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. Read and memorize the following words and word combinations.

time [taɪm] – регулировать

distributor [dɪ'strɪbjutə] – распределитель зажигания

cam [kæm] – кулачок

set of breaker points [ˌsetəv 'breɪkə pɔɪnts] – набор, комплект контактов прерывателя

condenser [kən'densə] – конденсатор

rotor ['rəutə] – ротор

distributor cap [dɪ'strɪbjutə 'kæp] – крышка распределителя системы зажигания

ignition coil [ɪg'nɪʃən kɔɪl] – катушка зажигания

external [ɪk'stɜ:nəl] – дополнительный

spark plug ['spɑ:kˌplʌg] – свеча зажигания

wire ['waɪə] – провод

lead-acid battery [led'æsɪd 'bætərɪ] – свинцово-кислотная батарея

alternator ['ɔ:ltəneɪtə] – генератор переменного тока

dynamo ['daɪnəməu] – динамо

operate ['ɔpəreɪt] – приводить в действие

induction coil [ɪn'dʌkʃənˌkɔɪl] – индукционная катушка, индуктор

transformer winding [trænts'fɔ:mə 'waɪndɪŋ] – трансформаторная обмотка

share [ʃeə] – зд. намотать

magnetic core [mæg'netɪk kɔ:] – магнитный сердечник

alternating current ['ɔ:ltəneɪtɪŋ '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 ['kɔmən 'pɔɪnt] – общий контакт

contact breaker ['kɔntækt 'breɪkə] – прерыватель контактов (*распределителя зажигания*)

junction ['ʤʌŋkʃən] – место соединения

sequence ['si:kwəns] – направлять в заданной последовательности

ignition firing sequence [ɪg'nɪʃən 'faɪərɪŋ 'si:kwəns] – последовательность зажигания в цилиндрах двигателя

steady current ['stedɪ 'kʌrənt] – ток неизменной амплитуды

current-limiting resistor ['kʌrənt'lɪmɪtɪŋ rɪ'zɪstə] – токоограничивающий резистор

coil's core [ˌkɔɪlz kɔ:] – сердечник катушки

primary winding's circuit ['praɪmərɪ 'waɪndɪŋ 'sɜːkɪt] – цепь первичной обмотки

abruptly [ə'brʌptlɪ] – резко

collapse [kə'læps] – зд. пропадать

magnetic flux [mæg'netɪk flʌks] – магнитный поток

charge up [ʧɑːʤ] – заряжать

capacitor [kə'pæsɪtə] – конденсатор

lie across [laɪ ə'krɔs] – соединять

oscillating ['ɔsɪleɪtɪŋ] – колебательный

LC circuit [elsiː'sɜːkɪt] – индуктивно-ёмкостная цепь

damped [dæmpt] – затухающий

oscillating current ['ɔsɪleɪtɪŋ 'kʌrənt] – колебательный ток

bounce [bauns] – заставлять колебаться

high voltage pulse [haɪ 'vəultɪʤ pʌls] – высоковольтный импульс

output ['autput] – выходная мощность, производимая мощность

sequentially [sɪ'kwenʃəlɪ] – последовательно

Exercise 4. Read and translate the following text.

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).

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.

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.

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.

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 5. Translate the following words and word combinations into Russian.

Mechanically timed electrical ignition system, rotating cam of the distributor, engine's drive, set of breaker points, condenser, ignition coil, spark plug, vehicle's electrical system, alternator, interrupt the current, transformer winding, common magnetic core, alternating magnetic field, alternating current, step-up transformer, produce high voltage, primary winding, secondary winding, current-limiting ballast resistor, contact breaker junction, ignition firing sequence, coil's core, drive the ignition spark, top of the en-

gine's compression cycle, cause the breaker points to open, primary winding's circuit, fast rate of change of magnetic flux, charge up the condenser, oscillating LC circuit, produce a damped oscillating current, bounce energy, condenser's electric field, ignition coil's magnetic field, high-voltage pulse, high voltage output, turning rotor, compressed air-fuel mixture.

Exercise 6. 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 7. Find the odd words in the sentences and change them for correct ones.

1. Most four-stroke engines have used a manually timed electrical ignition system.

2. The engine operates contact breaker points, which connect the current to an induction coil.

3. An alternating current in the primary induces an alternating magnetic field in the core and hence a collapsing current in the secondary.

4. This current produces a magnetic current within the coil's core.

5. The points ride on the cam so that as a piston reaches the bottom of the engine's compression cycle, the cam causes the breaker points to open.

6. The oscillating current in the coil's primary winding produces a steady magnetic field in the coil.

7. It is the creation of this spark which consumes the energy that was stored in the battery.

Exercise 8. 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, magnetic field *in* the core, primary winding connected *to* the battery, *inside* the ignition coil, the other end *of* the secondary winding, 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 winding, *on* top of the breaker cam, gap of the spark plug.

Exercise 9. 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 10. Translate the following words and word combinations into English.

Четырехтактный двигатель, регулируемая механически электрическая система зажигания, распределитель имеет вращающийся кулачок, катушка зажигания, система получает энергию от свинцово-кислотной

батареи, электросистема транспортного средства, двигатель приводит в действие контакты прерывателя, прерывать ток, две трансформаторные обмотки, первичная и вторичная обмотки, общий магнитный сердечник, переменный ток, переменное магнитное поле, повышающий трансформатор, высокое напряжение, соответствующая свеча зажигания, постоянный ток, токоограничивающий резистор, замкнутые контакты прерывателя, резервуар энергии, зажечь свечу зажигания, верхняя точка цикла сжатия двигателя, индуцировать высокое напряжение, заряжать конденсатор, колебательное магнитное поле, сжатая воздушнотопливная смесь, магнитное поле катушки зажигания.

Exercise 11. Answer the following questions.

1. What kind of ignition system is used on 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?
8. What voltage causes a spark to form across the gap of the spark plug?

СОДЕРЖАНИЕ

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АНГЛИЙСКИЙ ЯЗЫК

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