

А.С. Герасимук

# АНГЛИЙСКИЙ

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# ЯЗЫК

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**для специалистов  
автосервиса**

Допущено  
Министерством образования  
Республики Беларусь  
в качестве учебного пособия  
для учащихся учреждений,  
реализующих образовательные программы  
среднего специального образования по специальности  
«Эксплуатация и ремонт автомобилей»

(с электронным звуковым приложением)

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## ПРЕДИСЛОВИЕ

Настоящее учебное пособие разработано в соответствии с типовой учебной программой для учреждений профессионально-технического образования по специальности 3-37 01 52 «Эксплуатация и ремонт автомобилей (квалификации 3-37 01 52-52 Слесарь по ремонту автомобилей, 3-37 01 52-51 Водитель автомобиля категорий “В” и “С”))».

Цели пособия:

– углубление базовых языковых знаний, совершенствование базовых языковых навыков;

– формирование профессиональных иноязычных знаний, умений, навыков: овладение учащимися элементарными навыками и умениями чтения иностранных текстов профессиональной направленности, понимания и порождения иноязычного устно-речевого и письменного высказывания в соответствии с ситуацией профессионального общения с учётом национально-культурных особенностей речевого поведения носителей языка.

Учебное пособие состоит из двух частей: вводного курса (Introductory course), целью которого является актуализация знаний фонетического, лексического, грамматического материала, правил правописания, освоенных учащимися при изучении базового курса иностранного языка, и основного курса (Basic course). Основной курс охватывает следующую тематику: «The profession of a car mechanic», «Applying for a job», «Business etiquette», «Tools and accessories», «Car design», «Engine», «Car systems», «Electrical equipment», «Transmission», «Chassis», «Car repair and maintenance», «Car driving», «Using the PC», «Cars and the environment».

Обучение строится на основе текстов-образцов монологического и диалогического характера, моделирующих употребление изучаемых слов и выражений в сфере профессиональной коммуникации, в совокупности с соответствующим комплексом упражнений, обеспечивающих активизацию языковых явлений в речи.

Большое значение придается расширению словарного запаса учащихся и анализу изучаемых лексических единиц. Предлагаемая последовательность упражнений, рассчитанных на постепенное развитие умений устной и письменной речи, обеспечивает прочное закрепление вводимого языкового материала в результате многократного повторения и использования в процессе общения.

В учебном пособии предусмотрены задания для повторения и обобщения изученного материала, которые объединены в разделы «Revision

and consolidation». В структуре данных разделов предусмотрены задания для самоконтроля с ключами (Tasks for self-control), а также творческие проекты (Project work).

В учебном пособии реализованы межпредметные связи с другими учебными предметами. Межпредметные связи с учебным предметом «Иностранный язык» общеобразовательного компонента учебного плана реализованы посредством опоры на базовые языковые знания, умения, навыки, направленностью ряда заданий на совершенствование и развитие базовых языковых навыков и умений. Межпредметные связи с учебными предметами профессионального компонента учебного плана реализуются путем подбора текстового материала и заданий, предполагающих опору на полученные при изучении специальных предметов знания, умения, навыки.

Электронное (звуковое) приложение содержит тексты для аудирования, а также двуязычный словарь профессиональных терминов.

Учебное пособие включает двуязычный словарь профессиональных терминов.

Учебное пособие рассчитано на изучающих английский язык на уровне – от pre-intermediate до intermediate.

Содержащийся в учебном пособии материал позволяет учащимся осознать ценность иностранного языка как средства познания и общения в профессиональной деятельности.

*Автор*

# INTRODUCTORY COURSE

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## LESSON 1

### Learning foreign languages

**Exercise 1.** Read the lines of words with the same sound in the stressed syllable.

[ʌ] number, culture, study, subject, among, just, funds, must

[aɪ] nice, find, science, kind, right, bike, pile

[ɪ] sit, citizen, different, think, English, business, with

[i:] read, need, teacher, teeth, reason, people, means

**Exercise 2.** Say what possibilities foreign languages give us:

- a) for communication;
- b) for studies;
- c) for travelling and recreation;
- d) other possibilities.

**Exercise 3.** Read the text and say if you consider foreign languages to be important for professional activity.

At school or college we are to study a number of subjects. There has to be a foreign language among them and your teacher assures you that it is completely essential to discover it. So you sit there, getting your teeth into several dictionaries and workbooks with the only question in your mind: “What for?”

There are a number of reasons to learn a foreign language. Firstly, it is a well-recognized reality that by learning a new foreign language we get acquainted with new cultures. So this is a way to become more intelligent and to learn much more interesting facts.

If you are not interested in learning new cultures, you may find other reasons to study foreign languages. For example, you travel abroad to have a nice rest, let’s say to New York, and you can’t anticipate every citizen to know Russian.

English is an international language, no doubt about that. People from different countries learn English and visit foreign English-speaking countries to find success in their future enterprise. Just think about possibilities for your career growth if you are a free foreign language user. Some people earn



fairly good funds translating various English books, essays and articles into their native language. If your business is involved in international affairs, you must know at least the bases of the partner's language to discover a typical ground with your foreign co-workers.

A modern engineer or even a worker can't work with an imported instrument or a machine if he/she isn't able to read the instruction how to work. Ordinary people need language to translate instructions or manuals to washing machines, vacuum cleaners or even food products. English is the language of progressive science and technology, trade and business. It is the language of international aviation. It is also a major language of diplomacy. Hundreds of books, magazines and newspapers are printed in English.

People learn languages when they have opportunities to understand and work with language in a context that they comprehend and find interesting. In this view, ESP (English for Special Purposes) is a powerful means for such opportunities. Studying English students work with material which they find interesting and relevant and which they can use in their professional work or further studies. Students are shown how the subject-matter content is expressed in English. Learners in the ESP classes are generally aware of the purposes for which they will need to use English. Having already oriented their education toward a specific field, they see their English training as complementing this orientation.

**Exercise 4.** Find in the text given above antonyms to the words and word combinations.

Native tongue, answer, failure, unable, outstanding, powerless, General English.

**Exercise 5.** Mark the sentences below as True or False.

1. By learning a new foreign language we get acquainted with new cultures.
2. Learning a foreign language isn't a compulsory component of the college curriculum.
3. Ordinary people don't need foreign languages.
4. English is the language of progressive science and technology, trade and business.

**Exercise 6.** Correct mistakes in the underlined words in the sentences given below and write down the right sentences.

1. At school or college we are to study the few subjects.
2. If you are not interesting in learning new cultures, you may find other reasons to study foreign languages.

3. Hundred of books are printed in English.
4. ESP is a powerful mean for such opportunities.
5. Students are show how it is expressed in English.

**Exercise 7.** Think of the possibilities for your professional and career growth that the foreign language knowledge opens. Make up a list of such possibilities. Compare it with your partner's list. Discuss the lists, agreeing, adding details or criticizing.

You may use the following word combinations:

- to read books, essays and articles, magazines and newspapers on profession
- to read technical instructions and other documents
- to find the necessary information on the profession on the Internet
- to establish professional contacts

**Exercise 8.** Which of the following forms of the language activity help to enable a person to use the English language in his/her professional activity? Add your own variants:

- reading texts on profession, analysing information from the texts
- learning professional terms in English
- reading technical documents in English
- writing CVs
- looking for the information of professional character on the Internet
- making up dialogues on professional themes

**Exercise 9.** Do you agree that learners in the ESP classes are generally aware of the purposes for which they will need to use English? Give some arguments.

## LESSON 2

### Phonetic practice (1)

**Exercise 1.** Name the letters in the following words.

Table, family, theatre, street, lunch, quarter, honey, bed, green, jump, kitchen, vowel, word, exam, zero, measure.

**Exercise 2.** Say how many letters and how many sounds there are in the following words.

Meet, tell, life, see, tie, deep, bring, your, bought, hour, ring, were, sight, journey, quite, good, address, young, little, enough, pleasure, decision.

**Exercise 3.** Read the following text, copy it and underline the words with the sound [ɪ] with one line and with the sound [i:] with two lines.

I'm Anna Gonzales from Brazil. It is six years since I started to learn English. My biggest problem is pronunciation. I love listening to English pop music which is a great way of learning new vocabulary. My dad's a businessman and he uses English all the time. He speaks it fluently. He managed to pick it up while he was working in the States. He wants me to speak it well enough so that I can join his company. I'd rather work in advertising.

**Exercise 4.** Divide the following words  
a) into two groups with the sounds [ɑ:] and [ʌ]:

large, gun, front, barn, bun, sun, duck, hard, funny, month, park, cut, London, part, luck, ask, rug, but, pass, won, chance, sun, class, luck, aunt, bark, charm, dark, card, love, bud, cover

b) into three groups with the sounds [e], [æ] and [ɜ:]:

leg, rack, learn, turn, centre, lesson, wet, land, bed, neck, girl, sat, sell, entrance, test, bird, bat, term, tag, tell, burn, leg, first, wag, her, dirty, bell, red

c) into two groups with the sounds [ɪ] and [i:]:

lead, lid, pig, bee, sit, reach, leak, big, team, tin, money, easy, weak, thin, eat, please, sick, event, be, speak, regret, big, market, we, weep, deal, risk, even, feel, heat, win, fill, neat, knit, lid, sin, seek, it, lean

d) into two groups with the sounds [u:] and [ʊ]:

lose, wound, pull, look, foot, food, soon, cook, book, cool, fool, full, would, boot, choose, group

**Exercise 5.** Read these groups of words in columns and name one or two sounds they all contain.

**Example:** shed /shoes/ finish/ sheep/ shop = [ʃ]

- |            |            |            |            |           |            |
|------------|------------|------------|------------|-----------|------------|
| 1. culture | 2. measure | 3. January | 4. his hat | 5. young  |            |
| chalk      | vision     | June       | her house  | you       |            |
| chess      | casual     | badge      | husband    | yesterday |            |
| fetch      | pleasure   | journal    | horse      | yellow    |            |
| match      | decision   | jam        | high hill  | yet       |            |
| 6. fat     | 7. van     | 8. that    | 9. fifth   | 10. sad   | 11. please |
| fate       | vain       | those      | throw      | docks     | zero       |
| safe       | save       | this       | third      | peace     | dogs       |
| leaf       | leave      | though     | thick      | cease     | seize      |

**Exercise 6.** Read the words, pay attention to the pronunciation of the ending **-(e)s**. Explain the rules according to which they are pronounced.

**a)** [s] – hat – hats, cup – cups, boot – boots, sport – sports, shop – shops, test – tests, street – streets;

[z] – bag – bags, store – stores, stone – stones, plum – plums, star – stars, thing – things, chair – chairs;

[ɪz] – fox – foxes, dish – dishes, watch – watches, box – boxes, class – classes, bus – buses, page – pages;

**b)** [s] – Mike’s car, student’s book, students’ room, accountant’s papers;

[z] – friend’s house, engineer’s map, country’s flag, this year’s plan, people’s will, this family’s friends;

[ɪz] – Max’s sister, Mr. Fox’s car, Mrs. Patch’s husband, Liz’s friend;

**c)** [s] – writes, takes, breaks, costs, eats, sits, fights, keeps, makes, sleeps, translates;

[z] – leads, gives, goes, becomes, brings, leaves, drives, flies, knows, pays, spoils, sends, tells;

[ɪz] – touches, kisses, discusses, freezes, loses, watches, sneezes.

**Exercise 7.** Read the following text and explain the rules of pronunciation of the ending **-ed** in the underlined words.

He walked slowly back to the desk. He sighed, then tidied everything up and walked out of the room. He locked the door behind him. He strolled across the square and took the street that led him home, where a strong cup of tea awaited him. Suddenly he heard sounds of music. He stopped and listened to the sounds for a minute. Then he walked slowly along the street and turned the corner.

## LESSON 3

### Phonetic practice (2)

**Exercise 1.** Read the following sentences several times, paying attention to the pronunciation of the sounds [w], [v]. Read them faster every time.

1. We were very worried.
2. She was wearing white vest.
3. Where’s the woolen waistcoat?
4. We won by twelve goals to five.
5. When will you visit them?

**Exercise 2.** Write down the pairs of words (one – from a), the other – from b), which meanings in oral speech depend on the correct pronunciation of vowels and consonants.

*Example:* fill – feel

- a) luck, pull, pan, bad, man, bird, send, seats, live, feel;  
b) fill, leave, seeds, sand, men, bed, pen, lack, board, pool.

**Exercise 3.** Write the words which correspond to the transcription below.

[neim], [pli:z], [nais], [dei], [flæt], [fam], [ɪg'zæm], ['sɪtɪ], [ri:d], [lɑ:dʒ], ['tɑ:tl], ['ju:slɪs], [tru:θ]

**Exercise 4.** Transcribe the letters and letter combinations in bold.

Russian, **initial**, **social**, **lecture**, **watch**, **discussion**, **decision**, **science**, **taxi**, **example**, **mouth**, **this**, **quarter**, **thing**, **comb**, **girls**, **caps**, **days**, **cheese**, **whose**, **what**, **wrong**, **bought**, **know**, **gentle**, **gate**, **accident**, **handsome**, **debt**, **phase**, **listen**, **whistle**, **zoo**, **solemn**, **designer**, **mechanic**, **often**.

**Exercise 5.** Practise the reading of the words.

Axle – ['æksl]; bearing – ['beəriŋ]; brake – [breɪk]; bumper – ['bʌmpə(r)]; caliper – ['kælpə]; coolant – ['ku:lənt]; crank – [kræŋk]; engine – ['endʒɪn]; frame – [freɪm]; fuel – [fju:əl]; gauge – [geɪdʒ]; hood – [hʊd]; hook – [hʊk]; ignition – [ɪg'niʃ(ə)n]; injector – [ɪn'dʒektə]; lever – ['li:və]; pad – [pæd]; plug – [plʌg]; radiator – ['reɪdiətə]; saloon – [sə'lu:n]; shaft – [ʃɑ:ft]; spark – [spɑ:k]; starter – ['stɑ:tə]; suspension – [sə'spen(t)ʃ(ə)n]; valve – [vælv]; vehicle – ['vi:ɪkl]; wrench – [ren(t)ʃ].

**Exercise 6.** Match the words with their transcription.

piston	['sɪlɪndə]
wheel	[kəm'bi:stʃ(ə)n]
cylinder	['pɪst(ə)n]
valve	['vɪltə]
fuel	[gɪə(r)]
filter	[vælv]
gear	['bætəri]
gas	['tʃeɪmbə(r)]
brake	[gæs]
battery	['pedl]
pedal	['fju:əl]
combustion	[wi:l]
chamber	[breɪk]

**Exercise 7.** Read the passage from the autobiography, paying attention to the way the dates are read in English.

I was born on May 22, 1980 in Grodno. In 1999 I entered the university and left for Minsk. In 2004 I graduated from the university and on August 1, 2004 I got a position of an accountant in the bank. On March 5, 2006 I got married and on January 15, 2007 my daughter was born.

**Exercise 8.** There is one spelling mistake in each sentence. Correct it.

I think that a dog is clevere than a cat. It's more interesting to play with dogs then with cats. Dogs like swimming and running. It's nice to take a dog for a wolk. Dogs are the best friends and can lisen to you for hours. Unfortunateli, you can't know their opinion of you.

## LESSON 4

### Word formation

**Exercise 1.** Say how many letters and how many sounds there are in the following words.

Chess, rude, question, hydraulic, keep, mother, posture.

**Exercise 2.** Read the nouns and define what words they are formed from.

Direction, construction, concentration, collection, heroism, majority, popularity, musician, technician, neighbourhood, emptiness, appointment, understanding, hatred.

**Exercise 3.** Say what way the following words are formed and translate them.

Comfortable, picture, user, pianist, musical, listener, readable, government, election, natural, easily, childhood, graduation.

**Exercise 4.** Complete each sentence with a word formed from the word in italics, beginning as shown. Begin the word with a prefix from the box.

in-	non-	re-	un-	vice-	trans-
-----	------	-----	-----	-------	--------

**Example:** I'm not *satisfied* with your work. I am *dissatisfied* with it.

1. She doesn't have the *usual* kind of haircut. It's very ... .
2. Mary is sailing across the *Atlantic*. She is on a ... voyage.

3. Dan is the *President's* assistant. He is the ... .
4. Terry is no longer a *smoker*. Now he is a ... .
5. Don't wear a *formal* suit. The dinner is quite ... .
6. You haven't *written* this clearly. It'll have to be ... .

**Exercise 5.** Fill in the gaps with suitable adjectives formed from the words in brackets.

That day I met Ann. She was very ... (beauty) and I was ... (care) enough to fall in love at first sight. My friend told me she was not the girl I needed, but that was ... (use). My friend considered our relations with Ann ... (hope). Now I think it was ... (thought) of me not to pay attention to his words. But on those hot ... (rain) days the world seemed to be ... (colour) and I felt ... (power).

**Exercise 6.** Put in the missing apostrophes (') in the telephone conversation. Role-play the dialogue.

A. – Hello, Jane.

B. – Whos that?

A. – Its Helen. Were having a picnic tomorrow.

B. – Sorry, I cant come.

A. – Why not?

B. – Were going to my grandparents place. Its my Grannys birthday tomorrow.

**Exercise 7.** Correct mistakes in the following dialogue and role-play it.

– Hello, my name is Ann. What is yours name?

– Ira. I'm from the group 35.

– Nice meet you.

– I'm glad to meet you either.

– How old is you?

– I am twenty years.

– How many students there are in your group?

– There are fifteen us, seven boys and eight girls. I'm sorry, I has to go now. The lesson is to begin in a minute.

– How about have a cup of coffee after classes in our café?

– Oh, with a pleasure.

– See you lately then.

## LESSON 5

### Lexical-grammar practice (1)

**Exercise 1.** Read the words and define what words they are formed from. Translate the words.

Underground, flowery, certainly, highly, talker, motherhood, summary, conversation, friendship.

**Exercise 2.** Make up questions to which the following sentences will be answers.

1. He plays football twice a week. 2. She is learning a poem. 3. We keep our car in the garage. 4. I helped my mother about the house yesterday. 5. She does her shopping with her friend every week. 6. We go to the University by metro.

**Exercise 3.** Agree or disagree.

1. You will go to school next year. – Yes, I .../No, I ... .
2. Your father can drive a car. – Yes, he .../No, he ... .
3. It often rained last autumn. – Yes, it .../No, it ... .
4. Your parents have painted the floor in your room. – Yes, they ... /No, they ... .
5. Your granny is coming to see you next week. – Yes, she .../No, she ... .
6. Shall you meet her at the station? – Yes, I .../No, I ... .

**Exercise 4.** Complete the sentences with the suitable word.

1. It isn't your's hat. It's ... .  
a) my      b) mine      c) of me
2. I like climbing. ... do I.  
a) neither   b) either      c) so
3. The TV's too loud. Turn it ... .  
a) on          b) of              c) off
4. How ... are the peaches?  
a) many      b) much          c) little
5. We've got English ... Monday morning.  
a) in          b) at              c) on
6. Have ... more crisps, please.  
a) some      b) a                c) an



**Exercise 5.** Put the words in the correct order to make sentences.

1. what, like, today, weather, is, the?
2. are, new, the, her, in, bag, clothes.
3. practising, dance, we, a, are, new, disco, moment, the, at.
4. yesterday, you, at, where, o'clock, were, six, evening?
5. young, cinema, children, too, to, the, into, were, get, the.

**Exercise 6.** Put in prepositions where necessary.

We are students and we share a flat. The flat is ... a block ... flats ... the centre ... Minsk. It is ... the second floor. There are tree rooms ... our flat.

My friends like playing ... chess. Yesterday he played chess ... six ... the evening and only got ... bed ... ten.

My best friend lives ... the country and he likes it very much. His house is a long way ... our college. He goes ... town every morning. He is always ... time ... classes.

We are having an exam ... the 2<sup>nd</sup> ... June. That's why we are reading ... the exam at the moment.

**Exercise 7.** Rewrite in a different way.

1. What's your occupation?  
What ... ?
2. Don't park your car in this place!  
You ... .
3. Have you got much traffic in your town?  
Is ... ?
4. They haven't many motorways so far.  
There ... ?
5. This girl is so pretty!  
What ... !
6. How exciting these fairy-tales are!  
Aren't ... ?

**Exercise 8.** Complete the dialogue, in which you give some information to your teacher. Role-play the dialogue.

**Teacher:** Where do you live?

**You:** ...

**Teacher:** Well, how old are you?

**You:** ...

**Teacher:** What school did you finish?

**You:** ...

**Teacher:** What's your hobby?

**You:** ...

**Teacher:** Have you got any friends at the college?

**You:** ...

**Teacher:** How do you spend your spare time?

**You:** ...

**Teacher:** Do you like our college?

**You:** ...

**Teacher:** What are your plans for the future?

**You:** ...

**Teacher:** I wish you to realize your plans.

## LESSON 6

### Lexical-grammar practice (2)

**Exercise 1.** Copy the text and underline words with the sound [ɑ:] with one line and words with the sound [ʌ] with two lines.

I was in the car waiting for my brother to come back from shopping. Suddenly a boy went past the car. He was on a skateboard but he was going quite slowly because there were a lot of people around. "That's Tim" I thought. I was at primary school with him! I was so happy to see him again. I got out of the car and went after him. "Tim!" I called. He didn't hear me. So I shouted: "Tim, it's me, Karen!" I've got a very loud voice, so he heard me immediately. He turned round and looked at me. Then he quickly picked up his skateboard and started to run really fast down the street. I'm a good runner so it wasn't difficult to follow him. At the end of the street he went into a shop and I ran in after him. "Tim, it's me, don't you remember me?" Then I stopped. It wasn't Tim.

**Exercise 2.** Write these sentences correctly by separating the words and adding the punctuation marks and the capital letters.

1. mozartwasafamousaustriancomposerwholivedintheeighteenthcentury
2. whenstevelookedatthephographhewasastonished
3. lastsundaytheweatherwasawfulitrainedthewholedayandwestayedathome-andwatchedthefilm

**Exercise 3.** Correct the mistakes.

1. Some of my friends is coming to visit me.
2. Who want to answer the question?

3. They are going to have a dinner first.
4. How many time did it take you to get there?
5. There is still very dark outside.
6. It raining heavily now.

**Exercise 4.** Circle the correct conjunction to complete the following text.

I've really got to do something to lose weight because I'm getting much too fat. I wasn't worried about it *until/unless* I went to see a doctor. He told me I'd probably have a heart attack *if/unless* I started eating less. When you're on a diet you have to resist the temptation to eat even *because/though* you feel hungry. This may be very hard to do and you certainly need a lot of willpower to succeed. *Though/So* I'm going to a health farm for a month where I won't be able to eat and where I'll have to stick to my diet. That's exactly the kind of discipline I need *because/ that's why* I am easily influenced by other people. *Whenever/Wherever* I see someone having a drink in a TV programme, I feel like a drink myself *though/ and* it's the same with food.

**Exercise 5.** Use the right form of the verbs in brackets.

1. Nurses (look) after patients in hospitals. 2. Ann plays the piano, but she (not, play) it very well. 3. In Britain most shops (close) at 5.30 p.m. 4. At night when it (get) dark, they (switch) on the TV or the radio and (listen) to music. 5. I (learn) to drive a car some years ago. 6. He (cross) the street and (go) towards the city park. 7. As soon as you (come) home, I'll phone you. 8. If you (enter) the Institute, your parents will be happy. 9. If it (rain) we shall stay at home. 10. My teacher (speak) over the telephone now. 11. Where is Ann? – She (play) tennis. 12. We (ski) the whole day yesterday. 13. What you (discuss) at the meeting yesterday? 14. It is a very boring novel. I (read) it for two weeks, though I usually (read) books quickly. 15. She (live) in Gomel since she (be) born. 16. The children (skate) in the park for two hours before they went to the cinema. 17. We (lie) on the beach since early morning. 18. She (learn) English for 5 years before she goes abroad.

**Exercise 6.** Complete the dialogue and role-play it.

A. – When did you arrive in Minsk?

B. – Two weeks ago.

A. – ... ?

B. – In Lesnaya Street.

A. – ... ?

B. – No, I've got a sister.

- A. – ... ?  
 B. – She is ten.  
 A. – ... ?  
 B. – No, but I can play tennis.  
 A. – ... ?  
 B. – Maths, but I'm not very good at it.  
 A. – ... TV?  
 B. – Yes, I love it.  
 A. – ... tonight?  
 B. – I think there is a comedy on TV.  
 A. – Are ... watch it?  
 B. – Sure.

## LESSON 7

### Lexical-grammar practice (3)

**Exercise 1.** Put the words in the right order to make correct sentences.

1. in/ seldom/ they/ tennis/ winter/ play.
2. time/ he/ on/ always/ his/ come/ to/ does/ classes?
3. bed/ does/ time/ to/ go/ what/ he/ usually?
4. Minsk/ it/ how/ to/ far/ Brest/ from/ is?

**Exercise 2.** Put the questions to the words in bold.

1. The train leaves **at 9**. 2. They **have been learning new words** since morning. 3. **We** are having supper. 4. He will have been waiting **for my telephone call** all day long. 5. **Old ladies** like to sit by fire. 6. My brother had been studying **abroad** for some years. 7. **His** grandparents live in Gomel. 8. I shall have been waiting for Kate for **an hour** and not longer. 9. He visits his grandparents **very often**. 10. We have been living **in a new district of Minsk** for two years. 11. Her brother made **three mistakes** in his test. 12. He worked at a plant **last year**. 13. They will remember **this day** for ever. 14. He will have read this interesting book **by tomorrow**.

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

1. The film is much spoken about.
2. The delegation was headed by the Minister of Foreign Affairs.
3. The letter is being looked for everywhere.
4. The boy was laughed at.
5. She can be seen in the library every day.

6. My friend can be relied on. 7. Heat and light are given to us by the sun.  
8. The child was often left home alone. 9. The children were brought up  
in the country. 10. I must go. I'm being waited for. 11. I wasn't told about  
your decision. 12. The guests were shown the places of interest in the city.  
13. The house was destroyed by the fire. 14. Our teacher is always listened to  
attentively. 15. She is invited to come to England next year. 16. This house  
was rebuilt after the war.

**Exercise 4.** Read the sentences and then write other sentences with the same  
meaning.

**Example:** My friend gave me an interesting book.

- a) An interesting book was given to me.
- b) I was given an interesting book.

1. They showed us the postcards of their city.  
a) We ... .                      b) The postcards ... .
2. The teacher told the pupils the story of Washington.  
a) The pupils ... .              b) The story of Washington ... .
3. My father promised me to bring an interesting book about Minsk.  
a) I ... .                          b) An interesting book about Minsk ... .
4. They gave him the chance.  
a) He ... .                        b) The chance ... .

**Exercise 5.** Use the correct form of the modal verbs *must*, *have to*, *can* to complete  
the dialogue. Role-play the dialogue.

- A. – What time ... I start work in the morning?
- B. – At eight o'clock. You ... always get to work on time.
- A. – I ... wear a uniform at work?
- B. – Yes, you do. And remember, your uniform ... be clean at all times. You  
... to wash it regularly to make it look nice.
- A. – I ... wear my uniform when I travel to work?
- B. – No, you don't, but you ... if you want to. Most people prefer to put their  
uniforms on when they arrive.

**Exercise 6.** Fill in the gaps with the information about yourself. Put the sentences in the  
right order to make a logically connected text. Tell about your working day.

1. I usually have supper at ... o'clock.
2. Every day I spend ... hours doing my homework.

3. I am a student of the ... .
4. I go to bed at about ... .
5. I always walk before ... .
6. I get up at ... .
7. Before ... I often read the paper.
8. My classes start at ... .
9. So I leave home at ... .
10. I go to the college by ... .
11. Usually I get home at ... .
12. Sometimes I have supper with ... .

# BASIC COURSE

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## UNIT 1. THE PROFESSION OF A CAR MECHANIC

### LESSON 8

#### The development of the automotive industry

**Exercise 1.** Group the words given below into two groups with the stress on the first and on the second syllable.

Transport (*n*), tractor, internal, engine, develop, vehicle, design, period, invention, mixture, energy.

**Exercise 2.** Say what inventions you consider the most important in the history of automobile industry development.

**Exercise 3.** Look through the text given below and name the people who made an essential input into the automobile industry development.

The birth of the car as we know it today occurred over a period of years.

Man's first journey on the road of mechanized transport began with the invention of the wheel in 4000 BC. In the early 1760s the first steam-driven tractor was built by a French Captain, Nicolas Jacob Cugnot.

In 1807 François Isaac de Rivaz designed the first internal combustion engine (двигатель внутреннего сгорания). This was used by him to develop the world's first vehicle to run on such an engine, one that used a mixture of hydrogen and oxygen to generate energy.

In 1860, Jean Joseph Etienne Lenoir patented the first successful two-stroke (двухтактный) gas-driven engine. In 1862 he built an experimental vehicle driven by a liquid-fuel version of his gas-engine, which ran at a speed of 3 km/hour.

The next major step forward occurred in 1885 after the four-stroke engine had been devised. In 1885, Karl Benz designed and built the world's first tri-cycle to be powered by an internal combustion engine.

In the meanwhile, unknown to him, Gottlieb Daimler was in the process of creating the world's first four-wheel horseless carriage. This car, which was more like the cars on our roads today, first saw the light of the day in 1886.

**Exercise 4.** Arrange the following events in the order they took place in the history:

1. the first internal combustion engine was designed,
2. the first steam-driven tractor was built,
3. the world's first four-wheel horseless carriage was created,
4. the first two-stroke gas-driven engine was patented,
5. the wheel was invented,
6. the four-stroke engine was devised.

**Exercise 5.** Complete the sentences according to the text.

1. The invention of the wheel took place in ... . 2. The first steam-driven tractor was built by ... . 3. The first internal combustion engine was designed by ... . 4. In 1860 ... was patented. 5. In 1862 an experimental vehicle was built, which ran ... of 3 km/hour. 6. In 1886 ... first saw the light of the day.

**Exercise 6.** Say if you know what countries are considered the largest car producers in the world.

**Exercise 7.** Read the text and find in it the words which mean the same:

to get into the first place; a range of cars; to satisfy the needs; the main producer; to fall behind; using little fuel.

Nowadays Japan and the United States are the largest car producers. Japan replaced the United States as the top passenger car manufacturer from 1980 to 1983. It regained the top spot in 1987 and still holds the first place. Other major producers include France, Germany, Great Britain, Italy and Spain. In general, the largest automating countries also have the largest markets for cars. The United States has the biggest car market by far. Such countries as Japan, Italy, and France follow well behind.

The largest U.S. automakers, called the Big Three, are General Motors Corporation, Ford Motor Company, and Chrysler Corporation. Each of the Big Three produces, under different trade names, a variety of cars and light trucks designed to meet the needs, preferences, and incomes of different consumers.

Japan's major producers include Toyota Motor Corporation, Nissan Motor Company, Honda Motor Company, Mitsubishi Motor Company, and Mazda Motor Corporation. Historically, Japanese cars made for use in Japan have tended to be small, fuel efficient, and of limited power. This is because Japan depends completely on imported oil and many of its streets are too narrow and crowded for big cars. For export, Japan produces a range of models to satisfy a variety of buyers. Many European companies make far fewer vehicles than



do Japanese or American firms because they target their output to the smaller luxury and sports car markets. Such European producers include Jaguar of Great Britain; Mercedes-Benz, Audi, BMW, and Porsche of Germany; and Saab and Volvo of Sweden. Other European manufacturers produce millions of cars each year. These major producers include Volkswagen of Germany; Peugeot and Renault of France; and Fiat of Italy.

**Exercise 8.** Fill in the table with the information from the text.

The country	The main car manufacturers
Japan	
The USA	
France	
Germany	
Great Britain	
Italy	
Sweden	

**Exercise 9.** Correct the wrong information in the sentences given below and write down the correct sentences.

1. Nowadays Japan and the USA are the largest car producers.
2. The UK has the biggest car market.
3. The largest U.S. automakers are Jaguar, Audi and BMW.
4. Historically, Japanese cars made for use in Japan have tended to be large and powerful.
5. Germany depends completely on imported oil.
6. Japan holds the second place as a passenger car manufacturer.

**Exercise 10.** Speak about the role of the largest car producers in the world in the car industry development.

## LESSON 9

### My profession

**Exercise 1.** Say if you chose your future profession yourself or you followed somebody's advice. What arguments did you take into consideration?

**Exercise 2.** Read the text and try to understand the meanings of the underlined words and word combinations.

### Car mechanic

A car mechanic (or car mechanic in British English and motor mechanic in Australian English) is a mechanic who specializes in automobile maintenance, repair, and sometimes modification. The mechanic may be knowledgeable in working on all parts of a variety of car makes or may specialize either in a specific area or in a specific make of car. In repairing cars, their main role is to diagnose the problem accurately and quickly. They often have to quote prices for their customers before commencing work or after partial disassembly for inspection. The mechanic uses both electronic means of gathering data and their senses. Their job may involve the repair of a specific part or the replacement of one or more parts.

Basic vehicle maintenance is a fundamental part of the mechanic's job in some countries. Preventative maintenance is also a fundamental part of the mechanic's job, but this is not possible in the case of vehicles that are not regularly maintained by the mechanic. One misunderstood aspect of preventative maintenance is "scheduled replacement" of various parts, which occurs before failure to avoid far more expensive damage. Because this means that parts are replaced before any problem is observed, many vehicle owners will not understand why the expense is necessary.

With the rapid advancement in technology, the mechanic's job has evolved from purely mechanical, to include electronic technology. Because vehicles today possess complex computer and electronic systems, mechanics need to have a broader base of knowledge than in the past. The term "auto mechanic" is being used less and less frequently and is being replaced by the title "automotive service technician". Fading quickly is the day of the mechanic, who needed little knowledge of today's computerized systems. Most automobile dealerships now provide sophisticated diagnostic computers to each technician, without which they would be unable to diagnose or repair a vehicle.

**Exercise 3.** Match a–g with 1–7.

- |                           |                                  |
|---------------------------|----------------------------------|
| a) preventive maintenance | 1) диагностировать               |
| b) maintenance            | 2) профилактическое обслуживание |
| c) repair                 | 3) поломка, отказ                |
| d) to diagnose            | 4) замена                        |
| e) partial disassembly    | 5) ремонт                        |
| f) replacement            | 6) обслуживание                  |
| g) failure                | 7) частичная разборка            |

**Exercise 4.** Put in prepositions where necessary.

1. A car mechanic specialises ... automobile repair.
2. Mechanics should be knowledgeable in working ... all parts of cars.
3. This job involve the replacement ... some parts.
4. Nowadays mechanics need to have more knowledge than ... the part.
5. Most dealerships provide diagnostic computers ... each technician.

**Exercise 5.** Find the passages in the text above for which the next word combinations would be the key words:

1. car mechanic's job
2. electronic technologies
3. vehicle maintenance

**Exercise 6.** Answer the questions.

1. What is a car mechanic called in Australian English?
2. What are the main functions of the car mechanic?
3. Does the mechanic's job include electronic technology?
4. Do most automobile dealerships now provide sophisticated diagnostic computers to each technician?

**Exercise 7.** Give some reasons for your professional choice. You may use the following phrases: to be fond of automobiles; to be well-paid; to give prospects for career growth; to involve electronic technology; to require much knowledge.

*Example:* I chose this profession because I like machinery.

**Exercise 8.** Do you agree that the mechanic's job include electronic technologies? Discuss it, agreeing and giving arguments.

## LESSON 10

### Car mechanic's skills

**Exercise 1.** Read "th" as [θ] or [ð] in these words.

	[θ]		[ð]		
length		thanks		other	than
think		worth		their	with
thin		theme		that	then
through				though	

**Exercise 2.** Read the text and try to understand the meaning of the underlined words and word combinations.

Car mechanics repair and maintain cars. Some mechanics work on all parts of any car, while others specialise in one area or on one type of car. The most challenging aspect of car repair is often the mechanic's favourite part: diagnosing the problem. Speed and accuracy in diagnosis and quoting prices to the customer are crucial if the mechanic intends to keep long-term clients. The mechanic examines the engine while it is running (if possible) to see if his initial assumptions are correct.

Electronic diagnostic equipment is useful but the good mechanic can tell a lot by using eyes, ears, a nose as he searches for problems. Sometimes he repairs parts, but if the part is worn or damaged, he replaces it. Some mechanics compare their field to that of the physician, because most people come to them only when their car is in dire straits. When people come in for an automotive check-up, mechanics often replace worn parts before they become hazardous to the driver, even though drivers can be suspicious of mechanics who recommend the replacement of parts that haven't stopped functioning.

The best mechanics have mastery of a wide variety of integrated skills: electrical systems (a car's wiring is more complicated than an average home's); computerised electronics (a television set seems simple by comparison); fuel system (a car's "plumbing" is a Byzantine maze of tubes). Car mechanics proudly compare themselves to doctors, since they mainly see people with complaints; but whereas the human body and its problems have remained essentially unchanged for millennia, the designs of cars change every year. As a result, the job requires more preparation than ever before. More and more, cars are controlled by electronic instruments, so mechanics are using computers constantly. "Computers have become as much a part of the tool box as wrenches," said one mechanic.

Most car mechanics start in an automotive repair school, then work full time at the same dealerships. They read trade papers daily to know about of changes and trends in their industry. As they gain experience they can move into higher-paying, specialised positions. They can also rise to the ranks of supervisor or manager, particularly if they have strong interpersonal skills to calm cranky customers who are displeased by high service bills and inconvenience.

**Exercise 3.** Match a–l with 1–12.

- |                      |                      |
|----------------------|----------------------|
| a) diagnosis         | 1) топливная система |
| b) long-term clients | 2) изношенные детали |
| c) examine           | 3) диагностика       |

- |                                    |   |
|------------------------------------|---|
| d) electronic diagnostic equipment | 4) постоянные клиенты                       |
| e) worn parts                      | 5) осматривать                              |
| f) replace                         | 6) электронное оборудование для диагностики |
| g) mastery                         | 7) заменить                                 |
| h) maintain                        | 8) мастерство                               |
| i) fuel system                     | 9) обслуживать                              |
| j) wrench                          | 10) гаечный ключ                            |
| k) interpersonal skills            | 11) коробка с инструментами                 |
| l) tool box                        | 12) умения межличностного взаимодействия    |

**Exercise 4.** Fill in the missing letters in the words.

Rep .. r, me .. anic, diagnos .. , repl .. e, maste .. , t .. l, experien .. ,  
ma .. nta .. n, cl .. nt, e .. am .. ne, en .. ne, dr .. v .. r.

**Exercise 5.** Using the information from the text, make up the list of operations which car mechanics must perform. Write them down into your exercise-books.

**Exercise 6.** Make the following sentences negative.

1. Teachers repair and maintain cars.
2. If the part is worn, a car mechanic replaces it.
3. The easiest aspect of car repair is diagnosing the problem.
4. Car mechanics compare themselves to painters.
5. Mechanics are using chalk constantly.

**Exercise 7.** Answer the following questions.

1. Which of the operations (exercise 5) can you manage?
2. Do you agree that “electronic diagnostic equipment is useful but the good mechanic can tell a lot by using eyes, ears, a nose as he searches for problems”. Explain your point of view.
3. Why do car mechanics compare themselves to doctors? What is similar and what is different in their work?
4. What is the way car mechanics can move into higher-paying positions?

**Exercise 8.** Choose from the list below characteristics, which you consider necessary in your profession, add others if necessary.

Accurate, tolerant, patient, sociable, good-mannered, exact, cautious, attentive, hardworking, scrupulous, sharp, widely-read, competent, organised, impulsive, impatient, balanced.

**Exercise 9.** Read the information below, agree or disagree. Prove your point of view.

Car mechanics can rise to the ranks of supervisor or manager, particularly if they have strong interpersonal skills to calm cranky customers who are displeased by high service bills and inconvenience.

**Exercise 10.** Name some positive and negative aspects of your profession.

*Example:* This job is well-paid, but it requires significant physical efforts.

**Exercise 11.** Work in pairs. Make up a dialogue about positive and negative aspects of your profession, using the phrases:

On the one hand... but on the other... (С одной стороны..., а с другой...)

I can't agree... (Я не могу согласиться...) As far as I know ... (Насколько я знаю...)

You are right but... (Вы правы, но...) At the same time ... (В то же время...)

Quite the opposite... (Совсем наоборот...) I don't think so ... (Я так не думаю...)

## LESSON 11

### How to get the profession

**Exercise 1.** Read "ch" as [k], [tʃ] or [ʃ] in these words.

[k]  
mechanic

technical

chaos

character

chronometer

[tʃ]

check

change

charge

approach

[ʃ]

chassis

chauffeur

charade

chute

**Exercise 2.** Say if you like the system of car mechanics training in our country. Try to give some arguments.

**Exercise 3.** Look through the text below and divide it into the following parts:

- Training system in the UK.
- Training system in Australia.
- Training system in the USA.

**Exercise 4.** Read the text and say which system of car mechanics training among those described in the text you consider the best and why.

To become a car mechanic in the UK students begin their training by studying car processes in manuals and then work on older cars. Most mechanics find themselves in technical educational programmes after finishing school. All car mechanics are required to be certified.

In the UK there are different routes for people to become qualified. The best route is to serve an apprenticeship with a local garage or dealership while attending a college or a training centre. The apprenticeship is split into 2 levels.

Level 2 is made of the following components:

NVQ (National Vocational Qualification) – this is achieved by the collection of evidence in the workplace that the apprentices can remove and replace components to manufacturers guidelines.

VRQ (Vocational Related Qualification) – this is also sometimes called a “Tech cert” and is a series of tests designed to show that the candidate understands how things work, i.e. engines, transmission, chassis, etc. It is delivered in a variety of ways at a training centre or at a local college.

Key Skills – the skills in key areas: Communications (English), Application of Number ( Maths) and I.T. (use of computers and I.T.).

When the candidate has achieved the required components listed above, apprentices are given Apprenticeship certificates to show competence at that level.

UK training differs from American training and general practice in that a U.K. mechanic will be expected to be able to repair all areas of the vehicle (apart from Bodywork and Painting), i.e. engines, suspension (подвеска), brakes (тормоза), electrical, transmission, etc., as these are usually all covered in the same garage or workshop.

This training usually takes 4–5 years, after this term apprentice is said to be “qualified” and works alongside experienced technicians.

In Australia, an apprentice works under one or more qualified mechanics for a period of four years. During that time, they attend a Technical and Further Education (TAFE) college one day per week for three years. In some states, mechanics are required to be qualified to work as a mechanic, and the workshop in which they work is required to have a workshop licence. In other states, no such licensing is required.

In the United States there are several programmes and schools that offer training for those interested in gaining competencies as an automotive mechanic. A few of the aspects usually taught are: power train (силовая передача) repair and diagnosis, emission control (отвод выхлопа газов), and suspension. The National Automotive Technicians Education Foundation

(NATEF) is responsible for evaluating technician training programmes for certification (accreditation) by ASE, the National Institute for Automotive Service Excellence. While it's not required by law for a mechanic to be certified, some companies only hire or promote employees who have passed ASE tests.

**Exercise 5.** Give the sentences from the text with the following phrases and translate them.

1. The best route is to serve an apprenticeship ... .
2. It is delivered in a variety of ways ... .
3. Key skills ... .
4. This training usually takes ... .
5. ... an apprentice works under ... .
6. ... mechanics are required to be ... .
7. ... licensing is required.
8. .... aspects usually taught are ... .

**Exercise 6.** Work in pairs. Describe the system of a car mechanic training in Belarus, giving some information about: 1) the terms and components of the educational process; 2) the skills required to be certified; 3) final exams.

*Example:* The training takes 3 years in Belarus. To be certified mechanics are expected to be able to repair all areas of vehicles. During the training period pupils attend a college and a workshop.

**Exercise 7.** Fill in the table below. Compare the system of car mechanics training in different countries.

Country	Is it required by law for a mechanic to be certified?	Does a car mechanic specialize in one area or work on all parts of any car?	The terms of training.	What I like in this system of training.	What I dislike in this system of training.
Belarus					
The UK					
The USA					
Australia					



## UNIT 2. APPLYING FOR A JOB

### LESSON 12

#### Writing resumes (CVs\*)

**Exercise 1.** Copy the table and complete it with the correct parts of speech given below.

Noun	Verb	Positive Adjective
	depend	
		responsible
information		
		employable
	compete	
		applicable
transfer		

Responsibility, inform, competition, transfer, dependence, employment, apply, transferable, dependent, informative, competitive, employ, response, application.

**Exercise 2.** Learn some rules of writing a resume and say what kind of information is usually mentioned in the resume.

Writing a successful resume depends on many factors. Here is a simple guide to the basics of writing a good resume (CV):

1. Take detailed notes on your work experience. Include both paid and unpaid, full time and part time positions. Include your main responsibilities, any other activities that were a part of the job, the job title and the information about the company, the dates of employment.

2. Take detailed notes on your education. Include certificates, school names and courses.

3. Include a list of other non-work related accomplishments. These may include competitions won, membership in special organizations, etc.

4. Decide which skills are transferable (skills that will be especially useful) to the position for which you are applying.

---

\*CV – Curriculum Vitae – a summary of academic and professional history and achievements.

5. Write your full name, address, telephone number, fax and email at the top of the resume.
6. Include an objective for the resume. The objective is a short sentence describing what type of work you hope to obtain.
7. Include skills such as languages spoken, computer programming knowledge, etc. under the heading: Additional Skills.

### Tips

Be short! Your finished resume should not be more than a page.

Use dynamic action verbs such as: *accomplished, collaborated, encouraged, established, facilitated, founded, managed, etc.*

Do NOT use the subject “I”, use tenses in the past, except for your present job.

If the job seeker specialises in any particular systems area, such as brake systems, this should be mentioned as well.

**Exercise 3.** Complete the sentences with the missing words from the box.

1. In the resume you should give some information about your work ... .
2. Include the information on your ... : school names and ... .
3. Mention the ... that will be especially useful for the ... .
4. Write your full name, ... and telephone number at the ... of the resume.

top	address	certificates	experience
	job	skills	education

**Exercise 4.** Study this example of a basic resume and try to understand the meanings of the underlined words.

WILLIAM J. BENNETT

725 Otter Lane

Wausau, WI 54554

(715) 555-6006

### SUMMARY OF SKILLS

- Skilled in repair and maintenance of automobiles, vans and trucks, with advanced skills in diesel repair and maintenance.
- Strong background in working with cooling, air conditioning, electrical, fuel, exhaust and steering systems.

- Experienced in working with all gauges, wrenches, and machine, air and hand tools.
- Experienced in diagnosing problems, writing accurate work orders and preparing estimates.

### PROFESSIONAL EXPERIENCE

Oct 1993 – present Automotive Mechanic, Goodyear Tyre and Repair Service, Galesburg

Responsibilities

- Successfully diagnose and repair of 10 vehicles per week on the average.
- Handle all diesel repairs.

June 1991 – Oct 1993 Automotive Mechanic, Shelby Chevrolet, Hockessin

Responsibilities

- Handled repair and maintenance of domestic cars and trucks.
- Recommended use of a new lubricant, which produced superior results at half the cost of previous lubricant.

### EDUCATION/TRAINING

1990 Graduate, Hockessin High School, Hockessin

- Related course work: Automotive Shop, Advanced Auto Shop, Computer Operations

1990–1991 Truman Career Vocational College, Waverly

- Completed curriculum and certification in automotive repair
- Completed additional certification in diesel repair
- Finished second in graduating class

Gauge [geɪdʒ] – счетчик

Wrench [rentʃ] – отвертка

Tyre [ˈtaɪə] – шина

Lubricant [ˈluːbrɪkənt] – смазка

**Exercise 5.** Complete the resume, using the words and word combinations below.

- US
- A position of an automotive mechanic
- Married
- Over 12 years of experience in auto body (кузов) repair operations, customer service, general tune-up and maintenance
- Diagnose and repair all types of vehicles
- 1998 – Denver Community College
- Specialised in brake system repair. Worked well unsupervised
- Automotive Service Excellence (ASE). Received 5 “Gold Seal” awards for excellence in repair and customer service
- Repaired damaged lorries and ordered parts

Henry Talbot  
3495 Poplar Lane  
Denver, CO 55555  
1-555-555-1212  
[henryt@email.com](mailto:henryt@email.com)

Personal Information  
Marital status: ...  
Nationality: ...  
Objective: ...  
Summary of Skills: ...

Employment History  
Perry Motors Denver, CO 2003 – Present  
*Mechanic*

Responsibilities: ...

Hudson Motors Denver, CO 2000 – 2003  
*Lorry Mechanic*

Responsibilities: ...

Jordan Automotive Denver, CO 1998 – 2000  
*Trainee (стажер) Mechanic*

Responsibilities: ...

Certifications: ...

Education: ...

## LESSON 13

### The Interview

**Exercise 1.** Read the words with the letter “s” as [s], [z], [ʃ] or [ʒ].

[s]	[z]	[ʃ]	[ʒ]
consider	resume	impression	occasion
most	position	sure	measure
university	congratulations	profession	decision
writes	rules	passion	usually

**Exercise 2.** Make the list of rules how to make a good impression during the job interview.

**Exercise 3.** Learn some rules of a successful job interview and say what the most important part of the job interview is.

Congratulations! Your resume have made a good impression and the employer has called you in for an interview. Now it's time to make sure that you also have the right type of English for that job interview.

There are some very important rules to consider when taking a job interview.

### *Work Experience*

Work experience is the most important part of any job interview. It is true that education is also important, however, most employers are more impressed by extensive work experience than by university degrees. Employers want to know exactly what you did and how well you accomplished your tasks. This is the part of the interview during which you can make the best impression. It's important to give full, detailed answers. Be confident, and emphasise your accomplishments in past positions.

### *Qualifications*

Qualifications include any education, as well as any special training you may have had (such as computer courses). Mention your English studies. This is very important as English is not your first language and the employer may be concerned about this fact. Assure the employer that you are continuing to improve your English skills by saying that you study a certain number of hours a week to improve your skills.

### *Talking about Responsibilities*

You will need to demonstrate your qualifications and skills which are directly applicable to the job you are applying for. If past job skills were not exactly the same as what you will need on the new job, make sure to detail how they are similar to job skills you will need for the new position.

**Exercise 4.** Read about the specific kind of vocabulary which is used in the interview and say how to make a good impression on the interviewer.

The job interview in English requires a very specific kind of vocabulary. It also requires good tense usage as you need to make a clear distinction between past and present responsibilities. Here is a quick overview of the appropriate tenses to use:

1) Use the present simple to describe your daily responsibilities. This is the most common tense to use when speaking about your current position.

*Example Sentence: I repair car engines.*

2) Use the past simple to describe your daily responsibilities in a former position. This is the most common tense to use when speaking about past jobs.

*Example Sentence: I worked as a vehicle diagnostician.*

3) Use the present continuous to speak about current projects that are happening at that moment in time. These projects are limited in time and should not be confused with daily responsibilities.

*Example Sentence: Currently, I am repairing lorries.*

4) Use the present perfect to describe projects or accomplishments that you have made up to the present moment in time. Remember not to include specific past time references which should be used with the past simple.

*Example Sentence: I've got experience in body repair operations.*

5) Use the future simple to discuss your plans for the future. This tense is only used when the interviewer asks you what you plan to do in the future.

*Example Sentence: I will be the consultant of the team of auto body technicians.*

There are a number of other tenses that you can use to speak about experience that you have had. However, if you do not feel comfortable using more advanced tenses, these tenses should serve you well in the interview.

#### *Common Interview Questions*

The first impression you make on the interviewer can decide the rest of the interview. It is important to introduce yourself, shake hands, and be friendly and polite. The first question is often a “breaking the ice” type of question. Don't be surprised if the interviewer asks you something like:

- How are you today?
- Did you have any trouble finding us?
- Isn't this great weather we're having?

This type of question is common because the interviewer wants to put you at ease (help you relax). The best way to respond is in a short, friendly manner.

#### **Exercise 5.** Which responses are correct in these dialogues?

1. **Interviewer:** How are you today?

**You:** I'm fine, thank you. And you?

2. **Interviewer:** How are you today?

**You:** So, so. I'm rather nervous actually.

3. **Interviewer:** Did you have any trouble finding us?

**You:** No, the office isn't too difficult to find.

4. **Interviewer:** Did you have any trouble finding us?

**You:** As a matter of fact it was very difficult. I missed the exit and had to return via the highway. I was afraid I was going to be late for the interview.

5. **Interviewer:** Isn't this great weather we're having?

**You:** Yes, it's wonderful. I can remember this time last year. Wasn't it awful! I thought it would never stop raining!

6. **Interviewer:** Isn't this great weather we're having?

**You:** Yes, it's wonderful. I love this time of year.

**Exercise 6.** Imagine that you are a car mechanic. Use the list of verbs below to express your responsibilities and tasks performed.

*Example:* I improved dealership relations with manufacturers, repaired fuel systems, replaced worn parts, carried out general maintenance.

Advised, analysed, assisted, carried out, changed, classified, consulted, controlled, cooperated, created, dealt, decided, estimated, examined, improved, inspected, installed, made, managed, negotiated, operated, organized, performed, planned, prepared, purchased, recommended, repaired, replaced, selected, serviced, supervised, tested, upgraded.

**Exercise 7.** You only have a few minutes to show how good you really are. Using the adjectives below describe your skills and try to make the best impression possible.

*Example:* I am experienced in engine repair and preventive maintenance. I'm self-disciplined and enthusiastic in work. Besides, I'm tactful and diplomatic with other people.

Accurate, active, adaptable, broad-minded, competent, creative, diplomatic, energetic, enthusiastic, experienced, firm, honest, logical, loyal, mature, motivated, objective, outgoing, pleasant, positive, practical, productive, reliable, self-disciplined, sincere, tactful, trustworthy.

**Exercise 8.** Make up a dialogue between an employer and a car mechanic looking for a job. Use the phrases from the exercises above.

## LESSON 14

### Applying for a job

**Exercise 1.** Try to explain to your classmates what the purpose of writing application letters is.

**Exercise 2.** Read the following application letter and say what parts the letter consists of. In your exercise books draw the scheme of the letter.

Alex Smith  
204-40 34 th Rd.  
Forest Hills, N.Y. 12426  
Tel. (718) 345-2749  
April 16, 2011

The secretary  
Motor Dobson Inc.  
1342 Moris. Avenue  
N.Y. 08314

Dear Sir,

Your advertisement for an engine mechanic in today's Boston Globe interests me much because many years of experience have qualified me to work for a company like yours. Please, consider me an applicant.

You will find additional information about my qualifications in the enclosed resume. I would appreciate your granting me an interview.

Sincerely yours,  
Alex Smith.

**Exercise 3.** Fill in the missing letters in the words given below.

Adv..ti.ement, me..anic , exper..n.e, a..li.ant, q..lifica...n, r.s.me, int..v..w.

**Exercise 4.** You have read the advertisement (given below) in a newspaper. Write the application letter in which try to persuade the employer that you have all the necessary experience and knowledge.

### JOB VACANCIES

car electronics installer • car mechanic • engine mechanic • lorry mechanic • vehicle diagnostician

**Language knowledge (basic):** *English*  
**Preferences:** *experience in car diagnostic*  
**Employment form:** *full time*  
**Location:**  
**City/town:** *London*  
**Region:** *Wrexham*  
**Country:** *United Kingdom*

**Description:**

HORIZONS INTERNATIONAL RECRUITMENT Leader Admissions  
www.horizonsrecruitment.co.uk ASO, England Tel:  
00447761637664



**Exercise 5.** Fill in the application form below with the information about yourself.

<b>Application for employment</b>	
Surname ...	Name ... <input type="text" value="Company name"/>
Address ...	
Telephone numbers private ...	business ...
Nationality ...	
Date of birth ...	
Age ...	Marital status ...
Date of marriage ...	
Number of dependants ...	
Number of children ...	
Their ages – ...	male                      female
Do you own your home? YES/NO.	
Rent? YES/NO.	
Live with relatives? YES/NO.	
Do you have a current driving licence? YES/NO.	
Is it clean? YES/NO.	
National insurance number ...	
Height ...	Weight ...
Do you have any physical disabilities? YES/NO.	

## UNIT 3. BUSINESS ETIQUETTE

### LESSON 15

#### Business letters

**Exercise 1.** Discuss the following questions.

1. What parts does a usual letter include?
2. What is the difference between a usual letter and a business letter?
3. What information should a business letter include?

**Exercise 2.** Study the layout of a business letter and give headlines to each passage, using the words from the box.

Addresses	Date	Salutation & Greeting
Concluding a Letter		Signature

A business letter consists of several parts.

*Your Address.* Your address should be displayed in the top right-hand section of your letter. *The Address of the person you are writing to.* This address should be displayed beneath your address on the left-hand side of your letter, remember to include the name of the person that you are writing to (if known).

*The date* should be displayed on the right-hand side of the page on the line beneath your address and should be written in full format:

e.g. 1st January, 2001

If you do not know the name of the person that you are writing to, use the greeting “*Dear Sirs,*”. In some circumstances it is useful to find the name, especially if you are writing to make a request as this will show that you have done your homework and your letter is more likely to receive a response.

*Dear Mr Jones,*

If you know the name, use one of the following titles:

*Mr* – for a male, *Mrs* – for a married female, *Miss* – for an unmarried female, *Ms* – for a female whose status is unknown or would prefer to remain anonymous, *Dr* – for a person with the status of a doctor. This should be followed by the surname only (not the first name).

If you do not know the name of the person, end the letter with “*Yours faithfully,*”. If you know, end the letter with “*Yours sincerely,*”.

Sign your name, then print it underneath the signature. If it is potentially unclear what your title would be then include this in brackets next to your printed name.

The address of the person you are writing to should be displayed on the left just beneath your address

Your address should be displayed in the top right corner

Your greeting should be displayed on the left just beneath the date

The date should be displayed just below your address on the right

This is where you sign off; yours faithfully or yours sincerely

This is where you sign and print your name

This is the main body of your letter



**Exercise 3.** In the following business letter sample define the parts mentioned in exercise 2.

Continental Equipment  
Director: John G. Smith  
9 North Road, Brighton, BN 5 JF  
Telephone: 0273 559364  
Fax: 0273 559364

Our Ref: G/f146 Your Ref: SD/jr  
Sales Department  
Aluminium Alloy Co. Ltd. Birmingham  
79 Prince Albert St. Birmingham  
821 8DJ

15 May 2011

Dear Sirs,

We thank you for your letter of 11 May, and would like to inform you that we can deliver all the items required from stock, according to the enclosed detailed offer. For the balance we would require three weeks from the date of receiving your confirmation that this arrangement is acceptable.

Delivery as specified above. Payment against documents.

We hope you will find our terms, method of payment and delivery dates satisfactory; and we can assure that you may count on our full co-operation and immediate attention in this matter.

Yours faithfully,  
Robert Hanson  
Continental Equipment

**Exercise 4.** Give the English equivalents to the word combinations.

Можем доставить; все требующиеся предметы; от даты получения; соглашение приемлемо; оплата при доставке; способ оплаты; сроки доставки; рассчитывать на сотрудничество.

**Exercise 5.** Put in prepositions where necessary.

thank you ... your letter  
deliver ... the items  
according ... the offer

two months ... the date of payment  
charges payable ... delivery  
count ... our help  
method ... payment

**Exercise 6.** Match a–k with 1–11.

- |                                       |  |
|---------------------------------------|--|
| a) the terms of delivery              | 1) прийти к соглашению (с кем-либо)        |
| b) cooperation                        | 2) отвергать, отказываться от              |
| c) lower the price                    | 3) ожидать с нетерпением, предвку-<br>шать |
| d) discuss the terms                  | 4) предлагать; предложение                 |
| e) come to an agreement<br>(with smb) | 5) сроки поставки                          |
| f) proposal                           | 6) снизить цену                            |
| g) offer                              | 7) предложение                             |
| h) agree                              | 8) удовлетворять                           |
| i) reject                             | 9) сотрудничество                          |
| j) satisfy                            | 10) соглашаться                            |
| k) look forward to                    | 11) обсудить условия                       |

**Exercise 7.** Read the description of three types of business letters and decide which of them is:

- a letter of complaint
- a letter of enquiry
- a letter of request

a) It is a formal letter which specifically asks an individual or organisation to take an action. An example of this type of letters would be a letter sent to request sponsorship for a charity activity. It is important to stress the importance of being clear and concise with this format of letter as the recipient must remain interested in what you have to say.

b) It is a formal letter sent to an individual or organisation in response to receiving poor service or a bad product. An example of this type of letters would be a letter sent to a company that has provided a bad service. In this type of formal letters it is important that you detail your arguments.

c) It is a formal letter that makes an approach to an individual or organisation where you request some information. An example of this type of letters would be a letter sent to a company requesting a copy of their catalogue or brochure. These letters are short and it is usually beneficial to include other ways of contact.

**Exercise 8.** Make up the letter of one of the types (exercise 7). Use some of the following phrases:

**Introduction:**

Thank you for your e-mail (letter) of (date)

Further to your last e-mail... (Отвечая на Ваше письмо...)

With reference to your letter of 23rd March ... (Относительно Вашего письма от 23 марта...)

With reference to your advertisement in "The Times"...

**The aim:**

I am writing to enquire about... (чтобы узнать).

I am writing to apologise for... .

I am writing to confirm... (чтобы подтвердить)

I am writing in connection with... (в связи с)

I'm writing to let you know that...

**Request:**

Could you possibly...

I would be grateful if you could ...

I would like to receive...

Please could you send me...

**To inform on bad news:**

Unfortunately...

I am sorry to inform you that...

We regret to inform you that...

**To give some additional information:**

We are pleased to enclose... (С удовольствием вкладываем...)

Attached you will find... (В прикрепленном файле Вы найдете...)

**Gratitude for the shown interest:**

Thank you for your letter of...

Thank you for enquiring...

**Additional questions:**

I do not fully understand what...

Could you possibly explain...

## LESSON 16

### Business etiquette

**Exercise 1.** Transcribe and pronounce correctly the words.

Who, why, would, what, welcome, which, when, where, well.



**Example:** How many employees are there in all?

There are 300 employees in your firm, aren't there?

1. Does your firm have any branch plants?
2. Who is your main supplier?
3. What is the percent defective?
4. Are you paid by the hour (почасовая оплата)?
5. Do you ever work overtime?

**Exercise 5.** Which of the groups (greeting and farewell; apologies; sympathy; agreement, disagreement, refusal; invitations; requests; thanks) do the following phrases belong to?

1. Excuse me, I must be going. 2. Don't mention it. 3. Good luck! 4. Glad to meet you. 5. How do you do? 6. It's nice to meet you. 7. Fine, thank you. And you? 8. May I ask a favour of you? 9. Good-bye. 10. I am very grateful to you. 11. How are you? 12. I would like to invite you to ... 13. That suits me. 14. You are welcome. 15. I am very sad to hear that. 16. Could you help me, please? 17. Thank you for your help. 18. Please pardon the disturbance. 19. Please don't be angry. 20. Thank you, but I will be busy then. 21. I have no objection. 22. Sorry, I caused you so much trouble. 23. You are right. 24. Excuse me, but I have things to do. 25. I very much regret what happened. 26. Too bad. 27. On the contrary!

**Exercise 6.** Complete the sentences with the words from the box.

1. I am ... to you. 2. It's nice to ... you. 3. I'm afraid I'll be ... then. 4. Don't ... it. 5. How do you ... ? 6. ... are you? 7. You are ... 8. Let's discuss the terms of ...

meet	busy	do	welcome
delivery	mention	grateful	how

**Exercise 7.** Complete the dialogue with the phrases below and role-play it.

**Mr. Ivanov:** ... , Mr. Smith. How do you do?

**Mr. Smith:** ... , Mr. Ivanov?

**Mr. Ivanov:** We're here today ...

**Mr. Smith:** If you don't mind, ... . What's your idea of the price?

**Mr. Ivanov:** We propose 50 pounds per item.

**Mr. Smith:** We're not satisfied with the terms you offered. .... ? I propose 45 pounds per item.

**Mr. Ivanov:** We'll think your proposal over. I suppose ...

**Mr. Smith:** Now we come to the question of the term.

**Mr. Ivanov:** In a month, I suppose. ... ?

**Mr. Smith:** Agreed.

**Mr. Ivanov:** Right, it looks as though ... . We are looking forward to ... .

*to discuss the terms of the delivery; how do you do; could you lower the price; let's start with the price; will that do; we've covered the main items; continuing our cooperation; we could come to agreement; nice to meet you.*

**Exercise 8.** Make up your dialogues by analogy.

### **Further reading**

► Read the text about one of the motor vehicle manufacturers of Belarus and say what the secret of its success is.

#### **To follow traditions – by way of progressive development**

BELAZ is a Belarusian manufacturer of haulage and earthmoving equipment based in Zhodzina. The factory opened its door in 1948 and has produced over 120,000 vehicles for use in the Soviet Union.

BELAZ today is a dynamically developing enterprise. BELAZ is a major world manufacturer of mining dump trucks of heavy-duty and super-size load capacity, as well as the other heavy vehicles, being used in mining and construction branches of industry.

BELAZ is a site for one of the largest Commonwealth of Independent States investment projects. The factory finalized two of the three scheduled phases of the technical re-equipment and upgrades. The Quality Management System applied in research and development, fabrication, erection and after-sale service of the equipment complies with international ISO 9000 standards.

All achieved by BELAZ within 60-year old history is the result of implementation of the enterprise main policy: the fullest satisfaction of the customer's needs, with which "Belarusian Autoworks" has long-term effective cooperation.

Main customers of BELAZ products are CIS mining companies, mainly from Russia and the Ukraine. In the Republic of Belarus the market for mining dump trucks of 30–55 tones load capacity is limited in their usage only by few companies. The supplies of dump trucks are maintained mostly to the markets of far-abroad countries.

Production Association "BELAZ" is a holder of the following prestigious international awards:



- Golden America award “For Quality”;
- International award “For Technology and Quality”;
- “Crystal Nike” award under the International programme “Partnership for the sake of Progress”;
- prize from the government of the Republic of Belarus;
- “International Diamond Star for Quality”.

*The plant’s production:* Construction & Road-Building Equipment, Underground Vehicles, Special Purpose Vehicles, Railway Freight Cars, Mining dump Trucks.

*Construction & Road-Building Equipment* designed for mechanization of loading works in open pits, at railway stations and other factories during loading of bulk loads (crushed stone, sand, gravel, rocks, soils, etc.) onto dump trucks, railway open wagons and other vehicles.

*Underground Vehicles* are designed for transportation of rocks and minerals in tunnels and under other straitened (стесненных) conditions.

*Special Purpose Vehicles* are designed for layer-by-layer compacting of soils, gravel, crushed stones at construction of dams (дамбы), road surfaces and others.

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**haulage equipment** – оборудование для перевозок; **earthmoving equipment** – землеройное оборудование; **load capacity** – грузоподъемность; **enterprise** – предприятие; **manufacturer** – производитель; **mining** – горная промышленность; **dump trucks** – самосвалы; **branches of industry** – отрасли промышленности; **technical re-equipment** – техническое переоснащение; **upgrades** – усовершенствования; **Quality Management System** – система менеджмента качества; **erection** – монтаж; **after-sale service** – сервисное обслуживание; **supplies** – поставки; **processing industry** – перерабатывающая промышленность; **compacting of soils** – уплотнение почвы

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## REVISION AND CONSOLIDATION

1. Fill in the gaps in the curriculum vitae form with the information about yourself.

### Curriculum Vitae

*Personal details*      Name:  
                                     Date of Birth:  
                                     Marital Status:  
                                     Nationality:  
                                     Address:  
                                     e-mail:

*Education*  
*Work Experience*  
*Languages*  
*Interests and Activities*  
*Other Information*

2. What would you change in our system of car mechanics training to improve it? Discuss the problem with your classmates and make up the list of the changes.
3. Speak about the prospects of the automotive industry development in our country.
4. Project work

Find information about one of the motor vehicle manufacturers of Belarus from the list below and make a booklet. Don't forget to give some facts from the history of the enterprise, its products, consumers, awards, ways of development. Illustrate the booklet with photos and pictures.

Minsk Automobile Plant (MAZ)  
Minsk Tractor Works (MTZ)  
the Minsk Wheeled Tractor Factory (MZKT)

### **Tasks for self-control**

1. Match the words on the left with suitable words on the right to make up word combinations.

- |                 |                  |
|-----------------|------------------|
| 1. application  | a) advertisement |
| 2. work         | b) vitae         |
| 3. curriculum   | c) form          |
| 4. job          | d) experience    |
| 5. letter of    | e) a job         |
| 6. to apply for | f) skills        |
| 7. personal     | g) complaint     |

2. Make up sentences of the given words.

1. engines, repair, I, car.
2. vehicle, I, worked, diagnostician, as, a.
3. repairing, lorries, currently, I, am.
4. got, I, experience, have, repair, in, body.
5. the, I, will, auto, be, of, the, team, consultant, of, body, technicians.

**The key to ex. 1:** 1 – c; 2 – d; 3 – b; 4 – a; 5 – g; 6 – e; 7 – f.

**The key to ex. 2:**

1. I repair car engines.
  2. I worked as a vehicle diagnostician.
  3. I am repairing lorries currently.
  4. I have got experience in body repair.
  5. I will be the consultant of the team of auto body technicians.
- 

## UNIT 4. TOOLS AND ACCESSORIES

### LESSON 17

#### Measurements

**Exercise 1.** Give the adjectives following the example. Read the words. Pay attention to the pronunciation.

**Example:** length – long  
width – youth –  
height – strength –  
depth – weight –  
thickness –

**Exercise 2.** Fill in the missing letters in the following words.

Len..h, wi.th, d..th, w..ght, stre..th, hi.., d..p, wei.. , w.de.

**Exercise 3.** Choose one word in each group.

1. This car is (*long, longer, length*) than that one.
2. Its (*weigh, weight, width*) is more than 50 kilograms.
3. This ladder is as (*high, height, higher*) as that one.
4. The pool is very (*depth, deeper, deep*).
5. It's a very thick wall. Its (*thick, thicker, thickness*) is 38 cm.

**Exercise 4.** Say what units of measurement you know.

**Exercise 5.** Read the text below and say if you have learnt some units of measurement in it you didn't know before.

The metric system is adopted as the common system of weights and measures by the majority of countries, and by all countries as the system used in scientific work.

**Weights and measurements.** In the English-speaking world, the everyday units of linear measurement were traditionally the inch, foot, yard and mile. In Britain units of weight (ounces, pounds and tons) are now also derived from the metric standard – kilogram.

**Length.** The meter was defined in 1983 as the length of the path travelled by light in a vacuum during the time interval of  $1/299,792,458$  of a second.

**Time.** For centuries, time has been universally measured in terms of the rotation of the earth. The second, the basic unit of time, was defined as  $1/86,400$  of one complete rotation of the earth on its axis in relation to the sun.

Some units are too large for ordinary use and others are too small. To compensate, the prefixes developed for the metric system have been borrowed and expanded. Examples are millimeter (mm), kilometer/hour (km/h), megawatt (MW). The prefixes hector, deka, deci and centi are usually used with meter to express areas and volumes.

**Exercise 6.** Correct the wrong information in the following statements:

- The metric system is adopted as the system used in scientific work by the majority of countries.
- In the English-speaking world, the everyday units of linear measurement were traditionally a meter and a kilometer.
- For centuries, time has been universally measured in terms of the rotation of the moon.
- To make the metric system more convenient some suffixes were developed.

**Exercise 7.** Learn the following units and fill in the gaps in the sentences below.

*Units of time*

60 seconds = 1 minute  
60 minutes = 1 hour  
24 hours = 1 day  
7 days = 1 week  
52 weeks = 1 year  
365 days = 1 year

*Units of length*

12 inches = 1 foot = 30.5 cm  
3 feet = 1 yard = 91 cm  
1760 yards = 1 mile = 1609 meters  
1 inch = 2.54 cm  
1 meter = 39.37 inches

*Units of weight*

16 ounces (oz.) = 1 pound (lb.)  
1 kilogram = 2.2 lbs

### *Units of area*

1 square meter = 10,000 square centimeters

### *Units of volume*

1 cubic meter = 1,000,000 cubic centimeters

1. The speed of the car is 120 km per hour which is equal to ... meters per second.
2. The length of the wrench is 20 centimeters which is equal to ... meters.
3. The weight of the wheel is 15 kilograms which is equal to ... pounds.
4. The volume of the engine is 2,000 cubic centimeters which is equal to ... cubic meters.
5. The length of the car is 3.2 meters which is equal to ... inches.
6. The warranty for this equipment is 2 years which is equal to ... weeks.
7. The load capacity of the dump truck is 8 tons which is equal to ... kilograms.

## LESSON 18

### Instruments and materials

**Exercise 1.** Match the words on the left with their transcription on the right. Learn to read them correctly. Do you know their Russian equivalents? If not, consult the dictionary.

pincers	[drɪl]
saw	[ˈhæmə(r)]
spanner	[ˈpɪnsəz]
drill	[sɔ:]
chisel	[ˈskru:draɪvə(r)]
hammer	[ˈplɑɪəz]
screwdriver	[ˈtʃɪz(ə)l]
pliers	[ˈspænə(r)]

**Exercise 2.** Make verbs corresponding to the adjectives.

**Example:** dark – darken

tight –      thick –  
loose –     wide –  
light –     deep –

**Exercise 3.** Explain the function of the tools (b) the way it is shown in the example. Use the expressions below (a).

**Example:** Pincers are for pulling out nails.

a) grip things / cut metal pipes / tighten and loosen nuts / cut wooden planks / tighten and loosen screws / drive in nails / drill holes / pull out nails / cut holes in wood

b) pincers (клещи)

handsaw (пила)

spanner (гаечный ключ)

drill (сверло)

chisel (резец, долото)

hacksaw (ножовка)

hammer (молоток)

screwdriver (отвертка)

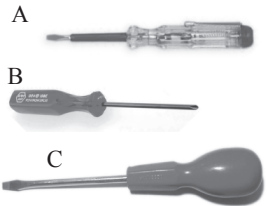
pliers (плоскогубцы)

**Exercise 4.** Read the text and fill in the table below with the information from the text.



Here are three types of chisel. Chisel *A* is used for cutting soft materials, such as wood, and chisel *B* is used for cutting metal. Chisel *C* is for cutting away old plaster and brickwork.

Screwdriver *A* is for tightening and loosening screws on electrical equipment. *B* is for loosening very small screws and *C* is for loosening ordinary screws.



Hammer *A* is for hammering in nails and also for pulling nails out of wood. Hammer *B* is for breaking rocks and concrete. Hammer *C* is for breaking bricks.

tool	job
a) Chisel A	cuts soft materials
b) Chisel B	...
c) Chisel C	...

d) Screwdriver A	...
e) Screwdriver B	...
f) Screwdriver C	...

**Exercise 5.** Match a–i with 1–9:

- |                |                        |
|----------------|------------------------|
| a) combustible | 1) легкий              |
| b) soft        | 2) гибкий              |
| c) brittle     | 3) мягкий              |
| d) hard        | 4) жесткий, негнущийся |
| e) rigid       | 5) твердый, прочный    |
| f) light       | 6) хрупкий, ломкий     |
| g) tough       | 7) тяжелый             |
| h) flexible    | 8) жесткий, прочный    |
| i) heavy       | 9) горючий             |

**Exercise 6.** Answer these questions and give reasons. Use the words in brackets.

**Example:** Is wood a good material for making car engines (двигателей)? (combustible + soft) – No, because it's too combustible and too soft.

1. Is glass a safe material for safety goggles (защитные очки)? (brittle)
2. Is plastic safe for making fly wheels? (light)
3. Is aluminium a good material for making car bodies (кузова)? (light)
4. Is wood safe for making seats? (tough)
5. Is concrete a good material for making a crankshaft (коленчатый вал)? (brittle)

**Exercise 7.** Are these the right tools for the job? If not, give reasons.

**Example:** Ron wants to twist electric wires together using a pair of scissors. – Wrong tool. Scissors are too sharp.

1. John is cutting a thick electric cable with a table knife.
2. Alan is trying to drill a 30 mm hole in a metal plate. The drill bit has a diameter of 25 mm.
3. Mike is trying to cut metal rods with a handsaw.
4. Alex is trying to drive nails into a plank of wood by hitting them with a spanner.
5. George is hammering two planks of wood together using 40 mm nails. Each plank is 30 mm thick.
6. Gary is trying to cut holes in wood with a hammer.

## LESSON 19

### Service station equipment

**Exercise 1.** Read about some features of exhaust gas analysers (Eco Gas – 4) and find the English equivalents to:

выхлопной газ; портативный; проверка утечки

- exhaust gas analyser is capable of measuring CO, HC, CO<sub>2</sub>, O<sub>2</sub>
- serial (последовательный) port for PC interface
- portable, compact and light weight design
- suitable for “Road Tests”
- electronic leak check facility



**Exercise 2.** Say whether the following sentences are True or False.

1. Exhaust gas analyser Eco Gas – 4 is capable of measuring CO, HC, CO<sub>2</sub>, O<sub>2</sub>.
2. Eco Gas is not suitable for “Road Tests”.
3. Eco Gas – 4 is capable of checking the tyre pressure.
4. Eco Gas – 4 is light and portable.

**Exercise 3.** Match a–h with 1–7 and give the characteristics of the auto car wash.



*Example:* This auto car wash is easy to use and maintain.

- |                                      |  |
|--------------------------------------|--|
| a) auto car wash                     | 1) простое в использовании и обслуживании    |
| b) choice of 11 wash programmes      | 2) переменная частота                        |
| c) variable frequency                | 3) трубы и наконечники из нержавеющей стали  |
| d) vertical brush motion             | 4) выбор 11 программ мытья                   |
| e) stainless steel pipes and nozzles | 5) быстрая установка                         |
| f) painted with anti-corrosion paint | 6) движение щёток в вертикальном направлении |
| g) easy to use and maintain          | 7) покрыто антикоррозийным покрытием         |
| h) quick installation                | 8) автомойка                                 |



**Exercise 4.** Fill in the gaps with the following words to make up the words and word combinations corresponding to those in Russian:

hydraulic, equipment, door, wrench, rollover

test ... for wheel and steering alignment	проверочное оборудование для регулировки схода-развала колес и рулевого управления
adjustable arm of ... lift	регулируемый рычаг гидравлического подъемника
impact spanner/ impact ...	ударный гаечный ключ
... straightener	приспособление для правки двери
... stand	поворотный ремонтный стенд

**Exercise 5.** Match 1–10 with a–i.

- |                        |                                |
|------------------------|--------------------------------|
| a) power screwdriver   | 1) гидравлический подъемник    |
| b) hydraulic lift      | 2) инструменты                 |
| c) tyre pressure gauge | 3) рихтовочный молоток         |
| d) tools               | 4) электроотвертка             |
| e) body hammer         | 5) крюк для подъема двигателя  |
| f) engine lifting hook | 6) шланг для мойки автомобилей |
| g) car wash hose       | 7) ремонтный бокс              |
| h) repair shop         | 8) измеритель давления в шинах |
| i) oil can             | 9) масленка                    |

**Exercise 6.** Read the dialogue and find the English equivalents to the words and word combinations in Russian below.

Не в порядке; не работает, как положено; запускаться в холодном состоянии; работает с шумами; развивать полные обороты; давно пора; отрегулировать клапаны; чрезмерный зазор; поломка; заменить масло.

- What can I do for you?
- My car seems to be out of order.
- What is wrong?
- The engine doesn't work properly. It doesn't start cold and runs noisily.
- Any other problems?
- Well, the engine develops no full rate (полные обороты).

- Let’s get the car into the repair shop.
- (After examining the car). The engine will have to be repaired.
- What is the problem?
- I think it’s high time to adjust valves (клапаны). There is also the excessive clearance (зазор) between the piston (поршень) and the cylinder.
- I couldn’t trace (обнаружить) this fault by myself.
- It’s necessary to change the motor oil in the engine. Let’s also measure CO<sup>2</sup> and the tyre pressure.
- Yes, please.
- Well, it really needs being seen to.
- No doubt. By the way, it needs washing badly.

**Exercise 7.** Look through the dialogue from exercise 6 again and say what equipment and tools could be used by the auto mechanic to diagnose the car.

**Exercise 8.** Role-play the dialogue from exercise 6.

## UNIT 5. CAR DESIGN

### LESSON 20

#### Types of cars. Parts of a car (1)

**Exercise 1.** Match the words on the left with their transcriptions.

saloon	[kən'vɜ:tɪb(ə)l]
hatchback	[ˈhætʃbæk]
estate	[sə'lu:n]
convertible	[væn]
van (фургон)	[ˈhætʃbæk]
limousine	[lɪ'steɪn]

**Exercise 2.** Read the descriptions of different types of cars. Are they True or False? Correct the false ones.

*Mind: (BrE) estate car – (AmE) station wagon (автомобиль с грузопассажирским кузовом)*

*(BrE) saloon – (AmE) sedan*

*Off-road cars are also called four-by-fours.*

1. The saloon car is a car that has a separate enclosed space for bags, cases.
2. The van car (фургон) is a car with a roof which you can fold back or remove.

3. The hatchback car is a car with a door at the back that opens upwards.
4. The limousine car is a vehicle made for travelling over rough ground.
5. The estate car is a car with a lot of space for boxes.
6. The off-road car is a big expensive car, usually driven by a chauffeur.
7. The convertible car is a vehicle used for carrying goods which is covered and has metal sides, and is smaller than a truck.

**Exercise 3.** Match the words *a–g* with the pictures 1–7.

a) Saloon, b) estate, c) hatchback, d) convertible, e) off-road, f) sports car, g) limousine.



**Exercise 4.** Put in prepositions where necessary.

1. Vans have enough room ... bags.
2. Off-road cars are especially good ... rough roads.
3. Sports cars are very popular ... young people.
4. In the limousine you have a lot ... space.
5. Expensive cars are usually driven ... chauffeurs.
6. Convertible cars are good ... travelling in warm weather.

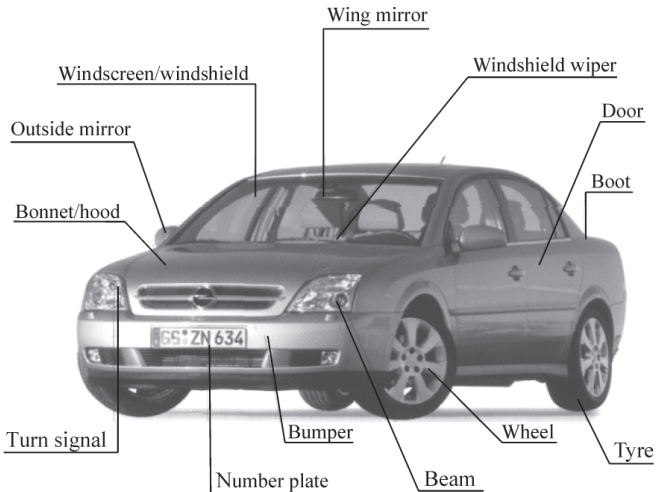
**Exercise 5.** Study the picture and then match *a–l* with 1–12.

- a) windscreen wipers
- b) steering wheel
- c) speedometer

- 1) зеркало заднего вида
- 2) багажник
- 3) бампер

- d) turn signal
- e) windscreen
- f) wing mirror
- g) number plate
- h) tyre
- i) bonnet
- j) bumper
- k) boot
- l) body

- 4) рулевое колесо
- 5) указатель поворота
- 6) кузов
- 7) капот
- 8) спидометр
- 9) номерной знак
- 10) шина
- 11) ветровое стекло
- 12) стеклоочиститель



**Exercise 6.** Imagine that you are a car salesman. Choose one of the cars from ex. 1 and try to persuade your partner to buy it. Use the phrases below to characterize the cars. Make use of the following phrases:

*If I were you, I'd .... ; I suggest .... ; In your position, I'd .... ; I strongly/highly recommend .... ; etc.*

- a vehicle that maximizes its internal space
- drive on rough ground
- a vehicle that is new to the European market
- take advantage of sunny weather
- a quiet car
- sleep in the vehicle
- a vehicle with traditional appearance

- be interested in reducing fuel costs
- a vehicle for short shopping expeditions
- transport a lot of luggage
- transport a large number of people comfortably

## LESSON 21

### Types of cars. Parts of a car (2)

**Exercise 1.** Make adjectives corresponding to the nouns.

Space, prestige, fashion, trend, economy, friend, efficiency, luxury, rarity, comfort, style, safety, speed.

**Exercise 2.** Match the following types of cars with the features. Some features might be used more than once.

**Cars:** sports car, estate car, family car, limousine, jeep, convertible, mini car, electric car, van.

**Features:** spacious, modern, prestigious, fashionable, fast, trendy, reliable, economical, easy to park, maneuverable, environmentally friendly, fuel-efficient, expensive, luxurious, rare, comfortable, stylish, safe, easy to drive.

**Exercise 3.** Imagine that you are choosing a car. Arrange the following characteristics in order of importance to you.

Comfort, space, speed, reliability, safety, design, low maintenance costs (низкие эксплуатационные расходы), low fuel consumption (низкий расход топлива), price, power.

**Exercise 4.** Read the text and find the English equivalents to the words and word combinations.

Педадь акселератора, зажигание, тормоза, зеркало заднего вида, педадь сцепления, ремень безопасности, передача, панель приборов

The first time I drove after passing my driving test, I was determined to get everything right. I got into the car, turned the key in the ignition and put my foot on the clutch pedal while changing into first gear. Slowly I pressed down on the accelerator pedal and pulled out into the road. Driving along, I remembered to look at the petrol gauge (датчик топлива) on the dashboard to make sure I had enough petrol. Suddenly, a flashing light in the rear view mirror caught my eye. There was a police car behind indicating that I should

pull over, so I gently pressed on the brake and stopped. Winding down the window, I asked the policeman what was wrong – I had thought I was doing so well! His answer was – “You’ve forgotten to put on your seatbelt, sir!”

**Exercise 5.** Match the beginnings of the sentences with their endings.

1. If you turn this steering wheel clockwise (по часовой стрелке),	a) the car goes faster.
2. If you press the accelerator pedal,	b) the horn sounds.
3. If you turn the radio knob clockwise,	c) the fan switches on.
4. If you push the horn button,	d) the engine switches on.
5. If you press the light switch upwards,	e) the lights go on.
6. If you slide the fan switch to the right,	f) the car turns to the right.
7. If you rotate the key in the ignition clockwise,	g) the radio goes on.

**Exercise 6.** Are these True or False? Correct the false ones.

*Example:* When you turn this wheel anti-clockwise (против часовой стрелки), the car turns to the right.  
False. It doesn't turn to the right. It turns to the left.

1. When you release the accelerator pedal, the car goes fast.
2. When you turn the radio knob anti-clockwise, the radio switches on.
3. When you release the horn button, the horn sounds.
4. When you rotate the key in the ignition anti-clockwise, the engine goes on.
5. When you press the light switch downwards, the lights switch off.
6. When you slide the fan switch to the left, the fan goes off.

## LESSON 22

### Comfort and convenience system

**Exercise 1.** Say if comfort and convenience of the car is important for the driver and why.

**Exercise 2.** Read the text and try to understand the meanings of the underlined words and word combinations.

## Comfort and convenience system

Dashboard instruments provide the driver with certain information. A speedometer measures a car's speed. A fuel level gauge tells how full the gas tank is. Many cars have gauges that record oil (масло) pressure, battery voltage and the temperature of the engine coolant. Other cars have warning lights to alert the driver to problems with oil pressure, battery voltage, and engine temperature.

Virtually all cars come with a heater, which blows air warmed by engine heat into the passenger compartment. Some cars also have an air conditioner, an option that draws on engine power to produce cool air. Many other comfort and convenience devices are also optional. They include audio equipment, power window regulator (электропривод стеклоподъемника), power door locks, power seat adjuster and power mirrors. A computer operated mechanism called cruise control makes it possible for a driver to cruise at a desired set speed without stepping on the gas pedal.

**Exercise 3.** Give the English equivalents to the following words and word combinations.

Спидометр; датчик указателя уровня топлива; давление масла; салон; отопитель; кондиционер; аудиоборудование; электрозамок двери; электропривод стеклоподъемника; электропривод регулировки положения сиденья; электропривод зеркал; круиз-контроль; педаль газа.

**Exercise 4.** Match the names of the devices on the left with their functions on the right. Then explain the functions of the devices.

**Example:** On-board computer provides information about average speed, average fuel consumption, range and outside temperature.

- |                              |  |
|------------------------------|--|
| a) on-board computer         | 1) provides brilliant sound  |
| b) CD-changer                | 2) holds up to six CDs   |
| c) Hi Fi loud speaker system | 3) allows adaptive transmission management   |
| d) the centre lock switch    | 4) provides information about average speed, average fuel consumption, range and outside temperature |

- 5) 5-speed automatic gearbox      e) ensures comfortable climatic conditions in the vehicle interior at any time of the year with manual adjustment of air volume and distribution
- 6) air conditioning system      f) allows operation of the central locking system from within the passenger compartment

**Exercise 5.** Read the following text and fill in the gaps with the appropriate words and word combinations (see the list below):

a) ... reduces unpleasant heating up of the interior via infrared reflective layer. The green sunshield stripe at the top of the windscreen protects from direct sun rays.

b) ... provides fresh air and optimum ventilation. Easy operation, can be opened/closed or set to raised position via a multifunction switch.

c) ... , with automatic anti-dazzle function and large surface area; the dazzle from following vehicles is automatically reduced when the amount of light exceeds a defined limit.

d) ... add a special feeling of luxury to the interior.

e) Using the ... with six air outlets, you can quickly adjust the vehicle interior to your preferred temperature and control individual airflow.

f) ... rapidly provides the desired climatic conditions in the interior of the vehicle and maintains the selected temperature. The integrated automatic air recirculation control ensures that pollutants in the air do not enter the vehicle above a certain concentration.

1) Glass sliding/vent roof; 2) automatic air conditioning; 3) climate comfort windscreen; 4) velour foot mats; 5) interior mirror; 6) electronically controlled heating system.

**Exercise 6.** Read the following advertisement and make up an advertisement in which you describe and advertise a certain car model to your client, using the words, word combinations and phrases from the previous exercises.

When you sit down in the new BMW 3 Series compact, you immediately become aware of the well-shaped seats. Switches and levers are just where you'd intuitively expect them to be. Your eyes should not be looking for switches and levers, but be focused on the road. You have enough room to move freely. The rear seats are designed to make life easier. The new navigation system with its dazzle-free monitor helps you find the quickest route to your destination. You'll soon find that this is a car that's fun to drive.



## LESSON 23

### Exterior design

**Exercise 1.** Before listening to the text “The new BMW 3 Series compact”, look through the vocabulary.

degree of manoeuvrability [məˌnuːvrəˈbɪlɪtɪ] – степень маневренности;  
in bad weather or poor visibility [ˌvɪzɪˈbɪlɪtɪ] – при плохой погоде или слабой видимости;

are automatically cleaned – автоматически очищаются;

for extra safety – для большей безопасности;

windscreen wipers – стеклоочистители ветрового стекла;

the wiper frequency [ˈfriːkwənsɪ] – частота стеклоочистителя;

at dusk – в сумерках;

at the touch of a button – нажатием кнопки.

**Exercise 2.** Translate the following word combinations into Russian.

Headlight washing system, automatic headlight control, rear window wiper, driver and passenger exterior mirrors, park distance control.

**Exercise 3.** Listen to the text “The new BMW 3 Series compact” and say yes or no.

1. Is the size of the car too big to park it in the city?
2. Are fog lamps used in good weather?
3. Is a rain sensor used in the new BMW3 Series compact?

**Exercise 4.** Put the word combinations in the order the information was given in the text.

- a) Headlights, fog lamps.
- b) Window wipers.
- c) Exterior mirrors.
- d) The car’s size and a degree of manoeuvrability.

**Exercise 5.** Listen to the text again and match 1–8 with a–h to make up word combinations used in the text.

- |               |               |
|---------------|---------------|
| a) rain       | 1) visibility |
| b) windscreen | 2) sensor     |
| c) poor       | 3) wipers     |
| d) outside    | 4) nozzle     |
| e) rainfall   | 5) design     |

- f) wipe
- g) exterior
- h) door

- 6) intensity
- 7) mirrors
- 8) frequency

**Exercise 6.** Complete the sentences:

1. The size of the car enables you to ... easily .
2. In bad weather headlights provide ... .
3. For extra safety in bad weather ... are used.
4. When it begins to rain the windscreen wipers are automatically switched on by ... .

**Exercise 7.** Give your opinion on whether the design of this car ensures or not its safety and manoeuvrability.

## LESSON 24

### Safety system

**Exercise 1.** Form the comparatives and superlatives of the following adjectives.

*Example:* easy – easier – the easiest

Clean, safe, comfortable, high, sophisticated, good, extreme, predictable.

**Exercise 2.** Look through the text below and say what it is about.

**Exercise 3.** Read the text and fill in the gaps with the words from the box.

While car making is becoming cleaner, cars are becoming ... . Safety ... are also becoming more sophisticated. After many injuries to children and small women, car companies are trying to make the front-impact airbag safer. Using infra-red or video systems, suppliers are developing ways to detect the size of the ... in the front seat and to measure how far back they are sitting. This will determine how rapidly the ... inflates (накачивается), or whether it inflates at all.

There are other ... devices. The anti-lock brake system ensures the highest degree of driving safety. Many of the ... components are made of aluminium to ensure excellent ground contact. Bumpers (бамперы) with shock absorbers withstand impacts up to 4 km/h without ... . The crash sensor overrides the centre lock function in the event of an accident (the doors can then be opened), and the interior lights are ... . Safety restraint system for driver and front passenger is a ... seatbelt (ремень безопасности) which provides the best possible restraint in the event of a collision.

damage	devices	airbag	passenger	safer
chassis	switched on	safety	3-point	

**Exercise 4.** Give the English equivalents to the following words and word combinations.

Переднее сиденье, подушка безопасности, гарантирует высочайшую степень безопасности, выдерживает удар до ..., без повреждений, датчик удара, блокирует функцию, в случае столкновения, ремень безопасности.

**Exercise 5.** Put questions to the underlined words.

1. Car companies are trying to make car driving safer.
2. Suppliers are developing ways to detect the size of the passenger.
3. The size of the passenger will determine how rapidly the airbag inflates.
4. The crash sensor overrides the centre lock function in the event of an accident.
5. Seatbelts provide the best possible restraint in the event of a collision.

**Exercise 6.** Read the advertisement and say whether the statements below are True or False.

### Safety you can rely on

In this car safety is given a high priority. The passenger compartment is actually a computer-designed safety cell. You'll feel secure even in the most extreme situations. Height-adjustable seat belts, headrests (подголовники) front and rear provide a comprehensive safety performance which comes as standard. The design of the door has been completely redone: a steel profile element has been welded (приварен) directly beneath the window line, giving the door added rigidity. The airbag reduces the risk of injury in a head-on collision (лобовое столкновение). The Cornering Brake Control (CBC) system makes braking in corners even safer and more predictable, and represents an effective way of keeping the vehicle safely on track.

1. Safety is given a high priority by car manufactures today.
2. The Cornering Brake Control system gives the door added rigidity.
3. Protection system of the car includes height-adjustable seat belts, headrests front and rear, airbags and other safety devices.
4. The airbag reduces the damage to the car in a head-on collision.

**Exercise 7.** Match a–g with 1–7 to make up the word combinations used in the text. Translate these word combinations.

- |                    |                |
|--------------------|----------------|
| a) high            | 1) compartment |
| b) safety          | 2) belt        |
| c) passenger       | 3) collision   |
| d) seat            | 4) priority    |
| e) head-on         | 5) cell        |
| f) added           | 6) seat belts  |
| g) high-adjustable | 7) rigidity    |

**Exercise 8.** Make up an advertisement in which describe and advertise the safety system of a certain car model, using the word combinations and phrases:

- a) to ensure the highest degree of safety;
- b) to keep the vehicle safely on track;
- c) to provide maximum protection;
- d) to reduce the risk of injuries;
- e) in the event of a collision.

## UNIT 6. ENGINE

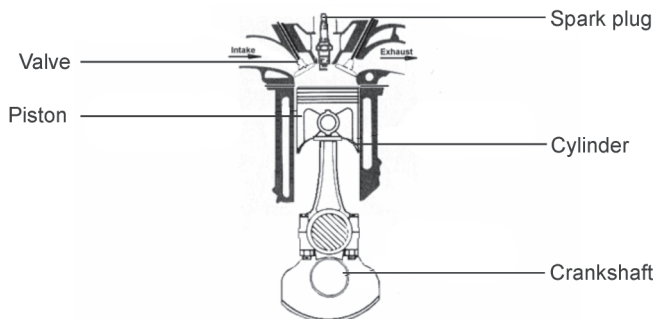
### LESSON 25

#### Key components of a four-stroke engine

**Exercise 1.** Match the words and their transcription. Pronounce the words correctly and remember how they are pronounced.

piston	[ˈsɪlɪndə]
cylinder	[ˈpɪst(ə)n]
valve	[kəmˈbʌstɪ(ə)n]
fuel	[vælv]
gas	[ˈtʃeɪmbə(r)]
pedal	[ˈfju:əl]
combustion	[gæs]
chamber	[ˈped(ə)l]

**Exercise 2.** Look at the picture, try to give the Russian equivalents to the following words: *spark plug, valve, cylinder, crankshaft, piston.*



**Exercise 3.** Read the text about different types of engines. Try to understand the meanings of the underlined words.

All motor vehicles have engines. There are two types of engines: petrol engines and diesel engines. The parts of an engine vary depending on the engine's type. There are spark plugs in all petrol engines. Diesel engines do not have spark plugs. They have fuel injectors. There are valves in 4-stroke diesel engines. A 2-stroke petrol engine never has valves. There is no oil sump in a 2-stroke engine. There is oil in the fuel. A 4-stroke engine has an oil sump. There is no oil in the fuel.

For a four-stroke engine, key parts of the engine include the crankshaft, one or more camshafts and valves. For a two-stroke engine, there may simply be an exhaust outlet and fuel inlet instead of a valve system. In both types of engines, there are one or more cylinders and for each cylinder there is a spark plug, a piston and a crank. A single sweep of the cylinder by the piston in an upward or downward motion is known as a stroke and the downward stroke that occurs directly after the air-fuel mix in the cylinder is ignited (кроаер) is known as a power stroke.

**Exercise 4.** Match a–j with 1–10.

- |                         |                                 |
|-------------------------|---------------------------------|
| a) four-stroke engine   | 1) цилиндр                      |
| b) cylinder             | 2) клапан                       |
| c) piston               | 3) четырёхтактный двигатель     |
| d) valve                | 4) поршень                      |
| e) four-cylinder engine | 5) масло                        |
| f) crankshaft           | 6) распределительный вал        |
| g) oil                  | 7) ход, такт                    |
| h) camshaft             | 8) четырёхцилиндровый двигатель |
| i) stroke               | 9) коленчатый вал               |
| j) spark plug           | 10) свеча зажигания             |

**Exercise 5.** Match a–i with 1–9 to make up word combinations.

- |                  |             |
|------------------|-------------|
| a) petrol        | 1) stroke   |
| b) motor         | 2) engines  |
| c) spark         | 3) injector |
| d) fuel          | 4) engine   |
| e) oil           | 5) plugs    |
| f) exhaust       | 6) engine   |
| g) power         | 7) vehicles |
| h) four-stroke   | 8) outlet   |
| i) four-cylinder | 9) sump     |

**Exercise 6.** Explain the meanings of the underlined words from exercise 1.

**Example:** Petrol engines are engines which work on petrol.

## LESSON 26

### Cylinder block

**Exercise 1.** Correct mistakes in the following sentences.

1. There are not much vehicles with two-stroke engines.
2. I'd like to know how many spark plugs are there in the engine.
3. Are there some lorries with two-stroke engines?
4. I have few tools. Let's repair the car.
5. There are a few nails left. We need to buy some more.

**Exercise 2.** Read the text and choose the word which belongs to the text (one in each group).

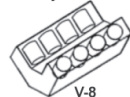
The majority of cars have the engine in the front of the (*vehicle, truck*). Others have it mounted in the rear or the middle. The engine block, also called the (*cylinder, piston*) block, houses the engine's internal parts.

The number and arrangement of the cylinders (*varies, changes*) among the makes of cars. American cars have 4, 6 or 8 cylinders. Cars made in other countries also have 3, 2, 5 or even 12. In most cases, the cylinders are arranged either in a straight (*line, circle*) or in two equal rows set at an (*angle, degree*) to form a V-shape.

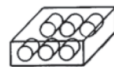
Typical cylinder arrangements



In-line  
4 cylinder



V-8



Flat 6

An in-line engine with, for example, 4 or 6 (*cylinders, crankshafts*) is called a straight 4 or a straight 6. A V-type engine with, for example, 4, 6 or 8 cylinders is called a V-4, V-6, V-8. Typically, the more cylinders an engine has, the (*greater, less*) its power.

**Exercise 3.** Match a–e with 1–5 to make up word combinations and translate them.

- |             |           |
|-------------|-----------|
| a) engine   | 1) line   |
| b) internal | 2) engine |
| c) straight | 3) block  |
| d) in-line  | 4) engine |
| e) V-type   | 5) parts  |

**Exercise 4.** Say whether the following sentences are True or False.

1. The majority of cars have the engine in the rear of the vehicle .
2. The engine block is also called the cylinder block.
3. In most cases, the cylinders are arranged either in a straight line or in three equal rows.
4. An in-line engine with 4 cylinders is called a straight 4.
5. The more cylinders an engine has, the more its power.

**Exercise 5.** Put questions to the underlined words and word combinations.

1. Some cars have the engine in the rear or the middle of the car.
2. The engine block houses the engine's internal parts.
3. The number of cylinders depends on the make of the car.
4. In a in-line engine the cylinders are arranged in a straight line.
5. A V-type engine with 6 cylinders is called a V-6.

**Exercise 6.** Make up a dialogue in which a car mechanic consults a client on the types of engines. Start as shown.

**Client:** Could you explain me the difference between the V-type engine and the in-line engine?

**Car M.:** It's quite simple. In the in-line engine the cylinders are arranged in a straight line, while ...

Make use of the following phrases: *At the same time ... It's quite natural ... It should be admitted ... While ... However ...*

## LESSON 27

### Engine operation

**Exercise 1.** Read the following words, pay attention to the way the letter “o” is read.

down [daʊn]  
four [fɔː]  
stroke [strəʊk]  
open [ˈəʊpən]  
piston [ˈpɪst(ə)n]  
power [ˈpaʊə(r)]  
move [muːv]  
position [pəˈzɪʃ(ə)n]

**Exercise 2.** Read the text and fill in the gaps with the words in the box.

down	four-stroke	stroke	opens	piston	spark plug
	power	mixture	exhaust	moves up	

The gasoline engine operates on a ... cycle in most cars.

On the intake stroke, the piston moves ... the cylinder and draws in a fuel-air mixture as the intake valve ... . The valve then closes, and the ... moves back up the cylinder on the compression ... , squeezing the fuel-air ... . At the top of the stroke, the ... ignites the compressed mixture. The burning causes the gases to expand, forcing the piston down in the ... stroke. On the exhaust stroke, the piston ... again and pushes the burned gases out the open ... valve. The exhaust valve then closes, the intake valve opens, and the cycle starts again.

**Exercise 3.** Give the English equivalents to the following word combinations.

Поршень движется вверх, поджигать смесь, воздушно-топливная смесь, впускной клапан, такт сжатия, в верхней точке, двигая поршень вниз, выпускной клапан.

**Exercise 4.** Describe the complete cycle of operation for all the cylinders at any position of the crankshaft, filling in the gaps. Use the information from the table below.

The layout of a multi-cylinder engine is normally in-line and the firing order is generally 1342. Each cylinder is always on a different stroke from all the others. When cylinder 1 is on the ... stroke, cylinder 2 is on the ... , cylinder 3 is on the ... , cylinder 4 is on the ... . The main advantage of this engine is that the power ... is once every 180°.



Crankshaft position	Cylinder 1	Cylinder 2	Cylinder 3	Cylinder 4
0–180 degrees	power	exhaust	compression	induction
180–360 degrees	exhaust	induction	power	compression
360–540 degrees	induction	compression	exhaust	power
540–720 degrees	compression	power	induction	exhaust

**Exercise 5.** Match *a–f* with *1–6* to make up word combinations.

- |                   |             |
|-------------------|-------------|
| a) multi-cylinder | 1) position |
| b) crankshaft     | 2) mixture  |
| c) exhaust        | 3) gases    |
| d) intake         | 4) valve    |
| e) compressed     | 5) stroke   |
| f) burned         | 6) engine   |

**Exercise 6.** Work in pairs. Ask your groupmate about the engine operation. Ask him to give full answers to your questions.

*Example:* What strokes does a usual cycle consist of?

## LESSON 28

### Types of engines (1)

**Exercise 1.** Match the words and their transcription.

power	[ɪg <sup>1</sup> zɔːst]
chamber	[gæs]
exhaust	[ <sup>1</sup> maɪlɪdʒ]
mileage	[ <sup>1</sup> pəʊə]
gas	[ <sup>1</sup> tʃeɪmbə(r)]
powerboat	[ <sup>1</sup> məʊtə(r)]
trailer	[ <sup>1</sup> pəʊəbəʊt]
motor	[ <sup>1</sup> treɪlə(r)]

**Exercise 2.** Say how many cylinders different types of engines may have.

**Exercise 3.** Read the text about the work of a 4-cylinder, 6-cylinder and 8-cylinder engine and say what advantages a 4-cylinder engine has if compared to 6- or 8-cylinder engines.

In a four-stroke engine, a series of movements causes fuel to be converted into forward motion. The difference between a 4-cylinder and 6-cylinder engine is that the latter produces more power. This is due to the two extra cylinders. In a basic engine design, pistons travel down cylinder sleeves or chambers (камеры), allowing intake valves to open. Intake valves let fuel and air enter the cylinders, while rising pistons compress these gases. Spark plugs ignite the compressed gas, causing explosions that drive the pistons back down. The next rise of the pistons coincides with exhaust valves opening to clear the chambers. The timing of the pistons is staggered so that one pair rises while another falls. Pistons are connected to rocker arms, which turn a crankshaft; the crankshaft turns the wheels, thereby converting fuel into motion. In a 4-cylinder engine, there are four pistons rising and falling in four chambers. A 6-cylinder engine has six pistons and produces a theoretical 50% more power than the same 4-cylinder engine. While a 4-cylinder engine might hesitate when you press on the gas, a 6-cylinder is more responsive. The 4-cylinder engine is standard in smaller cars, as the relatively light weight of the vehicle makes it an economical choice with plenty of power for average motoring needs. Many models include a 6-cylinder engine upgrade option. The 6-cylinder engine is standard in passenger cars, vans, small trucks and small to midsize sports utility vehicles (SUVs). Standard trucks and larger SUVs commonly feature an 8-cylinder engine. These heavier vehicles are used for towing and carrying substantial weight. Though more cylinders equal more power when comparing the same engine models, there are exceptions when comparing different engines. Improved engine designs over the years have resulted in substantial gains. This has made 4-cylinder engines more powerful than they were a decade ago, and 8-cylinder engines more fuel-efficient than they once were. In short, a 6-cylinder engine from 1993 might have less power than a recently designed 4-cylinder engine. In addition, a new 8-cylinder engine might get better gas mileage than the older 6-cylinder engine. If deciding between a 4- and 6-cylinder engine on a new vehicle, there are a few considerations. The smaller engine will be less expensive and should get slightly better gas mileage. The disadvantage is lack of power. For hilly or mountainous areas, the 6-cylinder engine would be a better choice. If interested in towing substantial weight, such as a powerboat or house trailer, consider an 8-cylinder motor.

**Exercise 4.** Give the English equivalents to the following words.

Преобразовать, прямолинейное движение, дополнительные цилиндры, сжимать, воспламенить, совпадает, соединены с, относительно

лёгкий, экономичный выбор, в качестве одного из вариантов, значительный вес, существенный выигрыш, иметь меньший расход топлива, удовлетворяет вашим потребностям.

**Exercise 5.** Find in the text the derivatives of the following words and translate them.

Move, differ, explode, response, relative, economy, except, power, recent, add, consider, advantage, mountain, hill, choose, weigh.

**Exercise 6.** Find in the text all the sentences with passive constructions and translate them into Russian.

**Exercise 7.** Give the title to the text. Divide the text into logical parts and entitle them. Underline the key sentence in each passage.

**Exercise 8.** Sum up the contents of the text in 5–6 sentences.

## LESSON 29

### Types of engines (2)

**Exercise 1.** Fill in the gaps with prepositions where necessary.

1. The 4-cylinder engine is standard ... smaller cars.
2. The relatively light weight ... the vehicle makes it an economical choice.
3. The 8-cylinder engine gives plenty of power ... motoring needs.
4. Deciding ... 4-cylinder and 6-cylinder engines take into consideration the type of the car.
5. Engines have improved greatly ... last century.

**Exercise 2.** Put in suitable derivatives of the words in brackets.

1. A 6-cylinder engine is more ... (response).
2. The heavier vehicles are used for towing substantial ... (weigh).
3. 6-cylinder engines are ... than 4-cylinder engines. (power).
4. There is a great ... between 4- and 8-cylinder engines. (differ).
5. A series of ... causes fuel to be converted into forward motion. (move)

**Exercise 3.** Answer the questions.

1. What is the main difference between a 4-cylinder and 6-cylinder engine?
2. What is this due to?
3. What vehicles is the 6-cylinder engine standard on?
4. What should we take into consideration deciding between a 4 and 6-cylinder engine on a new vehicle?
5. Is there any way to tell if a particular engine will suit your needs?
6. Light weight of the vehicle makes it an ... choice. (economy)

**Exercise 4.** Fill in the table and compare advantages and disadvantages of different types of engine.

*Example:* While a 4-cylinder engine is cheaper, a 6-cylinder engine is more powerful.

The type of the engine	Advantages of the engine	Disadvantages of the engine	Vehicles, that use this type of engines
4-cylinder engine			
6-cylinder engine			
8-cylinder engine			

**Exercise 5.** Your friend likes going to the mountains with his family. He wants to buy a car for this purpose. Give him some recommendations on what type of engine will be the best choice.

**Exercise 6.** You work as a car mechanic. Give some advice to your client about advantages and disadvantages of different types of engines. Make up a dialogue, following the scheme below. Make use of the phrases:

Definitely ...

I'm sure ...

I think so ...

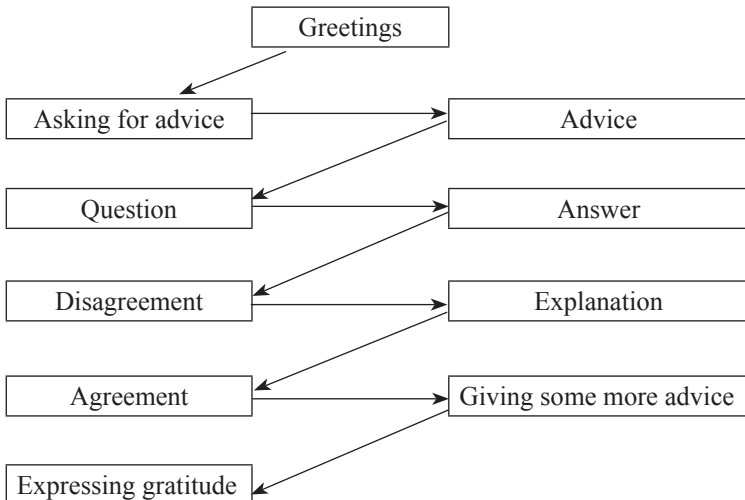
There is no doubt about it ...

If I'm not mistaken ...

I'm not sure ...

I don't think so ...

As far as I know ...



# UNIT 7. CAR SYSTEMS

## LESSON 30

### Systems of engines (1)

**Exercise 1.** List as many car systems as possible. Compare your list with the rest of the group. Who's got the longest list?


**Exercise 2.** Before listening to the dialogue "In the laboratory testing" look through the vocabulary.

carburettor [ˌkɑːbəˈrætə(r)] – карбюратор

air intake [eə(r) ˈɪnteɪk] – воздухозаборник

venturi [ˈventʃəri] – трубка Вентури

cylinder combustion chamber [ˈsɪlɪndə kəmˈbʌstʃ(ə)n ˈtʃeɪmbə(r)] – камера сгорания цилиндра


 **Exercise 3.** Andrew, a pupil from machine building school, has met his friend Alex in the laboratory testing. Listen to their dialogue and do the tasks below.

**Exercise 4.** Match the questions (1–4) with the answers (A–D).

- |  |  |
|--|--|
| 1. What is a carburettor used for?         | A. It's a special tube in the carburettor. |
| 2. What happens in the combustion chamber? | B. In the carburettor.                     |
| 3. Where is the fuel mixed with the air?   | C. It's used for mixing fuel with air.     |
| 4. What is a venturi?                      | D. The fuel mixture is ignited.            |

**Exercise 5.** Mark the following sentences as True or False.

1. A carburettor is a part of the engine.
2. The fuel flows into the venturi because of the low pressure of the air.
3. The air is mixed with the fuel in the venturi.
4. The air-fuel mixture is taken into the cylinder combustion chamber and ignited there.

 **Exercise 6.** Listen to the dialogue again and complete the sentences according to the information from the dialogue.

1. ... measures out a precise amount of fuel that is mixed with air.
2. Air is drawn down the ... .

3. In the carburettor air is mixed with ... .
4. Air-fuel mixture is ignited in the ... .

**Exercise 7.** Speak about the principles of the carburettor operation.

## LESSON 31

### Systems of engines (2)

**Exercise 1.** Analyse the words in the table and translate the word combinations below into Russian.

Артикль	Существительное в роли определения	Определяемое существительное	Перевод
the	land	transport	наземный транспорт
the	land transport	problem	проблема наземного транспорта
the	land transport problem	solution	решение проблемы наземного транспорта

the steam engine

the steam engine cylinder

the steam engine cylinder improvement

the diesel fuel

the cylinder chamber

the internal combustion engine

the internal combustion engine improvement

the vehicle motion

the vehicle motion control

the control device

the control device application

the steering wheel

the wheel motion system

**Exercise 2.** Choose the right form of the verb.

1. This mechanism *uses/is used* in the engine.
2. Power *is produces/ is produced* by the engine.
3. Fuel *is burning/is burnt* in the engine to produce power.
4. Fuel and air *is mixed/ are mixed* in the carburettor.
5. This fuel *is used/ use* in all types of engines.
6. Fuel and air *compressed/ are compressed* by the piston.
7. The body of the car *is supported/ supports* on the frame.

**Exercise 3.** Give the opposite to the sentences from exercise 2.

**Exercise 4.** Put all possible questions to the sentences below.

**Example:** Fuel is burnt in the engine.

What is burnt in the engine?

Is fuel burnt in the engine?

Fuel is burnt in the engine, isn't it?

Is fuel burnt in the engine or in the carburettor?

1. Diesel fuel is used in different engines.
2. Fuel and air are mixed in the carburettor.
3. Fuel mixture is ignited in the cylinder combustion chamber.
4. Air is drawn down the air intake.
5. It is located directly above the carburettor.
6. Gas is kept in a special tank.

**Exercise 5.** Read the text and try to understand the meanings of the underlined words.

The lubrication system delivers oil to the moving parts of the engine. As the oil circulates through passages in the engine, it spreads a film (пленка) on the parts. Lubrication reduces friction and so minimizes engine wear. The oil also helps cool the engine. Oil is stored in a pan under the engine. A pump circulates oil from the pan through a filter and then through lines to the engine. The filter prevents impurities from entering the engine.

**Exercise 6.** Match a–h with 1–8.

- |                       |                    |
|-----------------------|--------------------|
| a) lubrication system | 1) трение          |
| b) film               | 2) фильтр          |
| c) friction           | 3) система смазки  |
| d) engine wear        | 4) масло           |
| e) pan                | 5) пленка          |
| f) pump               | 6) бак             |
| g) filter             | 7) насос           |
| h) oil                | 8) износ двигателя |

**Exercise 7.** Answer the questions.

1. What system helps to cool the engine?
2. Where is oil stored?
3. What device circulates oil from the pan to the engine?
4. What is the function of the filter?

**Exercise 8.** Speak about the role of the lubrication system in the car.

## LESSON 32

### Systems of engines (3)

**Exercise 1.** Read the letter “u” in the words below as [ju] or [ʌ].

[ju]	[ʌ]
fuel	bumper
tube	pump
numerous	combustion
produce	function
unit	construction
use	plug

**Exercise 2.** How many word combinations can you form with the noun *system*? Scan the text below to check which of them are mentioned there.

**Exercise 3.** Read the text attentively and try to understand the meaning of the underlined words and word combinations.

A motor vehicle is a complex engineering construction. It is composed of several thousand parts. The smaller parts are joined together and form larger components, or units. One of the main components of any vehicle is, of course, the engine.

In addition to the engine itself, there are four separate mechanisms, which are used to feed the engine. These mechanisms are the fuel system, the lubrication system, the electrical system and the cooling system.

The fuel system is a separate mechanism that is used for feeding the engine. The fuel system consists of a tank, a fuel line or a pipe, a pump and a carburettor. The engine produces power when air and fuel are mixed and burnt.

So let's have a look at the fuel system operation. The fuel is stored in a fuel tank. The fuel tank is connected to a fuel pipe. The fuel pipe carries the fuel to the fuel pump. This pump can be either electric or mechanic in



operation. Electric pumps are generally situated near the fuel tank whereas a mechanical pump is generally located beside the engine. It is driven by the camshaft. The fuel pump is connected to the carburettor. In the carburettor the fuel is mixed with air. It is important to have the right ratio of air to fuel. For example, the optimum ratio of air to petrol in the fuel mixture is 15 parts of air to 1 part of petrol. The fuel and the air are compressed by the piston in the carburettor and they are drawn into the engine. In the engine the fuel and air are burnt and they produce power.

**Exercise 4.** Match a–g with 1–7.

- |                           |                          |
|---------------------------|--------------------------|
| a) the fuel system        | 1) система смазки        |
| b) the fuel tank          | 2) топливопровод         |
| c) the electrical system  | 3) электрическая система |
| d) the fuel line          | 4) топливный бак         |
| e) the lubrication system | 5) система охлаждения    |
| f) the cooling system     | 6) карбюратор            |
| g) the carburettor        | 7) топливная система     |

**Exercise 5.** Write down the words and word combinations which mean the same from the text.

- |             |          |                 |         |
|-------------|----------|-----------------|---------|
| consists of | besides  | detached        | is kept |
| proportion  | the best | is connected to |         |
| carries     | is run   | is placed       |         |

**Exercise 6.** Make the questions to which the following words are the answers.

- The fuel system, the lubrication system, the electrical system and the cooling system.
- For feeding the engine.
- In a fuel tank.
- Beside the engine.
- 15 parts of air to 1 part of petrol.
- Either electronic or mechanic in operation.

**Exercise 7.** Imagine that you are giving a consultation to one of your clients. Complete the dialogue.

**Client:** What mechanisms are used to feed the engine?

**You:** ...

**Client:** What does the fuel system consist of?

**You:** ...

**Client:** Well, and when does the engine produce power?

**You:** ...

**Client:** Let me have a look at the fuel system operation. Where's fuel stored?

**You:** ...

**Client:** And the fuel pump is connected to the carburettor, isn't it?

**You:** ...

**Client:** Which types of pumps can be used?

**You:** ...

**Client:** I suppose pumps are situated near the fuel tank, am I right?

**You:** ...

**Client:** In the carburettor the fuel is mixed with air, isn't it?

**You:** ...

**Client:** What is the right ratio of air to fuel?

**You:** ...

**Client:** Thank you very much for your consultation. You were really very helpful.

**You:** ...

## LESSON 33

### Automatic vehicle control

**Exercise 1.** Look through the text, copy the derivatives of the words below and say which way they are formed.

Mechanic, physical, develop, intelligence, possible, inform, control, system, depend, accelerate.

**Exercise 2.** Read the text below and say what the role of a sensor in automatic vehicle control is.

The basic elements that control vehicle motion have changed little in their concept over the past few decades. Vehicles are still driven by an internal combustion engine, steering is achieved by driving a mechanical gear and brakes are actuated by physically pumping hydraulic pistons. All these actions are carried out by the driver.

The status quo is ready for change. Under development are fast-reacting, intelligent systems that increase the possibility of automatic vehicle control.

In such vehicles the steering, accelerator (акселератор) and brake devices are connected to a sensor that monitors their position. The sensor passes this information as an electrical signal to the microprocessor controller.

The sensor information is processed and the actions for the steering, brakes and drive subsystems are calculated.

The outline of an automotive chassis differs from a conventional chassis as motion of each wheel is achieved by independent suspension, drive, brake and steering. The main control unit receives electrical signals from the steering wheel and pedals, and produces electrical signals that actuate the wheel motion systems.

In this design there is a possibility to modify the steering, brake and accelerator device. All these could be integrated into a single joy-stick. This possibility is a major advantage when we want to modify cars for the physically challenged.

**Exercise 3.** Find in the text the English equivalents to the following words.

Механическая передача, датчик, подсистема привода, шасси, независимая подвеска, рулевое колесо, педаль.

**Exercise 4.** Translate the following compound nouns into Russian.

the sensor information	the brake devices
the steering wheel	the automotive chassis
the wheel motion system	the independent suspension (подвеска)

**Exercise 5.** Match a–g with 1–7.

a) steering	1) привод
b) advantage	2) двигатель внутреннего сгорания
c) independent suspension	3) топливная система
d) internal combustion system	4) независимая подвеска
e) drive	5) бак
f) fuel system	6) рулевое управление
g) tank	7) достоинство, преимущество

**Exercise 6.** Answer the following questions.

1. What are vehicles driven by?
2. Who carries out all these actions?
3. What is under development now?
4. Do you think it's a good idea to develop automatic vehicle control?
5. Have the basic elements that control vehicle motion changed a lot over the past few decades?

**Exercise 7.** Say whether the following sentences are True or False.

1. Vehicles are driven by an internal combustion engine.
2. Brakes are actuated by physically pumping the wheels.

3. Fast-reacting, intelligent systems that increase the possibility of automatic vehicle control are under development now.
4. In vehicles with intelligent systems the steering and brake devices are connected to a sensor that changes their position.
5. A vehicle with intelligent systems is a major advantage when we want to modify cars for the physically challenged.

**Exercise 8.** Translate the words in brackets to complete the sentences.

1. Vehicles are driven (двигателем внутреннего сгорания).
2. These actions (выполняются) by the driver.
3. The intelligent systems (увеличивают) the possibility of automatic vehicle control.
4. The (датчик) passes the information to the microprocessor controller.
5. The sensor information (обрабатывается) there.
6. The control unit receives electrical signals from the (рулевое колесо).

**Exercise 9.** Speak of additional possibilities which automatic vehicle control gives the physically challenged.

## LESSON 34

### Fuel system (1). The carburettor

**Exercise 1.** Say how many letters and how many sounds there are in the words.

Carburettor, mix, air, block, particle, fuel.

**Exercise 2.** Answer the questions.

1. What system does the carburettor belong to?
2. What is the function of the carburettor?

**Exercise 3.** Match the questions 1–6 with the answers a–f.

1. What system does the carburettor belong to?
2. Does the carburettor measure exact quantities of petrol to be mixed with air?
3. What other functions does the carburettor perform?
4. When does the carburettor get blocked?
5. Where is the air filter situated?
6. What is the function of the air filter?

- a) It is above the carburettor.
- b) It happens when petrol contains some dirty particles.

- c) Its function is to clean petrol to be delivered to the carburettor.
- d) Well, for example, it breaks up petrol into fine particles.
- e) It belongs to the fuel system of the car.
- f) Certainly.

**Exercise 4.** Correct mistakes in the following phrases.

1. The carburettor measure exact quantities of petrol to be mixed with air.
2. Petrol is breaked up into fine particles.
3. Does petrol contain some dirty particles?
4. Is the carburettor belong to the fuel system of the car?

**Exercise 5.** Rewrite the sentences in the passive.

1. The carburettor performs this function.
2. The carburettor measures exact quantities of petrol.
3. The carburettor breaks up petrol into the fine particles.
4. The mixture burns rapidly.
5. Dirty particles can block the carburettor.
6. The filter cleans the air.

**Exercise 6.** Complete the dialogue with the phrases below. Role-play the dialogue.

**Pavel:** Could you tell me what a carburettor is? What system does it belong to?

**Teacher:** Well, it belongs to ... .

**Pavel:** And what functions does it perform?

**Teacher:** The two functions to be performed by the carburettor are very important. Its first function is ... .

**Pavel:** What is the second function, I wonder?

**Teacher:** Oh, it is ... so that the mixture will burn rapidly, of course.

**Pavel:** And may the carburettor be blocked?

**Teacher:** Certainly, it may happen as petrol ... .

**Pavel:** I see. What is there above the carburettor?

**Teacher:** That's an ... . Its function is to clean the air to be delivered to the carburettor.

**Pavel:** Does that mean that the carburettor can't be blocked ... ?

**Teacher:** Certainly.

to measure exact quantities of petrol to be mixed with air  
 if the filter works well  
 air filter  
 to break up petrol into the fine particles  
 the fuel system of the car  
 contains some dirty particles

## LESSON 35

### Fuel system (2)

**Exercise 1.** Look through the text, find all the word combinations with the word “fuel” and translate them.

**Exercise 2.** Read the text and name the devices of the fuel system.

The function of the fuel system is to store and supply fuel to the cylinder chamber where it can be mixed with air, vaporized, and burned to produce energy. The fuel, which can be either gasoline or diesel is stored in a fuel tank. A fuel pump draws the fuel from the tank through fuel lines and delivers it through a fuel filter to either a carburettor or fuel injector, then to the cylinder chamber for combustion.

Tank location and design are always a compromise with available space. Most automobiles have a single tank located in the rear of the vehicle. All tanks have a fuel filler pipe, a fuel outlet line to the engine and a vent system. All fuel tanks must be vented.

Steel lines and flexible hoses carry the fuel from the tank to the engine. Two types of fuel pumps are used in automobiles: mechanical and electric. All fuel injected cars today use electric fuel pumps, while most cars with carburetors use mechanical fuel pumps.

Many cars today locate the fuel pump inside the fuel tank. While mechanical pumps operate on pressures of 4–6 psi (pounds per square inch), electric pumps can operate on pressures of 30–40 psi.

The fuel filter is the key to a properly functioning fuel delivery system. This is more true with fuel injection than with cars with carburetors. Fuel injectors are more susceptible to damage from dirt because of their close tolerances, but also fuel injected cars use electric fuel pumps. When the filter clogs, the electric fuel pump works so hard to push past the filter, that it burns itself up. Most cars use two filters. One inside the gas tank and one in a line to the fuel injectors or carburettor.

**Exercise 3.** Match a–e with 1–5 to make up the word combinations:

механический насос, гибкие шланги, топливный фильтр, топливная смесь.

- |               |            |
|---------------|------------|
| a) fuel       | 1) hoses   |
| b) flexible   | 2) mixture |
| c) fuel       | 3) pump    |
| d) mechanical | 4) filter  |

**Exercise 4.** Complete the table with the missing words.

	Verb	Noun
впрыскивать		
	to press	
		mixture
доставлять		
	to locate	

**Exercise 5.** Put in prepositions where necessary.

1. A fuel pump draws the fuel ... the tank ... fuel lines ... a carburettor.
2. Fuel tanks are usually located ... the rear ... the vehicle.
3. The fuel system supplies fuel ... the cylinder chamber where it is mixed ... air.
4. Tank location is a compromise ... available space.

**Exercise 6.** Complete the sentences.

1. The function of the fuel system is ... .
2. The fuel is stored in ... .
3. All tanks have ... .
4. Two types of fuel pumps are used in automobiles ... .
5. Many cars today locate the fuel pump ... .

**Exercise 7.** Speak about the principles of the fuel system operation.

## LESSON 36

### Fuel system (3)

**Exercise 1.** Correct mistakes in the following sentences.

1. The fuel pump deliver fuel to a fuel injector.
2. The function of the filter is to cleaning the fuel.
3. All tanks has a vent system.
4. The most cars use mechanical fuel pumps.
5. If the filter will clog, the pump will burn itself up.

**Exercise 2.** Restore the original sentences.

1. the carburettor, the function of, petrol, is, to break up, fine particles, into
2. should be, clean, to be delivered, the petrol, to the carburettor

3. to be performed, very important, the functions, are, by this device
4. is, the new fuel system, in this car, completely, of a new design, to be employed
5. the hydrometer, is, the condition, of the battery, the function of, to check

**Exercise 3.** Make questions to which the following words will be answers.

1. Either gasoline or diesel.
2. Mechanical and electric.
3. Inside the fuel tank.
4. Two filters.
5. It burns itself.

**Exercise 4.** Say what functions the fuel system devices perform.

*Example:* A. **Steel lines** and **flexible hoses** carry the fuel from the tank to the engine.

B. The purpose of steel lines and flexible hoses is to carry the fuel from the tank to the engine.

**Exercise 5.** Make up a dialogue between A and B.

**A:** You are a driving instructor at the driving school. Your task is to explain the principle of fuel system work.

**B:** You are a student at the driving school. Your task is to learn as much as possible about the principle of fuel system work.

## LESSON 37

### Car cooling system

**Exercise 1.** Look through the text and make a list of verbs which are used to describe the way of the liquid in the cooling system.

*Example:* send, return.

**Exercise 2.** Read the text. Choose the appropriate translation to the underlined words from the list below.

#### Car cooling system operation

The cooling system on modern liquid-cooled cars has a lot of plumbing. First, the pump sends the fluid into the engine block, where it makes its way



through passages in the engine around the cylinders. Then it returns through the cylinder head of the engine. The thermostat is located where the fluid leaves the engine. The plumbing around the thermostat sends the fluid back to the pump directly if the thermostat is closed. If it is open, the fluid goes through the radiator first and then back to the pump. There is also a separate circuit for the heating system. This circuit takes fluid from the cylinder head and passes it through a heater core and then back to the pump. On cars with automatic transmission, there is normally also a separate circuit for cooling the transmission fluid built into the radiator. The oil from the transmission is pumped by the transmission through a second heat exchanger inside the radiator.

Радиатор, термостат, система охлаждения, насос, встроенный, автоматическая трансмиссия, система обогрева.

**Exercise 3.** Match a–g with 1–7 to make up word combinations.

- |                  |                 |
|------------------|-----------------|
| a) liquid-cooled | 1) exchanger    |
| b) cooling       | 2) transmission |
| c) engine        | 3) cars         |
| d) separate      | 4) circuit      |
| e) heating       | 5) system       |
| f) automatic     | 6) system       |
| g) heat          | 7) block        |

**Exercise 4.** Put in prepositions where necessary.

1. The pump sends the fluid ... the engine.
2. The liquid goes ... passages in the engine ... the cylinders.
3. There is a separate circuit ... the heating system.
4. A separate circuit for cooling the transmission is built ... the radiator.
5. The oil is pumped ... the transmission ... a heat exchanger.

**Exercise 5.** Read the text and restore the word order in the underlined word combinations.

## Fluid

Cars operate in a wide variety of temperatures, from well below freezing to well over 100 F (38 °C). So whatever fluid is used to engine the cool it has to have a very low freezing point, a high boiling point.

Water is most of the one effective fluids for holding heat, but water freezes at a high too temperature to be used in car engines. The fluid that most cars use is a mixture of water and ethylene glycol (C<sub>2</sub>H<sub>6</sub>O<sub>2</sub>), also as known antifreeze.

The temperature of the coolant can sometimes reach 250 to 275 °F (121 to 135 °C). Even with ethylene glycol added, these temperatures would boil the coolant, so something additional must be done to raise its point boiling.

The cooling system uses pressure to further raise the boiling point of the coolant. Just as the boiling temperature of water is higher in a pressure cooker, the boiling temperature of coolant is higher if you system the pressurize. Most cars have a pressure limit of 14 to 15 square per pounds inch (psi), which raises the boiling point another 45 °F (25 °C).

**Exercise 6.** Match *a–f* with 1–6.

- |                                |                                |
|--------------------------------|--------------------------------|
| a) freezing point              | 1) противостоять коррозии      |
| b) wide variety of temperature | 2) температура кипения         |
| c) boiling point               | 3) точка замерзания            |
| d) raise its boiling point     | 4) точка кипения               |
| e) boiling temperature         | 5) поднять точку кипения       |
| f) resist corrosion            | 6) широкий диапазон температур |

**Exercise 7.** Say if you agree or disagree that the cooling system is a complicated system.

**Exercise 8.** Give the facts from the text (exercise 5) to prove that water has both advantages and disadvantages as a coolant.

**Exercise 9.** Explain to the group how the boiling point of the coolant is raised and why it is necessary.

## LESSON 38

### Radiator

**Exercise 1.** Match *a–f* with 1–6 to make rhythms.

- |            |          |
|------------|----------|
| a) tank    | 1) flows |
| b) most    | 2) fan   |
| c) thin    | 3) true  |
| d) goes    | 4) cost  |
| e) through | 5) pin   |
| f) pan     | 6) rank  |

**Exercise 2.** Read the text and choose the word which belongs to the text (one in each group).

A radiator is a type of heat exchanger. It is designed to (*transfer, deliver, replace*) heat from the hot coolant that flows through it to the air blown through it by the fan.

Most modern cars use aluminum radiators. These radiators are made by brazing thin aluminum fins to flattened aluminum (*tubes, columns, wires*). The coolant flows from the inlet to the (*outlet, exit, way out*) through many tubes mounted in a parallel arrangement. The fins conduct the (*heat, temperature, warm*) from the tubes and transfer it to the air flowing through the radiator.

The tubes sometimes have a type of fin inserted into them called a turbulator, which increases the turbulence of the fluid flowing through the tubes. If the fluid flowed very smoothly (*through, across, over*) the tubes, only the fluid actually touching the tubes could be cooled directly. The amount of heat transferred to the tubes from the fluid running through them depends on the difference in temperature (*between, among, near*) the tube and the fluid touching it. By creating turbulence inside the tube, all of the fluid mixes together, keeping the temperature of the fluid touching the tubes up so that more heat can be extracted, and all of the fluid inside the tube is used (*effectively, effective, well*).

Radiators usually have a (*tank, piston, drum*) on each side, and inside tank is a transmission cooler. The transmission cooler is like a radiator within a radiator, except instead of exchanging heat with the air, the (*oil, petrol, air*) exchanges heat with the coolant in the radiator.

**Exercise 3.** Answer the questions.

1. What materials are radiators made of?
2. What is a turbulator used for?
3. What does the amount of the heat transferred to the tubes from the fluid running through them depend on?
4. How can you explain the work of transmission cooler?

**Exercise 4.** Correct mistakes in the following sentences.

1. Most modern cars are use aluminum radiators.
2. The coolant flows through much tubes.
3. The amount of heat depends on different in temperature.
4. Radiators usually have a tank on every side.

**Exercise 5.** Before listening to the text "The cooling fan" look through the vocabulary.

fan [fæn] – вентилятор

front-wheel drive car – автомобиль с передним приводом

sent point – установленная точка

**Exercise 6.** Listen to the text “The cooling fan” and say if it is about:

- a) the cooling system; b) the thermostat; c) front-wheel cars.

**Exercise 7.** Match *a–d* with *1–5* to make up word combinations, which are mentioned in the text.

- |                      |                  |
|----------------------|------------------|
| a) cooling           | 1) driven        |
| b) set               | 2) the set point |
| c) below             | 3) point         |
| d) front-wheel drive | 4) fan           |
| e) engine            | 5) cars          |

**Exercise 8.** Complete the sentences according to the text.

1. Cooling fan allows the engine to maintain a constant ... .
2. Front-wheel drive cars have ... .
3. The fans are controlled by ... or by ... .
4. The fans turn on when the temperature of the coolant goes ... a set point.

## **Further reading**

► Read the text and say what the function of the pressure cap is.

### **Pressure cap**

The radiator cap actually increases the boiling point of your coolant by about 45 °F (25 °C). How does this simple cap do this? The same way a pressure cooker increases the boiling temperature of water. The cap is actually a pressure release valve, and on cars it is usually set to 15 psi. The boiling point of water increases when the water is placed under pressure.

When the fluid in the cooling system heats up, it expands, causing the pressure to build up. The cap is the only place where this pressure can escape, so the setting of the spring (пружины) on the cap determines the maximum pressure in the cooling system. When the pressure reaches 15 psi, the pressure pushes the valve open, allowing coolant to escape from the cooling system. This coolant flows through the overflow tube (сливная трубка) into the bottom of the overflow tank. This arrangement keeps air out of the system. When the radiator cools back down, a vacuum is created in the cooling system that pulls open another spring-loaded valve, sucking water back in from the bottom of the overflow tank to replace the water that was expelled.

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## REVISION AND CONSOLIDATION

1. Put the words into the right order.

- a) is, the new fuel system, in this car, completely, of a new design, to be employed;  
b) the carburettor, the function of, petrol, is, to break up, fine particles, into.

2. Find the English equivalents (from a-c) to the Russian words.

- |                          |               |                 |                |
|--------------------------|---------------|-----------------|----------------|
| 1. воск                  | a) substance  | b) mix          | c) wax         |
| 2. транспортное средство | a) transport  | b) means        | c) vehicle     |
| 3. потребление           | a) use        | b) need         | c) consumption |
| 4. охладить              | a) engine     | b) carburettor  | c) cool        |
| 5. предотвращать         | a) to perform | b) to prevent   | c) to avoid    |
| 6. клапан                | a) piston     | b) radiator     | c) valve       |
| 7. заряжать              | a) to charge  | b) to discharge | c) to fill     |
| 8. количество            | a) quality    | b) quantity     | c) a lot       |

3. Read the following text and fill in the gaps with the appropriate words (see the list below).

The engine ... and cylinder head have many passageways to allow for ... flow. These passageways direct the ... to the most critical areas of the engine.

... in the combustion chamber of the engine can reach 4,500 °F (2,500 °C), so cooling the area around the cylinders is critical. Areas around the exhaust valves are especially crucial, and almost all of the space inside the cylinder head around the ... that is not needed for structure is filled with coolant. If the engine goes without ... for very long, it can seize. When this happens, the metal gets hot. This usually means the complete ... of the engine.

One interesting way to reduce the demands on the cooling ... is to reduce the amount of heat that is transferred from the combustion chamber to the metal ... of the engine. Some engines do this by coating the inside of the top of the cylinder head with a thin layer of ... . Ceramic is a poor conductor of heat, so less heat is conducted through to the metal and more passes out of the exhaust. The head of the engine also has large coolant passageways.

Fluid, ceramic, valves, cooling, temperatures, coolant, destruction, parts, system, block.

**4. Speak on one of the topics.**

I love all kinds of cars, but my favourite is ...

The design of my favourite car ensures its safety because ...

A modern service station should be equipped with ...

**5. Project work.**

Describe the car of your dream. Don't forget to mention about:

a) its design;

b) some technical characteristics (fuel consumption, maximum speed, type of engine, etc.);

c) its safety system.

**Tasks for self-control**

**1. Match the words from the two columns to make up word combinations.**

- |                   |                 |
|-------------------|-----------------|
| a) multi-cylinder | 1) position     |
| b) crankshaft     | 2) mixture      |
| c) exhaust        | 3) gases        |
| d) intake         | 4) valve        |
| e) compressed     | 5) stroke       |
| f) burned         | 6) engine       |
| g) liquid-cooled  | 7) block        |
| h) cooling        | 8) transmission |
| i) engine         | 9) cars         |
| j) automatic      | 10) system      |

**2. Choose one word from a–d to fill in the gaps.**

- The ... belongs to the brake system.  
a) shaft                      b) bonnet                      c) coolant                      d) caliper
- The ... belongs to the cooling system.  
a) shaft                      b) wheel                      c) windshield                      d) coolant
- The master cylinder consists of a ... and a fluid reservoir.  
a) crankshaft                      b) piston                      c) drum                      d) pad
- The pedal is a strong steel ... which transmits the force from your foot to the master cylinder.  
a) wheel                      b) lever                      c) disk                      d) pad
- If you rotate the key in the ignition clockwise:  
a) the car goes fast                      b) the engine switches on                      c) the lights go on

6. If you turn this steering wheel clockwise:  
a) the engine switches on    b) the lights go on    c) the car turns to the right

**The key to ex. 1:** a – 6; b – 1; c – 5; d – 4; e – 3; f – 2; g – 9; h – 10; i – 7; j – 8.

**The key to ex. 2:** 1 – d; 2 – d; 3 – b; 4 – b; 5 – b; 6 – c.

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## UNIT 8. ELECTRICAL EQUIPMENT

### LESSON 39

#### Starting system

**Exercise 1.** Learn to read these words properly.

alternator [ˈɔːltəˌneɪtə(r)]

voltage [ˈvɒltɪdʒ]

battery [ˈbætəri]

ignition [ɪɡni(ə)n]

generator [ˈdʒenəˌreɪtə(r)]

lead [led]

acid [ˈæsɪd]

cell [sel]

solenoid [ˈseʊləˌnɔɪd]

locomotive [ˌləʊkəˈməʊtɪv]

**Exercise 2.** Learn the meanings of the words and word combinations from the following descriptions.

1. *Electrical system* is equipment in a motor vehicle that provides electricity to start the engine, ignite the fuel; operate the lights, windshield wiper, heater and air conditioner.

2. *Alternator* is an old term for an electric generator that produces alternating current (переменный ток).

3. *Voltage regulator* is a transformer which voltage ratio of transformation can be adjusted.

4. *Automobile battery*, car battery is a lead-acid (свинцово-кислотного типа) storage battery in a motor vehicle; usually a 12-volt battery of six cells; the heart of the car's electrical system.

5. *Headlamp*, *headlight* is a powerful light with reflector (отражатель); attached to the front of an automobile or locomotive.

6. *Ignition* is the mechanism that ignites the fuel in an internal-combustion engine.

**Exercise 3.** Read the text and prove that the starting system proper operation is very important for the vehicle's work.

When talking about vehicles, especially when it is about the vehicle's power and performance, we often hear only about the powerful engines, stiff suspensions, and capable transmissions. This is particularly true if the main topic of the conversation is a luxury performance vehicle. Seldom we talk about the vehicle's starting system. It is another very important system that every vehicle is equipped with.

The vehicle's starting system is composed basically of two components: the electric starter motor (or starter) and the starter solenoid. As you turn the ignition key to the start position, the starter solenoid gets activated, which in turn energizes the starter motor. The starter motor would then spin the engine a few revolutions, allowing the combustion process to begin and the vehicle to start moving.

The main function of the vehicle's engine starting system is to induce the engine to start moving. But starting a cold engine requires a large amount of power and a large amount of electricity. In order for the starter motor to induce the engine to start spinning, it must overcome all the internal friction caused by the piston rings (поршневые кольца), the compression pressure in the engine cylinders, the energy needed to open and close the valves with the camshaft, and the power needed to start all the other components attached to the engine, like the water pump, oil pump and others. And because such power can only be brought by a large amount of electricity, the starter solenoid must be able to handle enormous current flows.

High performance vehicles (высокоэффективные транспортные средства) are equipped with high quality and high performance engine starting system components that makes starting a cold engine smooth and easy. Eventually, though, these components may start to wear down with use and age. If this happens, you really would have to replace your starter motor and starter solenoid.

**Exercise 4.** Answer the questions.

1. What components is the vehicle's starting system composed of?
2. What is the main function of the vehicle's engine starting system?
3. Why does starting a cold engine require much power?
4. Why are high performance vehicles equipped with high quality engine starting system components?

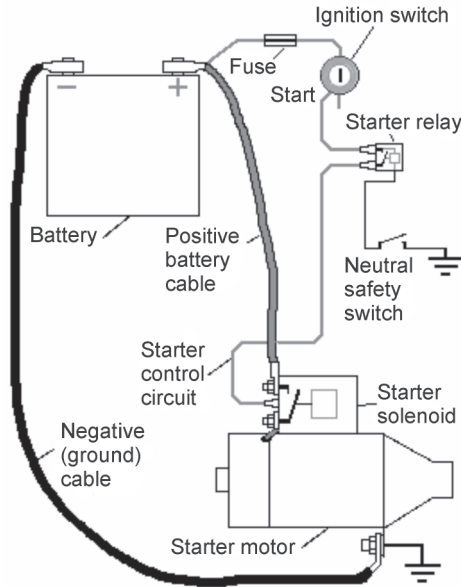
**Exercise 5.** Complete the passage with the correct information.

The starter and starter solenoid are components of ... . The starter solenoid must be able to handle enormous current flows because ... . To make starting a cold system engine easy vehicles are equipped with ... . If starting system components wear down, you have to ... .



**Exercise 6.** Look at the picture and give the English equivalents to the words and word combinations.

Предохранитель, замок зажигания (выключатель зажигания), аккумулятор, соленоид стартера, реле стартера.



**Exercise 7.** Read the text and try to understand the meanings of the underlined words.

### How the starting system works

When you turn the ignition key to the “Start” position, the battery voltage (напряжение) goes through the starter control circuit (цепь) and activates the starter solenoid, which in turn energizes the starter motor. The starter motor cranks the engine. A starter can only be operated when the automatic transmission shifter (рычаг) is in “Park” or “Neutral” position (or if the car has a manual transmission, when the clutch pedal is depressed). To accomplish this, there is a neutral safety switch installed at the transmission shifter or at the clutch pedal. When the automatic transmission is not in “Park” or “Neutral” (or when the clutch pedal is not depressed), the neutral safety switch is open and the starter relay disconnects the starter control circuit.

**Exercise 8.** Give the English equivalents from the words above to the following word combinations.

Напряжение аккумулятора, автоматическая трансмиссия, нейтральная позиция, механическая трансмиссия, педаль сцепления, размыкать цепь.

**Exercise 9.** Make up questions to which the following words will be answers.

1. The vehicle's starting system.
2. The starter and the starter solenoid.
3. To induce the engine to start moving.
4. When the shifter is in "Neutral" position.
5. The starter relay disconnects the starter control circuit.

**Exercise 10.** Make up a dialogue between A and B.

**A:** You are a driving instructor at the driving school. Your task is to explain the principle of starting system work.

**B:** You are a student at the driving school. Your task is to learn as much as possible about the principle of starting system work.

Start as shown.

**B:** What components does the starting system consist of?

**A:** It consists of a starter and a starter solenoid.

**B:** Could you explain to me what happens when I turn the ignition key to the start position?

**A:** Sure. Look at this scheme ...

## LESSON 40

### Battery

**Exercise 1.** Say what way the following words are formed.

Rechargeable, ignition, relatively, discharge, difference, grounding.

**Exercise 2.** Before reading the text, try to answer the questions.

1. What's the function of the vehicle's battery?
2. What components does a vehicle battery consist of?

**Exercise 3.** Read the text and try to understand the meanings of the underlined words.

An automotive battery is a type of rechargeable battery that supplies electric energy to an automobile. Usually this refers to an SLI battery (starting, lighting, ignition) to power the starter motor, the lights, and the ignition system of a vehicle's engine.

Batteries intended for starting, lighting and ignition (SLI) systems are intended to deliver a heavy current for a short time, and to have a relatively low degree of discharge on each use. Automotive batteries (usually of lead-acid type) provide a nominal 12-volt potential difference by connecting six galvanic cells in series. Each cell provides 2.1 volts for a total of 12.6 volts at full charge.

In modern automobiles, the grounding is provided by connecting the body of the car to the negative electrode of the battery, a system called 'negative ground'. In the past some cars had 'positive ground'.

**Exercise 4.** Give the English equivalents to the following word combinations.

Разность потенциалов (напряжение), перезаряжающаяся, батарея свинцово-кислотного типа, гальванический элемент, при полной зарядке, заземление, отрицательный электрод батареи, степень разрядки, система зажигания.

**Exercise 5.** Correct mistakes.

1. An automotive battery supplies electric energy to the automobile.
2. Batteries intended for starting have a relative low degree of discharge.
3. In automotive batteries six galvanic elements connected in series.
4. Each cell provide 2.1 volts at full charge.
5. The grounding is provided by connected the body of the car to the battery.

**Exercise 6.** Before reading the text say what problems the discharged battery may cause.

**Exercise 7.** Read the car mechanic's recommendations below and make a list of car problems which are mentioned in the text.

**Example:** a) a car doesn't start; b) blinking instrument lights; c) click-click noise when you try to start the car; etc.

The battery provides electric power to start the car. I get many questions like "My car doesn't start, it only makes a click-click noise when I'm trying to start it" – this is most likely the result of the battery having decided to quit. If your vehicle doesn't start and you suspect the battery, there is a simple way to check it. Try switching the wipers on – if they move very slowly, a lot slower than usually (too low voltage) the battery is probably discharged or dead.

Battery terminals shouldn't be loose or corroded (коррозированы). Corroded battery terminals will cause all kind of problem: blinking instrument lights, no-start, etc. Also, if you see any acid leaks, cracks or any other damage – replace the battery. Acid leakage destroys everything underneath. When changing the battery, battery manufacturers recommend disconnecting the ground connection first to prevent accidental short-circuit (короткое замыкание) between the battery terminal and the vehicle frame.

The battery is filled with harmful acid solution and can produce explosive gases. Handling the battery be careful and always use protective glasses and gloves. Don't use open fire, smoke, or create a spark near the battery.

**Exercise 8.** Match a–e with 1–5.

- |                        |                      |
|------------------------|----------------------|
| a) leakage             | 1) клеммы            |
| b) low voltage         | 2) разряжена         |
| c) battery terminals   | 3) низкое напряжение |
| d) discharged          | 4) заменить батарею  |
| e) replace the battery | 5) утечка            |

**Exercise 9.** Work in pairs, one of you is a car mechanic and the other – a client. Use the information from ex. 3 to complete the dialogue below. Role-play it.

**Client:** My car doesn't start, it only makes a click-click noise when I'm trying to start it.

**Mechanic:** This is most likely the result of the battery having decided to quit.

**Client:** Is there any simple way to check it?

**Mechanic:** If your vehicle doesn't start and you suspect the battery, there is a simple way to check it. ... .

**Client:** ... .

**Mechanic:** ... .

**Client:** ... .

**Mechanic:** ... .

**Client:** ... .

**Mechanic:** ... .

## LESSON 41

### Generator

**Exercise 1.** Restore the original sentences.

- a) power, to, electric, start, the, battery, the, car, provides.  
b) your, start, if, try, vehicle, on, doesn't, switching, wipers, the.

- c) terminal, battery, cause, corroded, problems, different.
- d) use, near, open, don't, fire, battery, the.

**Exercise 2.** Fill in the gaps with the words and word combinations below.

The ... (generator) supplies the vehicle's electric systems with electric power and also recharges ... when the engine is running. If it fails, the engine will continue to run using the battery ... , but the car will eventually stop as soon as the battery will be completely ... . When the alternator fails, there is ... on the instrument panel that comes on with the engine running. Usually it's something like "+ -" or "charge" warning light. If you see that sign on your ... while driving, have your ... inspected.

Power, alternator, the battery, discharged, a warning light, instrument panel, vehicle.

**Exercise 3.** Mark the following sentences as True or False.

1. The generator supplies the vehicle's electric systems with electric power.
2. The generator recharges the battery when the engine isn't running.
3. If the generator fails, the engine will stop.
4. When the generator fails, there is a warning light on the instrument panel.

**Exercise 4.** Say what the difference between an ordinary and a hydrogen generator is.

**Exercise 5.** Read the text and say how a hydrogen generator for cars can save the planet.

We all should be concerned about the environment, and do what we can to take care of the world we have been given to enjoy. Emissions from car exhaust are some of the most dangerous environmental pollutants.

How does a hydrogen generator for cars work?

Hydrogen is the smallest known molecule in the universe, and when it is forced into the combustion chamber, its small size allows it to enter quickly. Also, the lightweight molecules move quickly, thus creating more molecular collisions than any other molecule.

Since the hydrogen molecules burn faster than gasoline alone, it actually decreases the time it takes for combustion. By having a more complete burn earlier in the stroke, more energy is converted into power and less leaves the engine during the exhaust stroke. As a result, more fuel is converted into usable energy, meaning fewer dangerous emissions and more power. As you can see, hydrogen or HHO powered cars (HHO gas is used as the short or slang term for oxyhydrogen among the online community) will help reduce

the car's emissions and protect the environment so that both us and our children can live in a better, safer and cleaner world.

To actually use hydrogen as a fuel, we need to convert it from plain water. Fossil fuels are extremely dangerous to both humans and the atmosphere, and when they are not completely burned in the engine, they are released through the exhaust system of the vehicle to pollute the air.

It is a wise decision for our pockets, probably the most popular reason why people are turning to a hydrogen generator for cars, but it also ensures a greener world for our children to grow in.

**Exercise 6.** Answer the questions.

1. Is hydrogen as a fuel less dangerous than fossil fuels?
2. How do HHO powered cars help to reduce the car's emissions and protect the environment?
3. What is hydrogen converted from?
4. What types of fuel are less expensive – fossil fuels or hydrogen?

**Exercise 7.** Divide the text into 3–4 parts and entitle them.

**Exercise 8.** Reduce the text to 5–6 sentences so that it keeps the main information and reproduce them.

## UNIT 9. TRANSMISSION

### LESSON 42

#### Transmission operation

**Exercise 1.** Learn to read these words properly. Do you know their Russian equivalents? If not, consult the dictionary.

torque [tɔ:k]  
differential [ˌdɪfə'renʃ(ə)l]  
axle [ˈæks(ə)l]  
shaft [ʃɑ:ft]  
gear [gɪə(r)]  
ratio [ˈreɪʃiəʊ]  
reverse [rɪ'vɜ:s]

**Exercise 2.** Before reading the text, answer the questions.

1. What function does a transmission perform?
2. What's the difference between automatic and manual transmissions?

**Exercise 3.** Read the text and try to understand the meanings of the underlined words.

### **What a transmission does**

The power train includes a manual or automatic transmission; a clutch, on cars with manual transmissions; a differential; wheel axles, and, in rear-drive cars, a drive shaft. While cars with a front engine, rear-drive layout were the norm for many years, most cars today are front-engine, front-drive. Front drive creates more passenger space and offers better traction on snowy or wet roads. Some cars and light trucks designed to go off-road or through bad weather use all-wheel drive, where all four wheels are coupled to the engine.

The power of the engine consists of torque and speed. Torque is the twisting force of the engine's crankshaft. Speed refers to the rate of rotation of the crankshaft.

Because of the great difference in engine speed and load between a car that is accelerating from a stop and one that is cruising at a steady speed, different gear ratios are needed to match engine output with the inertia of the vehicle.

The transmission can adjust the proportions of torque and speed that it delivers from the engine to the drive shaft. When it increases the torque, it decreases the speed; and when it increases the speed, it decreases the torque. Most automobile transmissions have between two and six gear ratios, along with a reverse gear. When the vehicle is started from rest, a high gear ratio is needed. As speed increases, lower gear ratios are selected.

Almost all transmissions vary torque and speed by means of gears. A gear is a wheel with projections called teeth around the edge. The teeth fit together with the teeth of another gear. Suppose that a small gear with 12 teeth drives a large gear with 24 teeth. The large gear rotates with half the speed, but twice the torque, of the small gear. The amount of reduction is expressed numerically by the gear ratio. The gear ratio above is 2 to 1 because the small gear rotates twice for each rotation of the large gear.

The gears can be combined in different ways to produce various gear ratios and thus various proportions of torque and speed. The gear ratios are often called simply gear or speeds. The process of changing from one gear ratio to another is called shifting gears.

**Exercise 4.** Match a–l with 1–12.

- |                                    |   |
|------------------------------------|---|
| a) torque                          | 1) уменьшать                                |
| b) the rate of rotation            | 2) переключение скоростей                   |
| c) speed                           | 3) передаточное отношение                   |
| d) proportions of torque and speed | 4) зубчатая передача, шестерня              |
| e) increase                        | 5) зубец                                    |
| f) decrease                        | 6) крутящий момент                          |
| g) gear                            | 7) соотношение крутящего момента и скорости |
| h) teeth                           | 8) увеличивать                              |
| i) gear ratio                      | 9) скорость, передача                       |
| j) shifting gears                  | 10) скорость вращения                       |
| k) drive shaft                     | 11) привод на все колёса                    |
| l) all-wheel drive                 | 12) ведущий (приводной) вал, первичный вал  |

**Exercise 5.** Translate the following word combinations and phrases into Russian.

Accelerating from a stop, at a steady speed, different gear ratios, to match engine output with the inertia of the vehicle, to adjust the proportions of torque and speed, expressed numerically.

**Exercise 6.** Transform the word combinations.

*Example:* the system of transport – the transport system

- the flow of oil
- the indicator of the car
- the pressure of gas
- models of transport
- the component of the car
- the pedal of accelerator
- the increase of speed
- the model of the car
- the types of the car

**Exercise 7.** Correct the wrong information in the phrases.

1. A wheel with teeth around the edge is called a ring.
2. The transmission can adjust the proportions of fuel and air.
3. Most automobile transmissions have ten gear ratios.
4. When the transmission increases the torque, it increases the speed.
5. The process of cruising at a steady speed is called shifting gears.



**Exercise 8.** Complete the sentences.

1. The power train consists of ... .
2. Front drive cars offer ... on snowy or wet roads.
3. The transmission adjust the proportions of ... .
4. Most automobile transmissions have ... .
5. Transmissions vary torque and speed by ... .
6. The process of changing from one gear to another is called ... .

**Exercise 9.** Explain to the group what the gear ratio 2 to 1 means.

## LESSON 43

### Types of transmission

**Exercise 1.** Fill in the missing letters in the words.

Transmi .. ion; gear .. ift; torq .. ; cl .. tch; man .. al; n .. tral; r .. verse; sp .. d.

**Exercise 2.** Before reading the text, try to answer the following questions.

1. What position does a driver put the transmission in to start the engine?
2. Which gear does a driver shift into to put the car into forward motion?
3. What does the clutch connect?

**Exercise 3.** Read the text and try to understand the meanings of the underlined words.

#### How a manual transmission works

The driver shifts the gears of a manual transmission by means of a hand-operated lever called a gearshift. Most manual transmissions have a neutral position; three, four, or five forward gears; and a reverse gear. The driver puts the transmission into neutral when the engine is being started.

To put a car into forward motion, the driver shifts into first, or low gear. This gear provides the highest torque and the lowest speed. As the car picks up speed, the driver shifts into second gear, then into third gear, and so on, until the transmission is in the highest gear desired. If extra torque is needed, the driver may downshift a higher gear to a lower one. This situation might occur when the car goes up a steep hill.

The clutch. The driver of a car with a manual transmission must operate the clutch along with the gearshift. The clutch, which is operated by a pedal, connects the engine to the transmission. When the driver presses the pedal,

the clutch is disengaged (disconnected from the engine), and no power is sent to the transmission. When the driver releases the pedal, the clutch is engaged, sending power to the transmission. The driver must disengage the clutch when shifting gears.

The clutch consists basically of three disks: the flywheel, the pressure plate, and the clutch plate. The flywheel is connected to the crankshaft and turns whenever the engine is running. The clutch plate rests between the flywheel and the pressure plate.

**Exercise 4.** Give the appropriate translation for the underlined words (exercise 3) from the following list.

Рычаг переключения передач, нейтральное положение, задняя передача, передняя передача, сцепление, прижимная пластина, механическая трансмиссия.

**Exercise 5.** Match a–f with 1–6.

- |                               |                        |
|-------------------------------|------------------------|
| a) hand-operated              | 1) into forward motion |
| b) to downshift a higher gear | 2) motion              |
| c) to put a car               | 3) the engine          |
| d) forward                    | 4) to a lower one      |
| e) to pick up                 | 5) lever               |
| f) disconnected from          | 6) speed               |

**Exercise 6.** Put the words into the right order to make up sentences according to the given translation:

- a, five-speed, automatic transmission, installed, in, is, this auto  
В этом автомобиле установлена автоматическая пятиступенчатая трансмиссия.
- consists, of, the mechanical transmission, of, auto, this, a, a, gearbox, clutch, front wheel drive, a  
Механическая трансмиссия этого автомобиля состоит из сцепления, коробки передач, привода передних колёс.
- is, there, noise, in, the, heard, release bearing (подшипник выключения)  
Слышен шум в подшипнике выключения сцепления.
- engages, with, the, clutch, jerks  
Сцепление включается рывками.
- gear, reverse, engagement, difficult, is  
Включение задней передачи затруднено.

**Exercise 7.** Complete the dialogue between a driving instructor and his student. Role-play the dialogue.

**A:** To change the speed the driver ... .

**B:** How many gears do manual transmissions have?

**A:** ... .

**B:** ... .

**A:** By clutch along with the gear-shift.

**B:** ... ?

**A:** When the driver presses the pedal ... .

**B:** ... .

**A:** When the driver releases the pedal ... .

**B:** The driver must disengage the clutch when ... , mustn't he?

**A:** ... .

## LESSON 44

### Differential

**Exercise 1.** Learn to read these words properly. Do you know their Russian equivalents? If not, consult the dictionary.

inner ['ɪnə(r)]

resistance [rɪ'zɪst(ə)ns]

differential [ˌdɪfə'renʃ(ə)l]

degree [dɪ'ɡri:]

outer ['aʊtə(r)]

pinion ['pɪnjən]

**Exercise 2.** Before reading the text, try to answer the questions.

1. What are differentials used for in vehicles?
2. How many differentials are necessary for the vehicle's proper operation?

**Exercise 3.** Read the text and try to understand the meanings of the underlined words.

A differential is a device, usually consisting of gears, for supplying equal torque to the driving wheels, even as they rotate at different speeds. In some vehicles torque is simply applied evenly to all driving wheels using a simple driveshaft. This works well enough when travelling in a straight line, but when changing direction the outer wheel needs to travel farther than the inner wheel.

The simple solution results in the inner wheel spinning. For general road use, such a method would result in too much damage to both the tyre and road surface.

Differentials are typically composed of a gear mechanism in which a ring gear receives input power, which is transferred to two side gears by means of usually two opposing central pinion gears on a common shaft. The pinion gears are connected to the ring gear. When the ring gear rotates, the pinion gears drive the side gears; the pinion gears are free to rotate about their own axis when either of the side gears meets resistance. In a motor vehicle, the two side gears may be used to transfer power to the left and right wheels. When the vehicle turns a corner, or one of the wheels encounters resistance, the pinion gears rotate around the side with the most resistance; this rotation drives the other side gear with additional speed.

The most basic differential described above, known as an open differential, suffers from one important problem, however. In an automobile, if one wheel begins to slip while the other maintains traction, the slipping wheel will receive most of the power. This means that if one wheel is spinning on ice while the other is still in contact with the pavement, acceleration of the driveshaft will only cause the slipping wheel to spin faster and very little power will reach the wheel with good traction. Similarly, if one wheel is lifted off the ground, nearly all the power will go to the wheel that is off the ground; not a hopeful prospect for off-road vehicles.

Differential mechanisms possess two degrees of freedom (DOF), and the state of the mechanism depends on two constraints (ограничения). In a vehicle, the first constraint is the motor, and the second is the frictional kinematic chain between the two wheels and the ground. When the two wheels slip on the ground, the second constraint becomes weaker or disappears. The differential also becomes undetermined and transmits less or no power.

A four-wheel-drive vehicle will have at least two differentials (one for each pair of wheels) and possibly a center differential to apportion power between the front and rear axles.

#### Exercise 4. Match a–l with 1–12.

- |                            |                            |
|----------------------------|----------------------------|
| a) differential            | 1) внешнее колесо          |
| b) driving wheels          | 2) ведущая шестерня        |
| c) outer wheel             | 3) ведущие колёса          |
| d) inner wheel             | 4) шина                    |
| e) tyre                    | 5) внутреннее колесо       |
| f) road surface            | 6) полуосевая шестерня     |
| g) ring gear               | 7) степени свободы         |
| h) side gear               | 8) встречать сопротивление |
| i) pinion gear             | 9) коронная шестерня       |
| j) to encounter resistance | 10) внедорожник            |

- k) off-road vehicle
- l) degrees of freedom

- 11) поверхность дороги
- 12) дифференциал

**Exercise 5.** Read the statements and decide whether they are True or False.

1. A differential is a device for supplying equal torque to the front wheels.
2. When changing direction the inner wheel needs to travel farther than the outer wheel.
3. If one wheel is spinning on ice while the other is still in contact with the pavement, acceleration of the driveshaft will only cause the slipping wheel to spin faster and very little power will reach the wheel with good traction.
4. A four-wheel-drive vehicle will have at least one differential.

**Exercise 6.** Entitle the passages of the text.

**Exercise 7.** Make up questions to which the following words will be answers.

- a) To supply equal torque to the driving wheels.
- b) Of a gear mechanism.
- c) Two degrees of freedom.
- d) At least two differentials.
- e) To apportion power between the front and rear axles.

**Exercise 8.** Complete the dialogue between a car mechanic and a client, act it out.

**Client:** Could you consult me about the work of transmission?

**Mechanic:** ... .

**Client:** What is the function of transmission?

**Mechanic:** ... .

**Client:** What are different gear ratios needed for?

**Mechanic:** ... .

**Client:** What transmission used in a car – manual or automatic – gives a driver more comfort?

**Mechanic:** ... .

**Client:** What do we call an open differential?

**Mechanic:** ... .

## LESSON 45

### Dodson Motorsport

**Exercise 1.** Have you ever read any advertisements in the automotive-related field? What information do such advertisements usually contain?

**Exercise 2.** Read the advertisement and say what the firm deals with.

### **Welcome to Dodson Motorsport**

Dodson Motorsport was established in 2000 by Glenn Cupit, a qualified automotive engineer, and Harry Dodson, of Dodson Autospares. Between them they have 65 years of experience in the automotive field. From our background of race car, tuning, maintenance and gearbox preparation, we expanded into high and road car modifications with the development of transmission components in 2007.

We have developed many high quality upgraded components for the Nissan R35 GTR GR6 Transmission. Dodson Motorsport is the world leader in dual clutch development for use in high horse power vehicles like the Nissan R35 GTR and Mitsubishi EVO X SST.

Dodson Motorsport is New Zealand's agent for OS Giken, one of Japan's leading racing engineering firms. They specialize in designing and manufacturing high performance OS clutches, OS Super Lock LSD, OS Close Ratio Gear Kit, OS RB30, 31, 31.5 engines and OS Sequential Transmissions as well as other OS special parts. OS Giken has a reputation world wide for durability and quality.

Our Transmission/Gearbox experts offer all aspects of manual and dual clutch Transmission/Gearbox rebuilding, modifying or installation for all manufactures including OS Giken, Jerico, PPG, Hollinger, Borg Warner, and OEM manufactures.

For more information, please contact us on (09) 441-3635

For international inquiries, please contact us on +64-9-921-3792

**Exercise 3.** Divide the text into three parts according to the plan:

- a) the origin (the history) of the firm;
- b) ways of cooperation with other firms, achievements;
- c) services offered.

**Exercise 4.** Answer the following questions.

1. How long has the firm been operating?
2. What services does the firm offer?
3. Do they take out the international orders?

**Exercise 5.** Correct mistakes in the following sentences.

1. Our firm is established in 2000.
2. We had already been repairing cars for 35 years.
3. Dodson Motorsport is the world leader in clutch develop.
4. We are interested with transmission parts you offer.

**Exercise 6.** Complete the following letter using the information from the advertisement. Use the word combinations from the box below:

The secretary, 12<sup>th</sup> April, 2011  
.....  
34, High Street,  
London, E.C.S., England

Dear Sir,

We have read your advertisement ... . We are interested in ... offered by your firm.

Please send us ... .

We hope to establish ... with your firm.

Yours, faithfully,

... (name).

Dodson Motorsport services offered in the latest issue of industry  
business relations price-lists

## UNIT 10. CHASSIS

### LESSON 46

#### Chassis operation

**Exercise 1.** Before listening to the text "Chassis" look through the vocabulary.

chassis [ˈʃæsi] – шасси  
mount [maʊnt] – устанавливать  
cabin [ˈkæbɪn] – кабина  
brake [breɪk] – тормоза  
steel [sti:l] – сталь; стальной  
brace [breɪs] – подпорка, распорка  
to weld [weld] – приваривать

**Exercise 2.** Translate the following word combinations into Russian.

Automobile chassis, brake system, steel brace, steering system, four-wheel steering.

**Exercise 3.** Listen to the text “Chassis” and say yes or no.

1. The automobile chassis include a battery, an engine and a fan.
2. In modern cars the body combines the functions of the frame and the cabin.
3. The steering system controls the angle of the front wheels.
4. All cars have four-wheel steering.

**Exercise 4.** Put the word combinations into the order they are mentioned in the text.

- a) drive system
- b) steering system
- c) steel body

**Exercise 5.** Listen to the text again and match **a–e** with **1–5** to make up word combinations which are used in the text.

- |                |             |
|----------------|-------------|
| a) automobile  | 1) train    |
| b) rear        | 2) steering |
| c) drive       | 3) chassis  |
| d) power       | 4) drive    |
| e) front-wheel | 5) wheels   |

**Exercise 6.** Answer the questions.

1. What does an automobile chassis include?
2. What is the drive system’s function?
3. What’s the function of the steering system?

**Exercise 7.** Listen to the text again and complete the sentences.

1. The car frame, drive train, suspension, wheels, steering, brake system are included into ... .
2. Most cars today have a ... drive.
3. The drive system carries the power from the transmission to the ... that move the car.
4. The power steering uses power to reduce the effort of turning the ... .

**Exercise 8.** Describe how the automobile chassis changed according to the text.

**Exercise 9.** Give your opinion on whether the automobile chassis are more improved nowadays.



## LESSON 47

### Car suspension

**Exercise 1.** Write each verb in the *-ing* form.

Assure, feel, sit, skid, spin, set, accelerate, begin, try.

**Exercise 2.** Say what way the following words are formed. Translate the words into Russian.

Ensure, truly, immediately, slippery, powerful, acceleration, direction, management, intervention, superbly.

**Exercise 3.** Say what function the suspension performs in a car.

**Exercise 4.** Read the advertisement and try to understand the meanings of the underlined words.

Excellent handling begins with a car suspension. For this reason, our engineers distributed the axle load in our new BMW 3 Series compact in a way that ensures truly neutral handling: 50:50. And since the front and rear axles bear an equal part of the load, the engine's power is transmitted to the road in the best way possible.

Something you'll notice immediately, especially on slippery surfaces, or while cornering at speed. Traction remains stable, and the car is "glued" to the road. Whenever you brake or steer, you always have the reassuring feeling that you are sitting in a very safe car. The BMW 3 Series compact includes a sports suspension and direct as standard.

You also get powerful chassis and suspension control systems at no extra cost. Such as DSC Dynamic Stability Control. This control system monitors acceleration in any direction and, if required, performs an engine management intervention. The appropriate wheels are braked automatically in order to avoid skidding. In this way, the car is kept safely on track, for instance on slippery surfaces or when cornering. With the traction mode, spinning wheels when setting off or accelerating out of a bend are a thing of the past. The vehicle handles superbly at all times.

Also included as standard: CBC (Cornering Brake Control). This ensures that your car stays safely on track when you have to brake in a bend.

**Exercise 5.** Match a–f with 1–6.

- |                           |                          |
|---------------------------|--------------------------|
| a) axle load              | 1) скользкая поверхность |
| b) front axle             | 2) передний мост         |
| c) equal part of the load | 3) безопасный автомобиль |
| d) safe car               | 4) нагрузка на ось       |
| e) powerful chassis       | 5) равная часть нагрузки |
| f) slippery surface       | 6) мощные шасси          |

**Exercise 6.** Translate the following compound nouns into Russian.

Car suspension, suspension control system, traction mode, cornering brake control, fuel supply control.

**Exercise 7.** Choose the right option according to the text.

- The front and rear ... bear an equal part of the load.  
a) axles                      b) suspension                      c) engine
- The BMW 3 Series compact includes a sports ... as standard.  
a) wheel                      b) chassis                      c) suspension
- The car stay safely on track even on ... surfaces or when ... .  
a) hard; starting      b) slippery; cornering      c) slippery; corner

**Exercise 8.** Put the verbs into the Passive voice.

- Truly neutral handling (to ensure) in our new BMW 3 Series compact.
- A sports suspension and direct steering (to include) into the car.
- An equal part of the load (to bear) by the front and rear axles.
- That can (to notice) immediately on slippery surfaces.

**Exercise 9.** Say if you like the car described in the text above. What characteristics of the car seem especially attractive to you?

## LESSON 48

### Brake system

**Exercise 1.** Learn the reading of the following words.

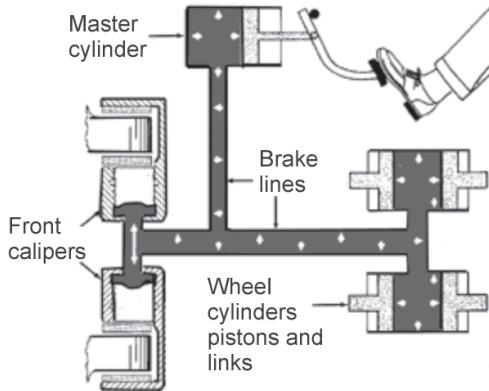
master [ˈmɑːstə(r)]	drum [drʌm]
plunger [ˈplʌndʒə(r)]	pad [pæd]
fluid [ˈfluːɪd]	rotor [ˈrəʊtə(r)]
efficiency [ɪˈfɪʃənsɪ]	friction [ˈfrɪkʃ(ə)n]
caliper [ˈkælɪpə(r)]	spindle [ˈspɪnd(ə)l]
disc [dɪsk]	

**Exercise 2.** Answer the following questions.

1. Why is the brake system so important for our safety?
2. What are the most important parts of the brake system?

**Exercise 3.** Read the text and learn the names of brake system components.

Your car brake system is a complex grouping of parts which serve a critical role in keeping you safe. No other system in the car is as important for your safety. Keeping your brake system in tip-top shape should be your top priority.



Let's start with the pedal and work our way down the braking system to better understand how it works. The pedal is a strong steel lever which transmits the force from your foot to the master cylinder (главный цилиндр). The pedal typically has a switch attached to it, to turn on your brake lights when you press the pedal down.

When you push down on the pedal, the master cylinder is pushed via a push rod. When you step on the brake pedal, you are actually pushing against a plunger in the master cylinder which forces hydraulic oil (brake fluid) through a series of tubes and hoses to the braking unit at each wheel. Since hydraulic fluid (or any fluid for that matter) cannot be compressed, pushing fluid through a pipe is just like pushing a steel bar through a pipe. Unlike a steel bar, however, fluid can be directed through many twists and turns on its way to its destination, arriving with the exact same motion and pressure that it started with. It is very important that the fluid is pure liquid and that there are no air bubbles in it. Air can compress, which causes sponginess to the pedal and severely reduced braking efficiency. If air is suspected, then the system must be bled to remove the air. There are "bleeder screws" at each wheel cylinder and caliper for this purpose.

The master cylinder consists of a piston and a fluid reservoir. When the piston is moved, it pushes the brake fluid through the brake lines and into the caliper (суппорт) or wheel cylinder. Most cars have disc brakes on the front wheels, and many have disc brakes on the rear also. When disc brakes are not used on the rear, drum brakes are used. The fluid being pushed from the master cylinder through the brake lines pushes a piston in the brake caliper. This in turn applies force to the brake pads. The brake pads are typically made from a hard organic or metallic compound. The pads are made to survive under high heat and pressure. When the brake pads contact the disk rotor, there is friction and heat is created. This is how your car stops, by turning the rotating energy of your wheels into heat through friction. The last part of your braking system is the rotors. Typically made from cast iron and made heavy enough to dissipate heat and not warp over time. Unfortunately, in today's cars, many of the rotors are not large enough, and can warp within a few 1,000 miles. The rotor is bolted between the wheel and the spindle, and rotates at the same speed as the wheels.

**Exercise 4.** Give the English equivalents to the following words and word combinations.

Стальной рычаг, педаль, стоп-сигнал, главный цилиндр, плунжер, тормозная жидкость, стальной стержень, дисковые тормоза, барабанные тормоза, тормозной диск.

**Exercise 5.** Find in the text above the words opposite in meaning to the following words and word combinations.

Dangerous, in neglect state, worse, weak, depress, dirty fluid, front, soft compound, at a different speed.

**Exercise 6.** Complete the sentences.

1. The pedal transmits the force from the foot to ... .
2. When you step on the brake pedal, you are pushing against a ... which forces ... .
3. The master cylinder consists of a piston and a ... .
4. On the rear wheels either ... brakes or ... brakes can be used.
5. When the brake pads contact the disc rotor ... .

**Exercise 7.** Answer the questions.

1. What kinds of brakes are used in cars?
2. What liquid qualities make it possible to use it in the brake system?
3. Why air can't be used instead of liquid in the brake system?

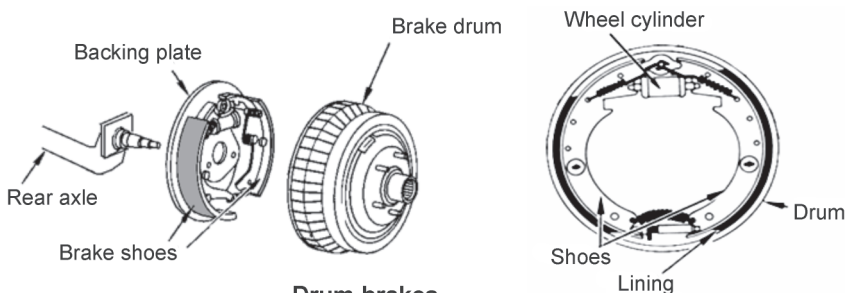
4. What should you do if air is suspected in the brake system?
5. What materials are brake pads made of? And rotors?

**Exercise 8.** Tell about the way of the brake fluid in the brake system. Work your way down the brake system from the pedal to the rotor. Use the following words: *to transmit, to push, to force, to move, to contact*, etc.

## LESSON 49

### Types of brakes

**Exercise 1.** Look at the pictures and learn the names of the brake system components.



**Drum brakes**

**Disk brakes**

**Exercise 2.** Listen to the text “Types of brakes” and say yes or no.

1. Brake pads and a rotor are components of the drum brakes.
2. The disc rotor is attached to the wheel, forcing the wheel to slow down or stop.

3. Brake shoes and a drum are components of the disc brakes.
4. Heat causes the friction surfaces of the pads to eventually wear out.

**Exercise 3.** Match a–e with 1–5 to make up the word combinations used in the text.

- |             |             |
|-------------|-------------|
| a) master   | 1) motion   |
| b) friction | 2) shoes    |
| c) forward  | 3) cylinder |
| d) disc     | 4) rotor    |
| e) brake    | 5) surface  |

 **Exercise 4.** Listen to the text again and answer the questions.

1. What parts does the drum brake consist of?
2. What is the fluid used for?
3. What is the role of the pads?
4. What happens to the brakes as the brake linings wear out?
5. How does the disk brakes mechanism work?

 **Exercise 5.** Listen to the text again and fill in the table.

	The brake system components	The part of the brake system, attached to the wheel	The part of the brake system which causes friction
Disc brakes			
Drum brakes			

**Exercise 6.** Speak about the principle of the drum brakes operation.

## LESSON 50

### Discussing brake system operation

**Exercise 1.** Restore the original sentences.

1. presses, the, foot, pedal, the.
2. pushes, the, first, pedal, the, down, piston.
3. oil, the, squeezes, the, piston.
4. the, pushes, piston, shoe, the, brake, the against, wheel.

**Exercise 2.** Make up sentences with the following expressions: *a pair of*, *a set of*, *a box of...*

Use the nouns: nut, wheel, drum brake, spark plug, brake pad, lever, cylinder, nail.

**Example:** I've bought a pair of wheels.

**Exercise 3.** Find and correct mistakes in the following sentences.

1. – What is it?  
– This is drum brakes.
2. – Are the master cylinder full of brake liquid?  
– Yes, its is.
3. This disk brake are new.
4. These are a pair of brake pads.
5. Is these a box of nuts?
6. These is a brake lights.
7. Are this wheel cylinders?
8. There are a pair of brake pads in each caliper.

**Exercise 4.** Make up questions to which the following words will be answers.

1. The brake fluid.
2. They should be replaced.
3. The wheel stops.
4. The friction.

**Exercise 5.** You are asking your partner about advantages and disadvantages of the disk brakes and the drum brakes. Complete the dialogue and reproduce it with your group-mate.

- The disk brake is the best brake we have found so far.
- ... ?
- Disk brakes are used to stop everything from cars to locomotives.
- ... ?
- Disk brakes wear longer, are less affected by water, are self adjusting, self cleaning and stop better than any other system around.
- ...?
- There are two brake pads on each caliper.
- ...?
- There are many types and qualities of pads available. The differences have to do with brake life (how long the new pads will last) and noise (how quiet they are when you step on the brake).
- ...?

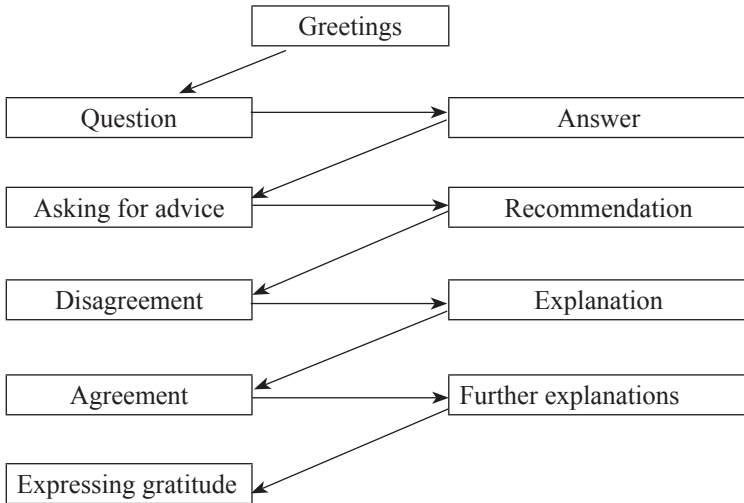
– If the lining wears down to the metal brake shoe, then you will have a “Metal-to-Metal” condition where the shoe rubs directly against the rotor causing severe damage and loss of braking efficiency.

– ... ?

– Some brake pads come with a “brake warning sensor” that will emit a noise when the pads are worn to a point where they should be changed. This noise will usually be heard when your foot is off the brake.

– ...

**Exercise 6.** You work as a car mechanic. Give some recommendations to your client. The list of the possible recommendations is given below. Make up a dialogue, following the scheme.



• Avoid “riding” your brakes. It’s better to slow down with moderate pressure and then releasing the brake to cool, than riding the brakes and overheating them.

• On steep grades consider downshifting to save your brakes. Only do this when traction conditions are good. In ice, snow, or even rain, downshifting into too low gear may cause a skid. Downshifting lets your engine do some of the braking instead of your brakes.

• Keep your wheels and braking system clean. Clean brakes work better and keep temperatures down. Use a good wheel cleaner.



# UNIT 11. CAR REPAIR AND MAINTENANCE

## LESSON 51

### Preventive maintenance

**Exercise 1.** Divide the words into two groups: with the stress on the first and on the second syllable.

Dictionary, preventive, maintenance, pollution, engine, corrosion, repair, produce, pressure, coolant.

**Exercise 2.** Say what the preventive maintenance includes. Make the list of tips how to help the car to last longer.

**Exercise 3.** Read the text below and complete your list of tips with the information from the text.

#### Few basic car maintenance tips

Preventive maintenance is important to keep your car safe. With proper care your car will last longer and some of the possible problems can be avoided. Well-maintained car is not only safer, it's also more economical and produces less pollutions. If the car is well-maintained, you can expect higher price when you decide to sell it.

Regular oil changes are very important to keep your engine in a good shape.

Wash your car regularly, wax it once in a while to keep the car body shiny and free from corrosion.

Take care of any minor concerns as soon as you can, so it won't cause serious problems and an expensive repair later.

Avoid overheating the engine.

Changing spark plugs, air filter, timing belt and other items according to maintenance schedule may save you from costly repairs.

Use only original parts.

**Exercise 4.** Give the English equivalents to the word combinations and phrases.

Профилактическое обслуживание, время от времени, убережь кузов от коррозии, вызывать серьезные проблемы, содержать двигатель в хорошем состоянии, машина прослужит дольше, можно избежать проблем.

**Exercise 5.** There are certain vehicle components that need periodical replacement. Make up sentences to explain what damages the faulty device can cause, using the information from the table.

**Example:** Dirty fuel filter may cause engine stalling and loss of engine power.

device	damage the faulty device can cause
dirty fuel filter	engine stalling and loss of engine power
dirty air filter	loss of engine power, increased fuel consumption, air flow sensor failure, etc.
old engine coolant	loses its anti-corrosive and other characteristics and may cause water pump to fail
spark plugs	spark plugs replacement can significantly improve the engine performance
timing belt (зубчатый ремень привода)	cause serious engine damage, especially if it's a diesel engine
fuel injectors	a problem with fuel consumption

**Exercise 6.** Read the text and fill in the gaps with the words and word combinations: *pressure, plugs, filter, injectors, tune-up, oil, gas, warmed up.*

### Few tips how to improve emission test results

– Change the engine ... before testing. For old or high mileage car (автомобиль с большим пробегом) using thicker oil may help.

– Change the spark ... and the air ... if you changed them a long time ago.

– Complete ... may be an option for older cars.

– Flushing (промывание) the fuel ... usually helps.

Before the test:

– Check and adjust a tyre ... .

– Fill the car with premium ... .

– Make sure, the engine is fully ... before test.

**Exercise 7.** Answer the following questions.

1. Preventive maintenance is important to keep the car safe, isn't it?
2. Why should we take care of any minor concerns as soon as possible?
3. What a driver or a car mechanic should do to keep the engine in a good shape?
4. Do we need to undertake anything if the fuel filter is dirty?
5. What fault device can cause loss of engine power and increased fuel consumption?

**Exercise 8.** Speak about the role of preventive maintenance in keeping the car in a good shape.

## LESSON 52

### Finding fault in a car

**Exercise 1.** Learn to read the following words properly. Do you know their Russian equivalents? If not, consult the dictionary.

abnormal [æb'nɔ:m(ə)l]  
consumption [kən'sʌmpʃ(ə)n]  
manifold ['mæni,fəʊld]  
to dismantle [dis'mænt(ə)l]  
to flush [flʌʃ]  
to bleed [bli:d]  
to jam [dʒæm]

**Exercise 2.** Match a–l with 1–12.

- |  |   |
|--|---|
| a) The fuel tank leaks.                              | 1) Повышенный расход масла.                     |
| b) The engine gets overheated from time to time.     | 2) В приёмной трубе (приемном коллекторе) дыра. |
| c) Abnormal oil consumption.                         | 3) Промойте радиатор струёй воды.               |
| d) Intake manifold has a hole in it.                 | 4) Протекает бензобак.                          |
| e) Jacket water has frozen.                          | 5) Карбюратор нужно разобрать и почистить.      |
| f) Flush the radiator.                               | 6) Время от времени двигатель перегревается.    |
| g) The carburettor has to be dismantled and cleaned. | 7) Вода в охлаждающей рубашке замёрзла.         |
| h) Blow through the fuel piping.                     | 8) Тормозная педаль запала.                     |
| i) The brake pedal has fallen through.               | 9) Продуйте топливную магистраль.               |
| j) Bleed the braking system.                         | 10) Отрегулируйте ручной тормоз.                |
| k) Adjust the hand brake.                            | 11) Нет зажигания.                              |
| l) It doesn't ignite.                                | 12) Прокчайте тормозную систему.                |

**Exercise 3.** Give the English equivalents to the following words and word combinations.

Бак протекает, двигатель перегревается, расход масла, приемная труба (приемный коллектор), вода в охлаждающей рубашке, продуть, педаль западает, отрегулировать.

**Exercise 4.** Read the following text and fill in the gaps with the words below.

### Finding a fault in a car

If your car doesn't ... in the morning, you should check three things first: the battery, the fuel ... and the spark ... . It is easy to repair these ... . If the battery is flat, you should ... it. If this doesn't work, you should ... it. If the petrol tank is empty, ... it up. If the spark plugs are dirty, ... them, and if the gap in a spark plug is too narrow or too wide, ... it to the correct width.

If your car doesn't start, the petrol pump may be ..., or the fuel pipe may be blocked. If the pump is broken, it must be ... or replaced. If the fuel pipe is blocked, take it off and unblock it.

If there is a loud CLICK! When you turn the key, the starter motor may be jammed. If it is, you can try to release it by pushing the car ... and backwards (in 2nd gear). If the car still doesn't start, the starter motor should be repaired or ... .

Level, replace, plugs, adjust, forwards, faults, start, fill, clean, recharge, broken, repaired, replaced.

**Exercise 5.** Use the information from the text to complete the dialogue. Act it out.

**Client:** Could I ask you for advice? You see, my car doesn't start in the morning. What should I do?

**You:** ... .

**Client:** But I checked the battery yesterday. It was flat. I tried to recharge it, but it was still flat. What do I do next?

**You:** ... .

**Client:** If the gap in a spark plug is too narrow, how to adjust it?

**You:** ... .

**Client:** How do you know that the starter motor might be jammed?

**You:** ... .

**Client:** How can I repair this fault?

**You:** ... .

**Client:** But I pushed the car forwards and backwards, the starter still didn't work.

**You:** ... .

**Client:** Thank you. You were very helpful.

## LESSON 53

### Car maintenance: basic works

**Exercise 1.** Read the following text and find the English equivalents to the word combinations below.

#### How to check the oil level

Stop the engine. Wait for a while to let the engine oil pour down to the oil pan. Pull the engine oil dipstick, usually it has a bright handle saying “engine oil”.

Wipe it off with a clean rag or tissue. Then insert it back all the way down into its place.

Now, pull the dipstick again and check the oil level. Normally it should be at “FULL” mark. You can see that it’s a bit lower. It’s not a big problem yet, but it’s better to top it up.

Пополнить его, на отметке «Полный», дайте маслу стечь, щуп для измерения уровня моторного масла, вытрите его.



**Exercise 2.** Arrange the sentences in the correct order to consult your client how to top up the engine oil.

1. Wait for a minute to let the oil pour down.
2. Add a little amount of the oil.
3. It would be better to add the same type and brand of the engine oil as you already have in the engine.
4. Don’t forget to install the dipstick back and close the oil filler cap when you finish.
5. Check the oil level again with the dipstick.
6. If it’s still low, add some more. But don’t overfill it.

**Exercise 3.** Depending on the colour of the oil it is necessary to undertake this or that action. Fill in the table, using the expressions below.

The colour of the oil	Action needed
a) too black	
b) white (coffee with milk colour)	
c) slightly-brown	
d) dark-brown, but still transparent	

1. it's O.K.
2. it's definitely time to change it
3. it's admissible but it's better to change it soon
4. it means the engine coolant mixes with the engine oil because of some internal engine problem

**Exercise 4.** Read the text and restore the word order in the underlined word combinations.

### How to check automatic transmission fluid

Place your car at a level surface and parking engage the brake. Start the engine. Set transmission shifter in "P" (Park) position, and let the engine idle. On some cars this procedure may be different, check the manual owner's (руководство пользователя) for details.

Pull the transmission dipstick. Wipe off it with a clean lint free rag. Then insert it back carefully all the way down into its place.

Pull again and check level the fluid. If the engine is cold, it should be within "COLD" marks. If the car was driven and is fully warmed up, the level should be at the upper end of mark the "HOT". If it's just a little bit lower I wouldn't worry about it. Otherwise I'd top it up. Check the fluid condition also. If it's too black and dirty with burnt smell – your transmission is not going to last. Normally it clean should be and transparent. The new fluid comes red. Over the time it becomes brownish. If it is brown, check your owner's manual, may be it's time change to it. Some manufacturers require to change the transmission fluid at 30,000 or 50,000 miles. Others specify that you never have to change it – check what's your car owner's manual says.

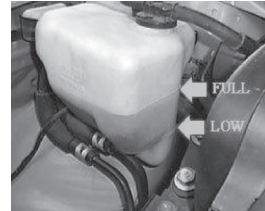
**Exercise 5.** Arrange the sentences in the correct order to consult your client how to top up the transmission fluid.

1. Recheck the level again.
2. It's very important to use only specified transmission fluid – check your owner's manual or simply visit your local dealer, they always have proper transmission fluid in stock.
3. Add a small amount of the fluid through the dipstick pipe.
4. Do not overfill, it also may cause problems with your transmission.
5. Wait for a few minutes – let the fluid flow down.

**Exercise 6.** Low coolant level will cause engine overheating, which may cause serious damage to the engine. Depending on the level of the engine coolant it is necessary to undertake this or that action. Look at the picture and fill in the table, using the expressions below:

The level of the engine coolant	Action needed
a) coolant level is lower than “LOW” mark	
b) coolant level is between “LOW” and “FULL” marks in the coolant overflow tank	
c) there is no coolant in overflow	

- 1) it's O.K.
- 2) top it up
- 3) have your car inspected in the garage, possibly there is a coolant leak



**Exercise 7.** Make up a dialogue in which a car mechanic consults a client on how to check the oil level.

## LESSON 54

### Pre-winter maintenance (1)

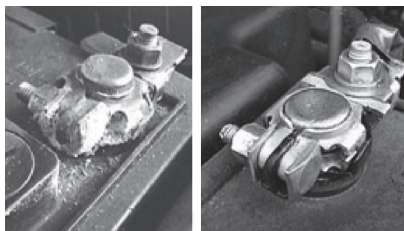
**Exercise 1.** Read the text and say which things in the car should be:

- a) checked before winter;
- b) changed or installed before winter.

A number of things in your car need to be checked before winter: the condition of the battery, battery terminals, the engine cooling system, the condition of the engine antifreeze, all the belts, the brakes, the tyres, the windshield wipers, the lights, etc.

All the fluids need to be checked and topped up or changed if needed. It's a good idea to change the engine oil before winter – the fresh oil will make the engine start easier in cold weather. Things like brakes, steering and suspension can only be inspected when the car is lifted on the hoist (подъёмник). Check the freezing point and the condition of the engine coolant. A simple problem such as a bad thermostat or even a small leak will result in a long warm-up time and little heat from the heater on the highway.

Consider installing good-quality winter tyres. Winter tyres are specifically designed to improve traction on snow-covered or icy roads. Winter tyres need to be installed on all four wheels. While winter tyres have better traction on winter roads than all-season tyres, they are not foolproof; drive carefully in winter conditions. Winter tyres wear faster on dry roads in warm weather; don't forget to remove them when the winter season is over. Check tyre pressure regularly in winter.



A dead battery is one of the most common causes of a no-start in winter. Unfortunately, there is no way to tell when the battery will decide to quit – sometimes it happens unexpectedly with no prior signs. However, if you feel that cranking speed is slower than before, the battery is probably close to its end. Make sure the battery terminals are not corroded. Corroded terminals will cause troubles.

Windshield wipers are very critical to winter driving; consider installing winter wipers. Make sure you replace summer washer fluid with special winter windshield washer fluid that won't freeze. If the washer jets don't spray properly, clean and adjust them.

There are some other things to remember:

- synthetic oil will help your car to start easier in extreme cold;
- worn out spark plugs or bad ignition cables are more likely to cause problems with starting in cold weather;
- vehicles with a diesel engine need special attention – a simple thing like dirty fuel filter could cause a lot of troubles on a cold day;
- consider buying winter floor mats – they will help to keep the water from leaking under the car's carpet, which could cause corrosion to the wiring and electronic components.

**Exercise 2.** Find the correct English equivalents to the following word combinations.

Нуждается в проверке; необходимо пополнить; легче заводиться; может быть обследована; длительное время разогрева; позаботиться об установке; сконструирована таким образом, чтобы улучшить движение; необходимо установить; не забыть снять их; невозможно сказать.



**Exercise 3.** Find in the text the sentences with the Passive voice and translate them.

**Exercise 4.** Use the correct form of the verbs in brackets to complete the following sentences.

1. Before winter consider (to change) the engine oil.
2. The condition of the brakes need (to check).
3. Make sure that all the fluids in the car (to top) up.
4. Don't forget (to inspect) the condition of the antifreeze.
5. Remember (to check) tyre pressure.

**Exercise 5.** Rewrite the following sentences in the Active voice. The following words and word combinations can be used:

*It's a good idea to; check; consider; make sure; don't forget to.*

**Example:** Winter tyres need to be installed on all four wheels.  
Consider installing winter tyres on all four wheels.

1. A number of things in your car need to be checked out before winter.
2. Any problems with your car need to be taken care of before winter.
3. All the fluids need to be checked and topped up or changed if needed.
4. Things like brakes, steering and suspension can only be inspected when the car is lifted on the hoist.
5. With proper care your car will last longer and some of the possible problems can be avoided.

**Exercise 6.** Complete the sentences according to the text.

1. The fresh oil will make the engine ... .
2. Such a simple problem as a bad thermostat or even a small leak may cause ... .
3. To improve traction on snow-covered or icy roads ... are used.
4. Don't forget to remove winter tyres when ... .
5. Replace summer washer fluid with special ... .
6. Clean and adjust the washer jets if they ... .
7. Winter floor mats will help to ... .

**Exercise 7.** Make up a list of instructions to help a driver to make the car ready for the winter.

**Example:**

- a) Check the freezing point and condition of the engine coolant.
- b) Make sure you replace summer washer fluid with special winter wind-shield washer fluid.
- c) ...

**Exercise 8.** Compare the list with your neighbour's list. If there are any points which you haven't included in your list, add them.

## LESSON 55

### Pre-winter maintenance (2)

**Exercise 1.** Before reading the text, look through the words. Read them out in pairs.

scratch [skrætʃ] – царапина

cowl panel ['kaʊl ,pænl(ə)] – панель капота

wheel wells ['wi:l ,welz] – ниши колес

trunk lock ['trʌŋk ,lɒk] – замок багажника

hood lock ['hʊd ,lɒk] – замок капота

sliding doors ['slɑɪdɪŋ ,dɔ:(r)z] – раздвижные двери

rubber door seals ['rʌbə(r) dɔ:(r) ,si:lz] – резиновые дверные изоляции

to stick [stɪk] – застревать, заедать

weather strip lubricant ['weðə(r) strɪp 'lu:bɪkənt] – смазка уплотнителя

**Exercise 2.** Read the text. Fill in the gaps with the words below.

Winter is harsh on your car's body: moisture, sand and road salt damage the exterior paint and speed up the corrosion process. If road salt is common on the roads in your area during the winter, consider rust proofing. It's a good idea to ... your car before winter – wax will help to preserve the paint. Scratches are more likely to be corroded after winter, so ... any damages to your car's paint before winter.

... the leaves and other debris are accumulated during the fall under the cowl panel (панель капота), below the windshield and in other areas. The leaves block water drains and collect moisture. This will cause ... and extra humidity inside the car, as the air intake for the cabin heater is usually located under the cowl panel.

... your car more often during winter. Moisture, salt and dirt get accumulated inside the wheel wells (ниши колёс), under the doors and other areas, which can cause corrosion.

Lubricate the door and the trunk locks (замки багажника), as well as the hood locking ... so they won't freeze. It's also a good idea to ... the doors. Clean and lubricate the door rails if your vehicle has sliding doors.

To prevent rubber door seals (изоляция) from sticking (заедания) in freezing weather lubricate them with special ... for rubber door seals. Usually it's called 'weather strip lubricant' (смазка уплотнителя).

Wax, remove, lubricate, mechanism, repair, lubricant, wash, corrosion.

**Exercise 3.** Read the following statements and say whether they are True or False. Correct the false sentences.

1. Sand and road salt improve the exterior paint of the car.
2. Moisture speeds up the corrosion process.
3. Scratches are less likely to be corroded after winter.
4. Wax will help to preserve the paint of the car.
5. If you lubricate the door and trunk, they won't freeze.
6. Petrol is used to lubricate rubber door seals (to prevent them from sticking in freezing weather).

**Exercise 4.** Answer the questions.

1. What substances speed up the corrosion process in the car?
2. What can help the driver to preserve the car's paint during winter?
3. Should a driver wash the car more often during winter?
4. What car's parts need to be lubricated before winter so they won't freeze?
5. Is there a special lubricant to prevent rubber door seals from sticking in winter? What is it called?

**Exercise 5.** Make up questions to which the following words will be answers.

1. Regular oil changes.
2. Road salt.
3. Scratches.
4. Wax the car.
5. Weather strip lubricant.

**Exercise 6.** Complete the dialogue between a car mechanic and a client. Role-play the dialogue.

**Client:** ... .

**You:** Moisture, sand and road salt speed up the corrosion process during winter.

**Client:** ... .

**You:** It's a good idea to wax a car. Wax ... .

**Client:** ... .

**You:** Scratches are more likely to ... , so ... .

**Client:** ... .

**You:** Clean the car from leaves accumulated under the cowl panel, ... .

**Client:** What parts should be lubricated before winter?

**You:** ... .

## **Further reading**

► Read the text and say:

- a) in what case a driver should add a coolant into the overflow tank;
- b) whether the maximum pressure listed on tyres is the proper pressure.

### **How to check the engine coolant level**

The coolant level should be between “LOW” and “FULL” marks in the coolant overflow tank. If it’s lower, top it up. If there is no coolant in overflow tank or you have to top it up quite often, have your car inspected in the garage, possibly there is a coolant leak. Never open the radiator or coolant overflow tank when the engine is hot!

When engine temperature is reduced (few minutes after the engine has been turned off), simply add a coolant into the overflow tank to “FULL” mark.

### **How to check tyres**

Check the tyre pressure regularly – at least once a month. If you don’t have the tyre pressure gauge, it’s really worth to get one. You can find the recommended tyre pressure in the owner’s manual or on the tyre pressure placard, which might be located somewhere on the car (e.g. on the driver’s door opening, inside the gas tank, inside the glove box). The maximum pressure listed on tyres is NOT the proper pressure! Feel vibration at cruising speed? – Have your tyres balanced. There is a safe limit of the tread wear. If the tyre is worn below this limit, it’s unsafe to drive. Uneven tyre wear indicates alignment problem. Improper alignment causes increased tyre and suspension components wear and poor handling. In the worst case, improper alignment may throw your car into a skid, especially on a wet or slippery road. If a car pulls aside, wanders or feels unstable on the road, have the alignment checked. Properly done alignment will make your car’s ride a lot more enjoyable.

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## **REVISION AND CONSOLIDATION**

1. Change singular into plural and plural into singular in the following sentences.

1. This is a pedal.
2. These are brake shoes.
3. I’ve got new brake pads.
4. There is a master cylinder in the car.

5. Is this a disk rotor?
6. What part is that?
7. Is there a conditioner in this car?

2. Read the text and choose the word which belongs to the text (one in each group).

### **Automatic transmission**

An automatic transmission contains special devices that automatically provide various gear ratios as they are needed. Most automatic transmissions have three or four (*forward, front*) gears and a (*reverse, rear, back*) gear. Instead of a gear-shift, the driver operates a (*lever, stick*) called a *selector*. Most automatic transmissions have selector positions: park, neutral, drive, low, and reverse. The engine can be started only if the selector is in either the park or (*neutral, zero*) position. In park, the drive shaft is locked so that the drive wheels cannot move.

For ordinary driving, the driver moves the selector to the (*drive, neutral*) position. The transmission starts out in the lowest gear and automatically shifts into (*higher, bigger*) gears as the car (*picks up, collects*) speed. The driver uses the low position of the transmission for going up or down steep hills or driving through snow or mud. When in low, the transmission remains in the lowest gear.

3. Explain the principle of work of the automatic transmission, using the word combinations:

- operates a lever called a selector
- has selector positions: park, neutral, drive, low, and reverse
- to move the selector to the drive position
- starts out in the lowest gear
- automatically shifts into higher gears

4. Make up a dialogue in which a car mechanic consults a client on how to check the automatic transmission fluid.

5. Project work.

Work in groups. Make an electronic presentation, in which you demonstrate and explain how one of car systems or mechanisms work. Don't forget to mention:

- a) parts of the system (mechanism);
- b) its function;
- c) principles of work.

Attach some photos and pictures to the presentation.

## Tasks for self-control

1. Arrange the sentences in the correct order to consult your client how to check a spark plug.

### How to check a spark plug

1. Rotate the plug anti-clockwise (против часовой стрелки) until it is loose.
2. Replace the plug in the socket (гнездо).
3. Remove the plug from the socket.
4. Insert the gauge in the gap.
5. Place the spanner over the plug and give a quarter turn clockwise.
6. Check that the gap is between 0,65 and 1,00 mm wide.
7. Remove the cover.
8. Examine the gap and check that it is clean.
9. Rotate the plug clockwise until it is hand-tight.
10. Place the spanner over the spark plug.
11. Replace the cover.

2. Put the phrases into the right order to explain the principle of the brake operation.

1. The pedal pushes the first piston down.
2. The wheel stops.
3. The foot presses the pedal.
4. The piston squeezes the oil.
5. The second piston pushes the brake shoe against the wheel.
6. The oil pushes the second piston outwards.

The key to ex. 1: 7, 10, 1, 3, 8, 4, 6, 2, 5, 9, 11.

The key to ex. 2: 3, 1, 4, 6, 5, 2.

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## UNIT 12. CAR DRIVING

### LESSON 56

#### Roads and road signs

**Exercise 1.** Read the text and give each word in bold (ex.1) its correct meaning from the following list:

- a) to go past a moving vehicle because you are driving faster than it;
- b) a circular area where several roads meet;
- c) polite behaviour;
- d) a device which blocks the wheel of a car that is illegally parked, so that it cannot move.

## Driving in Britain

Britain has a very extensive network of modern motorways and roads linking all its main cities. When visiting Britain, the driver from abroad should remember a number of differences in using the roads. In contrast to other countries, cars in Britain travel on the left-hand side of the road and **overtake** on the right, which may cause some problems, especially if the traveller's car has right-hand drive. It should also be remembered that priority must always be given to cars coming from the right, particularly at **roundabouts**.

British drivers are known for their **courtesy** and consideration. Both drivers and front-seat passengers are obliged to wear seat-belts. There are very strict rules against drinking. The maximum permitted speed in towns and built-up areas is only 30 mph (about 50 km/h).

In big cities drivers have problems with parking, especially in the centre. Infringement of parking regulations can result in fines, **wheel clamps** or even the removal of a vehicle by the police. Driving is more enjoyable on modern motorways on which drivers may maintain a speed of 70 miles per hour (112 km/h).

**Exercise 2.** Fill in the gaps with the words below:

Those of you who will have to drive a car while travelling abroad should get an international driving ... . Always keep your driving licence and ... papers on you.

Remember that motoring regulations are strictly enforced. In the United States, as in the former Soviet Union, you drive ... . In Britain, Japan and several other countries you must keep ... .

Parking in many cities can be a problem. Remember there are such things as ..., parking metres, and parking lots.

“No Parking” signs, registration, on the right, licence, to the left.

**Exercise 3.** Fill in the table.

	Belarus	The UK
1. The side of the road cars travel on		
2. The side on which cars overtake		
3. At crossroads priority is given to cars coming from		
4. The maximum permitted speed in town and built-up areas		
5. The maximum permitted speed on motorways		

**Exercise 4.** Use the information from the table (exercise 3) and say what the differences in using roads in the UK and Belarus are.

*Example:* While in Belarus cars travel on the right-hand side of the road, in the UK cars travel on the left-hand side.

**Exercise 5.** Skan the text and name the categories of road signs mentioned in the text.

Traffic signs or road signs are signs erected at the side of roads to provide information to road users. With traffic volumes increasing, many countries have adopted pictorial signs or otherwise simplified and standardized their signs to facilitate international travel where language differences would create barriers, and in general to help enhance traffic safety. Such pictorial signs use symbols (often silhouettes) in place of words and are usually based on international protocols. Such signs were first developed in Europe, and have been adopted by most countries to varying degrees.

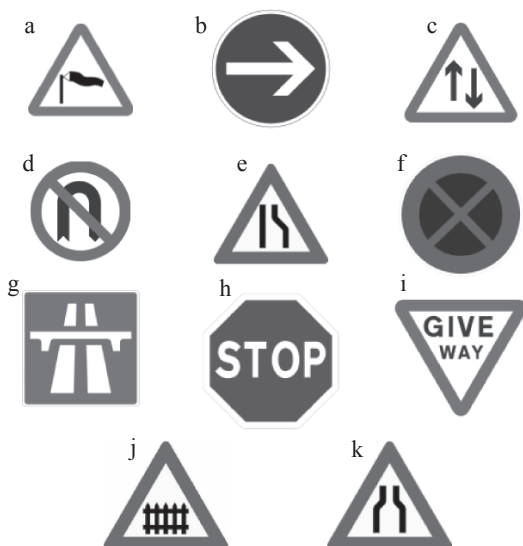
Traffic signs can be grouped into several types. For example, Annexe 1 (Приложение 1) of the Vienna Convention on Road Signs and Signals (1968), which in 2004 had 52 signatory countries, defines eight categories of signs.

- A. Danger warning signs
- B. Priority signs
- C. Prohibitory or restrictive signs
- D. Mandatory signs
- E. Special regulation signs
- F. Information, facilities, or service signs
- G. Direction, position, or indication signs
- H. Additional panels

**Exercise 6.** Match the pictures of the road signs with their names from the list.

1. Two-way traffic straight ahead.
2. Stop and give way.
3. Give way to traffic on major road (yield).
4. No U-turns.
5. Road narrows on both sides.
6. Road narrows on right.
7. Side winds.
8. Level crossing with barrier or gate ahead.
9. No stopping (clearway).
10. Turn right.
11. Motorway.





**Exercise 7.** Describe the meanings of the road signs from exercise 6.

*Example:* A STOP sign informs drivers to stop.

## LESSON 57

### Finding the way

**Exercise 1.** Learn the following phrases of gratitude, arresting someone's attention, asking for directions and giving directions.

*How to arrest someone's attention:*

Excuse me, (please)

Pardon me ...

Sorry to ... (interrupt, interfere, bother), but ...

Just a minute!

*How to reply:*

Yes? Well? What is it? What can I do for you?

*How to ask for and give directions:*

Where is it?

It's in the main street. It's in Lesnaya Street.

Which way?

To the right/left. To the corner.

Where is the place you are talking about?

It's a little farther. (It's right here. It's near.

It's not very far. It's farther. It's far from here).

Is it far from here?	It's an hour ride away.
Is it near here?	No, it's quite a long way from here.
How far is it?	It's ten miles from here.
Where is the post office?	It's on the other side of the street.
Where is the police station?	It's at the end of the street.

The hospital is two blocks from here just before you come to the highway.

Turn right. Turn to the right. Follow this road. Go this way. Go straight ahead. Go to the corner and turn left. Go straight three blocks and then turn to the right.

**Exercise 2.** Read the dialogues and learn them. Make up similar dialogues.

1. – Excuse me, please. Could you tell me the way to the bank?
  - Turn round and turn left at the traffic lights.
  - Will it take me long to get there?
  - No, it's no distance at all.
  - Thank you.
  - That's O.K.
2. – Excuse me, please. Could you tell me how to get to the town centre?
  - First right, second left. You can't miss it.
  - Is it far?
  - No, it's only a couple of hundred yards.
  - Thanks very much.
  - It's a pleasure.

**Exercise 3.** Complete the table with the synonymous verbs:

pull over, accelerate, speed, slow down, pull up, overtake, speed up, skid, drive, decelerate

a) stop	...
b) move in or on a means of transport	...
c) go fast	...
d) go faster	...
e) go slower	...
f) pass	...
g) lose control	...

**Exercise 4.** Does the speaker want the driver to go faster or more slowly?


1. Slow down a bit. There's a police car!
2. Can't you speed up a bit?
3. You're supposed to reduce your speed when you approach a pedestrian crossing.
4. Take it easy! We've got all day to get there.
5. Come on! Put your foot down!
6. I think you'd better get a move on if we're going to get home before dark.

 **Exercise 5.** Listen to the dialogue "The driving lesson" and say yes or no.

1. This was Simon's first driving lesson.
2. Simon stopped going to the Greenwich school of driving.
3. Simon is a very good driver.
4. Simon drove into the lake at the end of the lesson.

**Exercise 6.** Copy the sentences in which traffic regulations, which Simon broke during the lesson, are described.

1. He didn't notice the No Entry sign.
2. Simon bumped the car in front.
3. He was driving the wrong way down a one-way street.
4. He parked the car in the wrong place.
5. He blocked the road.
6. He crossed the road when the lights were red.

 **Exercise 7.** Listen to the dialogue again and choose the correct variant to complete the sentences.

1. Simon stopped going to the Greenwich school of driving because
  - a) they had no more cars left;
  - b) the instructor refused to teach him;
  - c) the lessons were not good enough.
2. The drivers were shouting at Simon because
  - a) he was driving the wrong way down a one-way street;
  - b) he was driving too fast;
  - c) he hit the car.
3. The instructor asked Simon
  - a) to drive faster;
  - b) to slow down;
  - c) to drive into a lamp-post.

**Exercise 8.** Translate into Russian.

1. I want you to drive down this road and turn left at the end.
2. When you want to turn a corner, slow down and look first.
3. This is a one-way street.
4. Now turn right at the traffic lights.
5. You want reverse gear.
6. Now I want you to practise driving backwards.

**Exercise 9.** Make up the list of instructions how to drive in a town.

## UNIT 13. USING THE PC

### LESSON 58

#### On-line translators

**Exercise 1.** Look through the text and answer the questions.

1. What is this text about?
2. How many design types of the two-stroke cycle engine are mentioned in the text? Name them.
3. What does the two-stroke cycle engine design depend on?

#### Two-stroke design types

To understand the operation of the two-stroke engine it is necessary to know which type of design is in question because different design types operate in different ways. The design types of the two-stroke cycle engine vary according to the method of intake of fresh air/fuel mixture from the outside, the method of scavenging the cylinder (exchanging burnt exhaust for fresh mixture) and the method of exhausting the cylinder. These are the main variations that are found either alone or in various combinations.

Piston port is the simplest of the designs. All functions are controlled by the piston covering and uncovering the ports (which are holes in the side of the cylinder) as it moves up and down in the cylinder.

Reed valve is similar to and almost as simple as the piston port but with a check valve in the intake tract.

Disk rotary valve – the intake tract is opened and closed by a thin disk attached to the crankshaft and spins at crankshaft speed. The intake tract is arranged so that it passes through the disk. This disk has a section cut from it and when this cut passes the intake pipe it opens, otherwise it is closed.

Valve in head – instead of the exhaust exiting from a hole in the side of the cylinder, valves are provided in the cylinder head. The valves function the same way as four-stroke exhaust valves do but at twice the speed.

Diesel – spark ignition gasoline engines require a sparkplug to ignite the fuel. Diesels rely on the heat of very high compression to ignite the fuel. Fuel is sprayed into the hot compressed air and ignites; therefore the scavenging is done with air only.

Loop scavenging – this method of scavenging uses carefully aimed transfer ports to loop fresh mixture up one side of the cylinder and down the other pushing the burnt exhaust ahead of it and out the exhaust port. It features a flat or slightly domed piston for efficient combustion. Loop scavenging is by far the most used system of scavenging.

Cross flow scavenging – in a cross flow engine the transfer ports and exhaust ports are on opposite sides of the cylinder and a baffle shaped piston directs the fresh mixture up pushing the exhaust down on the other side of the baffle and out the exhaust port. Before loop scavenging was invented almost all two strokes were made this way.

**Exercise 2.** Choose one passage from the text (description of one of the design types). Translate it.

**Exercise 3.** Translate the same passage (ex.2) using the on-line translator. Compare it with your own variant. Which translation do you consider more correct?

**Exercise 4.** Make corrections in your variant of translation using the variant given by the translator.

**Exercise 5.** Translate the following word combinations using the on-line translator. Compare them with the correct Russian equivalents given.

- |                          |                           |
|--------------------------|---------------------------|
| a) reed valve            | 1) пластинчатый клапан    |
| b) check valve           | 2) запорный клапан        |
| c) disk rotary valve     | 3) тарельчатый клапан     |
| d) loop scavenging       | 4) петлевая продувка      |
| e) cross flow scavenging | 5) поперечная продувка    |
| f) baffle shaped piston  | 6) поршень с вытеснителем |

## LESSON 59

### Using the Internet

**Exercise 1.** Say for what aims you can use the Internet in your future professional activity.

**Exercise 2.** Find some information about the engine oil change on the Internet. Use the information from the sites below and tell about:

- a) how to maintain the car;
- b) how to check the tyre pressure.

<http://www.samarins.com/maintenance/engmain.html>

<http://www.samarins.com/maintenance/manual.html>

**Exercise 3.** Find on the Internet the following information about the wheel balancer WB-VL-65.

- Wheel weight
- Modes of measurement
- Position accuracy

**Exercise 4.** Using the Internet, fill in the table below with the information about the following equipment.

	<b>Standard features</b>
1. Exhaust Gas Analyser Eco Gas – 4	<ul style="list-style-type: none"> <li>• 4 Gas Analyser capable of measuring CO, HC, CO<sub>2</sub>, O<sub>2</sub></li> <li>• Automatic condensate discharge</li> <li>• Automatic zero calibration</li> <li>• RS232C serial port for PC interface</li> </ul>
2. Lifting Equipment ME - FP6253A 3.2 Ton	
3. Tyre Changer Tyremate 200TL	

**Exercise 5.** What car model would you like to have? What do you know about the technical characteristics of this model? Use the Internet to find out more about this model following the example below.

**Example:**

<i>Model</i>	Astra H
<i>Also called</i>	Chevrolet Astra, Chevrolet Vectra GT Holden AH Astra, Opel Astra Classic III Saturn Astra (2008–2009), Vauxhall Astra
<i>Production</i>	2004–2009 2009-present as Astra Classic III
<i>Assembly</i>	Bochum, Germany; Antwerp, Belgium; Kaliningrad, Russia; Gliwice, Poland; St. Petersburg, Russia; Zaporizhia, Ukraine

<i>Body style</i>	2-door coupé convertible, 3-door hatchback, 4-door sedan, 5-door estate, 5-door hatchback
<i>Engine</i>	1.4L Family 0 I4, 1.6L Family I I4, 1.8L Family I I4, 2.0L Turbo Family II I4, 2.2L Family II I4 (Australia), 1.9L CDTi Diesel I4, 2.0L Flexpower I4 (Brazil), 2.4L Flexpower I4 (Brazil)
<i>Transmission</i>	5-speed manual, 6-speed manual, 4-speed automatic, 6-speed automatic
<i>Length</i>	Saloon: 4,587 mm; Estate: 4,515 mm, Cabriocoupe: 4,476 mm; Hatchback: 4,331 mm
<i>Width</i>	Estate: 1,753 mm; Cabriocoupé: 1,759 mm, Hatchback: 1,753 mm
<i>Height</i>	Estate: 1,500 mm; Cabriocoupé: 1,411 mm, 5-door hatchback: 1,458 mm (57.4 in)
<i>Related</i>	Chevrolet Cobalt/Pontiac G5 (North America), Opel Zafira (worldwide excluding North America)

**Exercise 6.** Read 2–3 advertisements about car mechanics vacancies on the Internet. Make up an e-mail, containing the application letter. Don't forget to fill in the application form with the following information: address, telephone numbers, nationality, date of birth, age, marital status.

## UNIT 14. CARS AND THE ENVIRONMENT

### LESSON 60

#### Environmentally friendly cars (1)

**Exercise 1.** Say why modern cars are considered unfriendly to the environment. Do you know any models which could be called environmentally friendly?

**Exercise 2.** Read the following text and try to understand the meanings of the underlined words.

Many of the world's cities lie under a permanent blanket of smog. People are concerned about global warming, and fuel prices just keep going up and up. In recent years car manufacturers have been put under pressure to invent a vehicle that is both cheaper to run and better for the environment.

One of the first ideas which car manufacturers tried, was to replace engines which run on fossil fuels with electric motors. Unfortunately, these vehicles had several drawbacks and they didn't sell very well. The problems

were that the batteries of these electric cars ran out very quickly and took a long time to recharge.

Car manufacturers have improved the concept so that environmentally friendly cars can now be efficient and economical as well. The hybrid car, which has both an electric motor and a traditional petrol engine, comes in. The electric motor never needs to be recharged and it is much better for the planet than a traditional car.

In a hybrid car, the engine is controlled by a computer which determines whether the car runs on petrol, electricity, or both. When the car needs maximum power, for example, if it is accelerating or climbing a steep hill, it uses all of its resources, whereas at steady speeds it runs only on petrol. When slowing down or braking, the electric motor recharges its batteries.

Hybrid cars are made using materials such as aluminium and carbon fibre (углеродное волокно), which makes them extremely light. Hybrid cars are better for the environment because they use far less petrol than normal cars, so they produce less pollution.

Of course, hybrid cars aren't perfect; they still run on fossil fuel and so pollute the environment to some extent. However, they may be the first step along the road to cleaner, 'greener' cars. Car manufacturers are already working on vehicles which run on hydrogen (водород). The only emission from these cars is harmless water vapour. These are still some way in the future, though, as designers need to think of cheap and safe ways of producing, transporting and storing hydrogen, but at last, it looks like we might be heading in the right direction.

**Exercise 3.** Match a–l with 1–12.

- |                                  |   |
|----------------------------------|---|
| a) environmentally friendly cars | 1) водород                                    |
| b) global warming                | 2) углеродное волокно                         |
| c) keep going up and up          | 3) никогда не требуют перезарядки             |
| d) have been put under pressure  | 4) ископаемое топливо                         |
| e) fossil fuel                   | 5) гибридный автомобиль                       |
| f) electric motor                | 6) продолжают подниматься                     |
| g) drawbacks                     | 7) были подвергнуты давлению                  |
| h) the hybrid car                | 8) безвредные для окружающей среды автомобили |
| i) never needs to be recharged   | 9) глобальное потепление                      |
| j) carbon fibre                  | 10) безопасный водяной пар                    |
| k) hydrogen                      | 11) недостатки                                |
| l) harmless water vapour         | 12) электродвигатель                          |



**Exercise 4.** Give the English equivalents to the following word combinations.

Работать на ископаемом топливе, длительное время для перезарядки, традиционный автомобиль, при замедлении движения или торможении, невероятно легкий, гораздо меньше бензина, до определенной степени, первый шаг на пути к.

**Exercise 5.** Complete the sentences with the correct variant.

1. Car manufacturers are trying to invent a new vehicle because
  - a) today's cars produce too much poisonous gas;
  - b) today's cars produce too much power;
  - c) today's cars moves too fast.
2. Vehicles which ran on electric motors
  - a) moved too slowly;
  - b) were not very popular;
  - c) had to have their engines replaced.
3. The electric motor in hybrid cars
  - a) doesn't need to recharge its batteries;
  - b) has its own petrol engine;
  - c) takes a long time to be recharged.
4. The computer in a hybrid car
  - a) helps the car to go up hills;
  - b) keeps the car running at a steady speed;
  - c) decides how the car should be powered in any given time.
5. Hybrid cars are better for the planet because
  - a) they use different fuels;
  - b) the electric motor is smaller than a normal engine;
  - c) they produce less harmful gases.

**Exercise 6.** Tell about actions, which car mechanics should perform to make modern cars less harmful to the environment.

*Example:* Car mechanics should control the level of CO.

## LESSON 61

### Environmentally friendly cars (2)

**Exercise 1.** Give the opposite to the following expressions.

*Example:* cheaper to run → more expensive to run.

- a) better for the environment
- b) fast
- c) environmentally friendly cars
- d) efficient and economical
- e) light
- f) use far less petrol
- g) harmless
- h) safe

**Exercise 2.** Compare advantages and disadvantages of cars with traditional petrol engines, cars with electric motors, hybrid cars and cars which run on hydrogen. Fill in the table.

The type of the engine/car	Advantages	Disadvantages
cars with traditional petrol engines		
cars with electric motors		
hybrid cars		
cars which run on hydrogen		

**Exercise 3.** Correct mistakes in the following sentences.

1. Car manufacturers are trying invent a vehicle that is better for the environment.
2. One of a first ideas was to use electric motors.
3. Cars can now to be efficient and economical.
4. In hybrid cars engines are controlled from a computer.
5. Hybrid cars use far least petrol than traditional cars.
6. Cars with electric motors are harmlesser to the environment than traditional cars.

**Exercise 4.** Imagine that you are a producer of cars with non-traditional types of engine (producer 1) and your partner is a producer of cars with traditional types of engine (producer 2). Work in pairs, complete the dialogue, in which try to persuade each other that your cars are better.

**Producer 1:** The green revolution is demanding environmentally friendly products and systems from the auto industry. We are producing cars which

may be the perfect solution to the carmakers performance-versus-pollution dilemma.

**Producer 2:** But these vehicles have several ... . For example, a car with ... needs to be recharged .

**Producer 1:** Of course, our cars aren't perfect. But in a hybrid car the electric motor recharges its batteries whenever the car ... . Besides, hybrid cars are made using materials ... , which makes them ... .

**Producer 2:** ... .

**Producer 1:** I can't agree, our hybrid cars are better for the environment, because they ... .

**Producer 2:** ... .

**Producer 1:** You are right, but we ... cheap and safe ways of producing, transporting and storing hydrogen.

**Producer 2:** ... .

**Producer 1:** ... .

**Producer 2:** ... .

**Exercise 5.** In pairs, think of a new environmentally friendly means of transport. Draw a picture and prepare an advertisement for it, stating its good points.

### ***Further reading***

► Read the texts and tell about differences in traffic in different countries.

### **Traffic in Europe**

In 1968, the European countries signed the Vienna Convention on Road Traffic treaty, with the aim of standardizing traffic regulations in participating countries in order to facilitate international road traffic and to increase road safety. Part of the treaty was the Vienna Convention on Road Signs and Signals, which defined the traffic signs and signals. As a result, in Western Europe the traffic signs are well standardised, although there are still some country-specific exceptions, mostly dating from the pre-1968 era.

The principle of the European traffic sign standard is that shapes and colours are to be used for indicating the same purposes. Triangular shapes (white or yellow background) are used in warning signs. Additionally, the Vienna Convention allows an alternative shape for warning signs, a diamond shape, which is rarely used in Europe. The prohibition signs in Europe are round with a red border. Informative and various other secondary signs are of rectangular shape. Animals shown on warning signs include elks, frogs,

deer, ducks, cows, sheep, horses, polar bears (on Svalbard), and monkeys (in Gibraltar). The Convention allows any animal image to be used.

Directional signs have not been harmonised under the Convention, at least not on ordinary roads. As a result, there are substantial differences in directional signage throughout Europe. Differences apply in typeface, type of arrows and, most notably, colour scheme. The convention however specifies a difference between motorways and ordinary roads, and that motorways use white-on-green (e.g., Italy, Switzerland, Denmark, Sweden, Finland, Slovenia, Croatia, Czech Republic, Greece, Cyprus, Bulgaria, Romania, Slovakia, Serbia, Republic of Macedonia, Albania) or white-on-blue (e.g., Norway, Germany, the Republic of Ireland, France, the United Kingdom, Spain, the Netherlands, Belgium, Austria, Luxembourg, Poland, Portugal, Latvia). Hungary switched from white-on-green to white-on-blue in the early 2000s during the reconstruction of existing and construction of new motorways.

Differences are greater for non-motorways: white-on-blue in Italy, Switzerland, Sweden, Czech Republic, Greece, Cyprus, Slovakia, Bulgaria, Romania, Latvia, Estonia, Finland and the Netherlands (in this case the same as motorways), white-on-green in France, the United Kingdom, the Republic of Ireland, Poland and Portugal, black-on-yellow in Germany, Luxembourg, Norway, Slovenia, Serbia and Croatia, red-on-white in Denmark (though white-on-blue on motorway exits), and black-on-white in Spain.

Secondary roads are different from primary roads in France, the United Kingdom, Finland, the Republic of Ireland, Switzerland and Portugal, always signposted in black-on-white. In Germany, Italy, Romania and Sweden, black-on-white indicates only urban roads or urban destinations.

Signposting road numbers differs greatly as well. Only the European route number, if signposted, will always be placed in white letters on a green rectangle. European route numbers are not signed at all in the United Kingdom.

Some signs like “STOP”, “ZONE” etc. are recommended to be in English, but the local language is also permitted. If the language uses non-Latin characters, the names of cities and places should also be in Latin transcription. Road signs in the Republic of Ireland are bilingual, using Irish and English. Wales is also the same, with bilingual Welsh-English signs; some parts of Scotland also have bilingual Scottish Gaelic-English signs. Finland also uses bilingual signs, in Finnish and Swedish.

European countries use the metric system on road signs (distances in kilometres or metres, heights/widths in metres) with the notable exception of the UK, where distances are indicated in miles, and on remaining finger post signs in the Republic of Ireland erected before 1977, where distances are also indicated in miles (which were formally used for all directional signage in the Republic of Ireland prior to 1977 and on speed limits prior to 2005). For countries driving on the left, the convention stipulates that the traffic

signs should be mirror images of those used in countries driving on the right. This practice, however, is not systematically followed in the four European countries driving on the left, Cyprus, the Republic of Ireland, Malta and the United Kingdom. The convention permits the use of two background colours for danger and prohibit signs, white or yellow. Most countries use white with a few exceptions like Sweden, Finland, Iceland and Poland, as yellow tends to be more visible in areas in which snow is prevalent.

The European traffic signs have been designed with the principles of heraldry on mind; i.e., the sign must be clear and able to be resolved with one single glance. Most traffic signs conform to heraldic tincture rules, and rather use symbols than written texts for better semiotic clarity.

## **United Kingdom**

Traffic signing in the UK conforms broadly to European norms, though a number of signs are unique to Britain and direction signs omit European route numbers. The current sign system, introduced on 1 January 1965, was developed in the late 1950s and early 1960s by the Anderson Committee, which established the motorway signing system, and by the Worboys Committee, which reformed signing for existing all-purpose roads. (For illustrations of most British road signs, see the Highway Code website.)

Britain remains the only European Union member nation and the only major Commonwealth country to use non-metric (imperial) measurements for distance and speed, although metric “authorised-weight” signs were prescribed in 1981 and there is now a dual-unit (imperial first) option for restriction signage, used where foreign drivers may use the routes so that they may better understand the restriction and/or advice about a hazard ahead.

Three colour schemes exist for direction signs. A road may be a motorway (white on blue), a primary route (white on dark green with yellow route numbers), or a non-primary route (black on white). A fourth colour scheme, black on yellow, is seen on temporary signs, for example marking a diversionary route avoiding a road closure.

Two typefaces are specified for British road signs. Transport Medium or Transport Heavy are used for all text on fixed permanent signs and most temporary signage, depending on the colour of the sign and associated text colour; dark text on a white background is normally set in Heavy so that it stands out better. This is except for route numbers on motorway signs, for which a taller limited character set typeface called Motorway is used.

Signs are generally in English although bilingual signs are used in Wales (English/Welsh) and are beginning to be seen in parts of the Scottish Highlands (English/Scottish Gaelic).

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## FINAL REVISION AND CONSOLIDATION

1. What types of the car body do you know? List them. Compare your list with your partner's list.
2. Describe the types of the car body (given in the box) using the expressions below.

sedan	hatchback	estate	off-road
convertible		limousine	van

- a car with three or five doors, a door at the back opens upwards
- a big expensive car, usually driven by a chauffeur
- a car that has a separate space for bags, cases
- a car with a door at the back, and a lot of space for boxes
- a car with three doors, a door at the back opens upwards
- a car with a roof which you can fold back or remove
- a vehicle made for travelling over rough ground

3. Read the text and choose the word which belongs to the text (one in each group).

The pedal transmits the force from the foot to the (*master cylinder, brake pad, rotor*). When you step on the brake pedal, you are actually pushing against a (*crankshaft, plunger, pipe*). Since any fluid cannot be (*ignited, bled, compressed*), pushing fluid through a pipe is like pushing a steel bar through a pipe. If (*petrol, air, oil*) is suspected in the brake system, the system must be bled. There are disc brakes and (*caliper, pad, drum*) brakes. When force is applied to the brake pads, the pads contact the disc (*rotor, caliper, line*). This is how the car (*starts, stops, operates*).

4. Think of the questions to which the following sentences could be answers and complete the dialogue between a car mechanic and a client:

**Client:** ...

**You:** Regular oil changes are very important to keep your engine in a good shape.

**Client:** ...

**You:** Stop the engine. Wait for a while to let the engine oil pour down to the oil pan. Pull the engine oil dipstick.

**Client:** ...

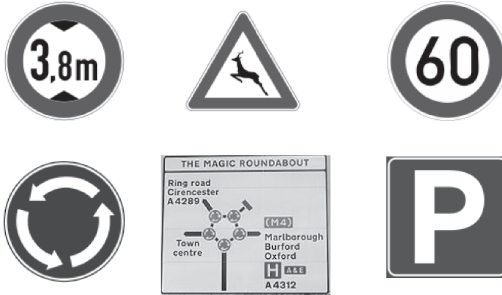
**You:** Usually it has a bright handle saying "engine oil". Wipe it off with a clean rag or tissue. Then insert it back. Pull the dipstick again and check the oil level.

**Client:** ...

**You:** Normally it should be at “FULL” mark.

**Client:** ...

**You:** It's not a big problem yet, but it's better to top it up.



5. Explain the meanings of the road signs below.

6. Project work.

Give some ideas of environmentally friendly cars. Don't forget to mention:

- type of fuel they will work on;
- size and technical characteristics;
- advantages these cars will have if compared to traditional cars.

### Tasks for self-control

1. Choose the right option according to the text.

1. The pedal is a strong steel ... which transmits the force from your foot to the master cylinder.

- wheel
- lever
- disk

2. The master cylinder consists of a .... and a fluid reservoir.

- crankshaft
- piston
- drum

3. Most cars have disc ... on the front wheels.

- brakes
- pads
- cylinders

4. When disc brakes are not used on the rear, ... are used.

- brake pads
- drum brakes
- brake lines

5. The brake fluid being pushed from the master cylinder through the brake lines pushes a piston in the brake ... .

- caliper
- rotor
- master cylinder

6. When you step on the brake pedal, you are actually forcing ... through a series of tubes and hoses to the braking unit at each wheel.  
a) brake fluid      b) petrol      c) oil
7. The cylinders apply force to the ...  
a) wheel      b) brake pads      c) disk rotor
8. When the brake pads contact the ... , there is friction and heat is created.  
a) disk rotor      b) lever      c) caliper

**2. Read the text and fill in the gaps.**

There are two types of engines. There are (1) ... and there are (2) ... . The parts of an engine vary depending on the engine's type. There are spark (3) ... in all petrol engines. Diesel engines do not have spark plugs. They have (4) ... . As there is oil in the fuel, a 2-stroke engine doesn't have (5) ... . The 4-stroke engines have an oil sump and there is no (6) ... in the fuel.

The majority of cars have the engine in the front of the (7) .... Others have it mounted in the rear or the middle. The engine block, also called the (8) ... block, houses the engine's internal parts.

The number and arrangement of the cylinders varies among the makes of cars. In most cases, the cylinders are arranged either in a straight line or in two equal rows set at an angle to form a V-shape. An in-line engine with, for example, 4 cylinders is called a (9) ... A V-type engine with, for example, 6 cylinders is called a (10) ... .

**The key to ex. 1:** 1 – b; 2 – b; 3 – a; 4 – b; 5 – a; 6 – a; 7 – b; 8 – a.

**The key to ex. 2:** 1 – petrol engines; 2 – diesel engines; 3 – plugs; 4 – fuel injectors; 5 – oil sump; 6 – oil; 7 – vehicle; 8 – cylinder; 9 – straight 4; 10 – V-6.



## TEXTS FOR LISTENING

### Text 1 (Lesson 23)

#### The new BMW 3 Series compact

You will enjoy the interior and exterior design of the new BMW 3 Series compact. The size ensures a degree of manoeuvrability that is a real advantage in the city. It enables you to park in places that others have to pass by. The amount of space it offers you presents no problem at all.

Headlights provide illumination of the road ahead in bad weather or poor visibility. Headlight washing system: when the lights are on, the headlights are automatically cleaned in parallel with the windscreen. Fog lamps are used for extra safety in bad weather.

Once activated, the rain sensor will automatically switch on the windscreen wipers when it begins to rain, adjusting the wiper frequency in line with rainfall intensity. The integrated automatic headlight control activates the dipped beam automatically at dusk and in tunnels. Rear window wiper has wipers and washer nozzles.

Driver and passenger exterior/outside mirrors can be folded in automatically using the integrated electric fold-in function and can then be folded back into position at the touch of a button.

### Text 2 (Lesson 30)

#### In the laboratory testing

Andrew: Hello, Alex! What are you doing?

Alex: Well, I'm studying the fuel system of this car. Now I can tell you a lot about the basic principles of its operation.

Andrew: Really? O.K. Let me see. Do you know the name of that little device near the engine?

Alex: Sure, it's called a carburettor.

Andrew: And what is it used for?

Alex: Well, it measures out a precise amount of fuel that is mixed with the correct amount of air.

Andrew: And do you know the principle of the carburettor operation?

Alex: Oh, that's easy. First, air is drawn down the air intake (it is located directly above the carburettor) into a venturi where its pressure is lowered. That's why, the fuel will flow into the venturi.

Andrew: Will it flow because of the low pressure of the air?

Alex: Right you are. Then the air is mixed with the fuel before this mixture is taken into the cylinder combustion chamber.

Andrew: Is it really? And what happens with this fuel mixture in the cylinder combustion chamber?

Alex: It is ignited there and is drawn into the engine afterwards.

Andrew: I see.

## Text 3 (Lesson 38)

### **The cooling fan**

Like the thermostat, the cooling fan allows the engine to maintain a constant temperature. Front-wheel drive cars have electric fans. The fans are controlled either with a thermostatic switch or by the engine computer, and they turn on when the temperature of the coolant goes above a set point. They turn back off when the temperature drops below that point. Rear-wheel drive cars with longitudinal engines usually have engine-driven cooling fans.

## Text 4 (Lesson 46)

### **Chassis**

An automobile chassis includes the car frame, drive train, suspension, wheels, as well as steering, and brake systems.

Earlier cars had frames on which the body was mounted in separate pieces. Modern cars have a steel body that combines the function of the frame with the central cabin of the body. The subframe, front or rear, is a small steel brace that supports the engine or suspension and is welded to the car's body structure.

The drive system carries the engine's power from the transmission to the wheels that move the car. Depending on the automobile, these may be the front wheels, the rear wheels, or both sets of wheels. Most cars today have a front-wheel drive. The front wheels not only steer the car but also drive it. A front-wheel drive combines the engine, transmission, and differential under the hood. The automobile wheels are attached to the car frame by a suspension system.

The steering system normally controls the angle of the front wheels turn. Most cars today have power steering, which uses engine power to reduce the effort of turning the steering wheel. Some vehicles use four-wheel steering, which allows the rear as well as the front wheels to steer. While this adds stability and maneuverability, it also adds weight, cost, and complexity.

## Text 5 (Lesson 49)

### **Types of brakes**

On disk brakes, the fluid from the master cylinder is forced into a caliper where it presses against a piston. The piston, in-turn, squeezes two brake pads against the disk rotor which is attached to the wheel, forcing it to slow down or stop. This process is similar to a bicycle brake where two rubber pads rub against the wheel rim creating friction.

With drum brakes, the fluid is forced into the wheel cylinder which pushes the brake shoes out so that the friction linings are pressed against the drum which is attached to the wheel, causing the wheel to stop. In either case, the friction surfaces of the pads on a disk brake system, or the shoes on a drum brake convert the forward motion of the vehicle into

heat. Heat is what causes the friction surfaces (linings) of the pads and shoes to eventually wear out and require replacement.

## Text 6 (Lesson 57)

### The driving lesson

Miss Green: Good afternoon. My name is Miss Green and I'm your driving instructor. Is this your first lesson?

Simon: It is my first lesson at this driving school.

M. G.: Oh, you've been to another one?

S.: Yes. The Greenwich school of driving. But I stopped going there.

M. G.: Why? Weren't the lessons good enough?

S.: They were good but my instructor left.

M. G.: Really? Well, let's see what you can do. I want you to drive down this road and turn left at the end.

S.: Yes, all right.

M. G.: You drive very well! I'm sure you'll pass your test. All my pupils pass their tests. Oh, look out! That lorry!

S.: You said turn left at the end.

M. G.: When you want to turn a corner, slow down and look first. You nearly hit that lorry. Please, be careful. Now turn right at the traffic lights... Right, not left!

S.: Sorry it was too late. I've turned left now.

M. G.: Didn't you see the No Entry sign? This is a one-way street.

S.: Why are those drivers shouting?

M. G.: Because you're driving the wrong way down a one-way street. Stop the car, please, and turn it round.

S.: I'm not very good at that.

M. G.: Mind that red car!

S.: Madman! He nearly hit me!

M. G.: He was right and you were wrong. Why didn't you wait? Now you are blocking the road. You want reverse gear. Turn the wheel ... more ... more ... Not too fast! Oh, what have you done now?

S.: It is all right. I went into the lamp-post but it is still standing. I didn't knock it down.

M.G.: Oh, but look at the back of the car.

S.: Sorry, but you said "reverse".

M.G.: I didn't say "drive into the lamp-post". Well, you've turned the car round now, so drive back to the traffic lights and go straight across.

S.: Are we going to the park?

M.G.: The roads are quieter near the park. Oh, not too fast!

S.: The lights are green.

M.G.: Slow down! The lights are changing!

S.: I can't slow down. There! We are across.

M.G.: The lights were red!

S.: It's all right. There were no policemen.

M.G.: I know why your last instructor left. He wanted to stay alive.

S.: That's not a very nice thing to say. And it's not true. He left because he wasn't very well.

M.G.: Stop the car, please. Oh, gently!

S.: Sorry. Did you hit your head on the roof?

M.G.: No. Luckily I was wearing the seat belt. Now I want you to practise driving backwards. Reverse the park gates. Look first, than reverse in.

S.: Right.

M.G.: Oh, you've hit the gate!... Now you are driving on the grass!

S.: I'm going backwards down the hill and I can't stop! Help me!

M.G.: Use the brakes! Don't drive into the lake!

S.: Too late.

M.G.: Look what you've done. You reversed into a lamp-post. You hit the park gate. Now you've driven into the lake. Oh, why didn't you stay with the other driving school?

S.: They had no more cars left.

# DICTIONARY

## A

**accelerate**, v разгонять(ся), ускорять(ся)

**accelerator**, n ускоритель, акселератор

**access**, n доступ

**to have access to...** иметь доступ к...

**actuate**, v приводить в действие; запускать; включать

**actuator**, n привод, исполнительный механизм

**adjust**, v настраивать, регулировать, устанавливать

**all-wheel drive model** полноприводная модель

**alternator**, n генератор переменного тока

**ammeter**, n амперметр

**amount**, n величина, количество

**an axis**, n ось

**the horizontal (vertical) axis** горизонтальная (вертикальная) ось

**application**, n применение

**apply**, v применять, употреблять

**arise**, v возникать, появляться

**available**, adj доступный; имеющийся в распоряжении

## B

**back**, n задняя сторона, обратная сторона

**at the back** сзади

**bend**, v сгибать(ся), изгибать, гнуть

**bit**, n сверло

**blade**, n лезвие

**brake**, n тормоз

**brakes**, n (pl) тормозная система

**hydraulic brakes** гидравлические тормоза

**brush**, n кисть

**bucket**, n ковш, черпак; поршень

**burn**, v гореть, сгорать

## C

**camshaft**, n распределительный вал

**can**, v канистра, бидон, банка

**cap**, n крышка; головка; наконечник

**car**, n автомобиль

**carburettor**, n карбюратор

**car design** дизайн автомобиля

**car devices** устройства автомобиля

**car mechanic** автомеханик, автослесарь

**carry**, v нести, перемещать, переносить

**carry out**, v выполнять, проводить

**casing**, n кожух, чехол; корпус

**cause**, v вызывать

**chamber**, n камера; отсек; отделение

**changer**, n переключатель; механизм смены

**charge**, v заряжать(ся)

**recharge** перезаряжать(ся)

**chassis**, n шасси

**check**, v (the volume of the petrol) проверять (объём бензина)

**chisel**, n, v долото; стамеска; работать долотом, стамеской

**circuit**, n цепь (электрическая)

**circular**, adj круглый

**clean**, v чистить

**clip**, n зажим, клемма

**combustion**, n сгорание, сжигание

**combustion chamber** камера сгорания

**internal combustion engine** двигатель внутреннего сгорания

**comfortable**, adj удобный, комфортабельный,

**compose**, v составлять

**compress**, v сжимать, подвергать сжатию

**compression ratio** степень сжатия

**compression stroke** такт (ход) сжатия

**conductor**, n проводник

**conductivity**, n проводимость  
**electric conductivity** электропроводимость  
**heat conductivity** теплопроводимость  
**connect**, v соединять  
**consist** (of), v состоять (из)  
**construct**, v строить, сооружать  
**control**, n контроль, система управления; рычаг управления  
**corrode**, v ржаветь, подвергаться воздействию коррозии  
**counter**, n счётчик  
**cover**, n крышка, покрытие  
**crankshaft**, n коленчатый вал  
**create**, v создавать  
**crocodile clips** зажимы типа “крокодил”  
**current**, n ток  
**cut**, v резать  
**cylinder**, n цилиндр

## D

**decrease**, v уменьшать(ся)  
**definite**, adj определённый  
**degree**, n степень, градус  
**demand**, v, n требовать; требование  
**design**, v, n проектировать, конструировать; проект, разработка, конструкция  
**detect**, v обнаруживать  
**determine**, v определять  
**device**, n прибор  
**dimension**, n размер  
**dimensions**, n измерения  
**disadvantage**, n недостаток  
**discharge**, v разряжаться  
**the battery is discharging rapidly**  
батарея разряжается быстро  
**drill**, n, v дрель, сверло; сверлить  
**drive**, v водить машину; приводить в движение  
**drive in**, v забивать, вбивать, вколачивать  
**distance**, n расстояние

## E

**electrical devices** электрические устройства  
**electricity**, n электричество  
**enable**, v давать возможность  
**engine**, n двигатель  
**air-cooled engine** двигатель с воздушным охлаждением  
**a 2-stroke engine** двухтактный двигатель  
**diesel engine** дизельный двигатель  
**gas engine** газовый двигатель  
**internal combustion engine** двигатель внутреннего сгорания  
**mixed fuel engine** двигатель со смешанным видом топлива  
**overhead valve engine** двигатель с верхним расположением клапанов  
**petrol engine** бензиновый двигатель  
**side valve engine** двигатель с боковым расположением клапанов  
**vehicle engine** двигатель транспортного средства  
**water-cooled engine** двигатель с водяным охлаждением  
**enhance**, v увеличивать, повышать  
**ensure**, v обеспечивать, гарантировать  
**equal**, adj равный  
**equip**, v оборудовать, оснащать  
**equipment**, n оборудование  
**evenly**, adj равномерно  
**exhaust stroke**, n ход выпуска  
**exist**, v существовать  
**experience**, n опыт работы  
**extend**, v увеличивать(ся), растягивать(ся)

## F

**fail**, v выходить из строя  
**fan**, n вентилятор

**feature**, n признак, свойство, характерная особенность (черта)

**feed**, v поддерживать; снабжать, питать, подавать

**file**, n напильник

**filter**, n фильтр

**climate control filter** фильтр климатического контроля

**oil filter** масляной фильтр

**fixture**, n приспособление; арматура

**flat**, adj плоский

**flow**, v, n течь; поток

**flywheel**, n маховик, маховое колесо

**force**, n сила; усиление

**four-cylinder**, adj четырёхцилиндровый

**four-stroke**, adj четырёхтактный

**frame**, n рама; корпус

**front**, n передняя сторона

**at the front** спереди

**front-wheel drive** передний привод

**fuel**, n топливо

**diesel fuel** дизельное топливо

**fuel mixture** топливная смесь

**fuel tank** топливный бак

**function**, n функция

## G

**garage**, n гараж

**gas**, n газ

**gas station** заправочная станция

**gauge**, n измерительный прибор; датчик, прибор; шаблон

**gear**, n механизм; устройство; прибор; передача, шестерня

**pinion gear** ведущая шестерня

**ring gear** коронная шестерня

**side gear** полуосевая шестерня

**gearbox**, n коробка передач

**graph**, n график

**grind**, v шлифовать, полировать

**grip**, n, v захват, захватное устройство; захватывать, закреплять

**gripping device** захватное устройство

**guard**, n ограждение, защитное устройство

## H

**hammer**, n, v молоток; вбивать (гвозди) молотком

**handle**, n, v рукоятка; ручка; управлять; выполнять

**headlight**, n передняя фара

**heat**, n, v тепло, теплота; греть, нагревать

**height**, n высота

**highway**, n магистраль

## I

**ignite**, v воспламенять(ся), зажигать(ся)

**incorporate**, v внедрять, вводить, устанавливать

**increase**, v увеличивать(ся)

**independent variable** независимая переменная

**dependent variable** зависимая переменная

**indicate**, v указывать, показывать, обозначать

**indication**, n показание

**induction stroke**, n ход впуска

**injector**, n инжектор, форсунка

**fuel injector** топливная форсунка

**install**, v устанавливать, монтировать

**instrument**, n измерительный прибор, инструмент

**intake**, n поступление, приток; впускное устройство

**air intake** воздухозаборник

**intake manifold** приемная труба глушителя

**introduce**, v внедрять, вводить

**invent**, v изобретать, создавать

**invention**, n изобретение

**investigate**, v изучать

**involve**, v включать в себя

## L

**label**, n, v ярлык; помечать  
**ladder**, n лестница; стремянка  
**lead**, n провод  
    **lead-acid storage battery** свинцово-кислотная батарея  
**level**, n уровень  
**lid**, n крышка  
**light**, n свет; фара  
    **work light** фара  
**link**, v, n связывать, соединять; связь  
**liquid**, n жидкость  
**locate**, v размещать, располагать  
**lorry**, n грузовик

## M

**machine**, n, v станок; обрабатывать на машине или станке  
    **boring machine** расточный станок  
    **cylindrical machine** цилиндрический станок  
    **direct numeral control machine** станок с централизованным управлением  
    **drilling machine** сверлильный станок  
    **grinding machine** шлифовальный станок  
    **milling machine** фрезерный станок  
    **prismatic machine** призматический станок  
**machine-building**, n машиностроение  
**maintain**, v обслуживать, содержать в исправности, поддерживать в хорошем состоянии  
**maintenance**, n обслуживание  
**manometer**, n манометр  
**material**, n материал  
**measurement**, n измерение  
**measure**, v измерять  
**melt**, v расплавляться, плавиться  
**metal**, n металл  
**micrometer**, n микрометр  
**mirror**, n зеркало

**mix**, v смешивать, перемешивать  
    **mixed** смешанный  
**mixture**, n смесь  
    **fuel mixture** топливная смесь  
**modify**, v видоизменять, модернизировать  
**motion**, n движение  
**motor**, n, adj автомобиль, двигатель; автомобильный  
**motorcycle**, n мотоцикл  
**motor vehicle** автомобиль, автотранспортное средство  
**mount**, v устанавливать, монтировать, крепить  
**move**, v двигать(ся), передвигать(ся)  
    **move at the speed of 70 km/h** передвигаться со скоростью 70 км/ч  
**muffler**, n глушитель  
**multimeter**, n мультиметр  
**multi-purpose machine** многоцелевой станок

## N

**nail**, n гвоздь  
**needle**, n игла  
**noise**, n шум  
**number**, v нумеровать  
**nut**, n гайка

## O

**oil**, n масло  
    **oil sump** маслосборник  
**operate**, v приводить(ся) в движение, управлять(ся); работать  
**operation**, n операция, работа

## P

**panel**, n панель  
    **instrument panel** панель инструментов  
**passenger**, n пассажир  
**pedal**, n педаль



**perform**, v выполнять  
**performance**, n производительность;  
функционирование  
**permanent**, adj постоянный, неиз-  
менный; долговременный  
**petrol**, n бензин  
**pipe**, n труба  
**piston**, n поршень  
**place**, v, n помещать, размещать; ме-  
сто, пространство  
**plant**, n фабрика, завод  
**plug**, n штепсель  
**pointer**, n стрелка  
**power**, n, v энергия; снабжать энер-  
гией, приводить в действие  
**power stroke** рабочий ход  
**power train**, n силовая передача  
**power-weight ratio** мощность на  
единицу веса (двигателя)  
**powerful**, adj мощный  
**press**, v нажимать, прижимать  
**pressure**, n давление  
**pressure in the wheels** давление в  
колёсах  
**produce**, v производить  
**production**, n производство; продук-  
ция; изготовление  
**production line** производитель-  
ная линия, технологическая линия  
**protect**, v (against) защищать (от)  
**pull**, v тянуть, тащить  
**pump**, n насос  
**fuel pump** топливный насос  
**put**, v класть; двигать в определен-  
ном направлении  
**put into operation** приводить в  
действие  
**put air in(to) the tyres** накачать  
(воздух в шины)  
**purity**, v очищать(ся)

## Q

**quality**, n качество  
**high quality** высокое качество  
**low quality** низкое качество

## R

**radiator**, n радиатор  
**range**, n диапазон; интервал; предел  
**rate**, n скорость; степень  
**recharge**, v перезаряжать(ся)  
**record**, v записывать; регистрировать  
**recover**, v восстанавливать  
**rectangular**, adj прямоугольный  
**reduce**, v уменьшать, снижать  
**refinement**, n улучшение, (у)совер-  
шенствование  
**reliable**, adj надёжный  
**relieve**, v облегчать; ослаблять, умень-  
шать  
**remove**, v отодвигать; убирать; пере-  
мещать  
**repair**, v чинить  
**replace**, v заменять, замещать  
**require**, v требовать  
**requirement**, n требование  
**meet requirements** соответство-  
вать требованиям  
**respond**, v реагировать, срабатывать  
**resource**, n ресурс  
**round**, adj круглый  
**ruler**, n линейка  
**run out**, v истощаться; заканчи-  
ваться

## S

**safe**, adj безопасный  
**safety-notice**, n инструкция по техни-  
ке безопасности  
**saw**, v, n пилить; пила  
**scale**, n шкала  
**scrap**, n металлические отходы  
**screw**, n винт, болт  
**screwdriver**, n отвёртка  
**sensor**, n датчик, чувствительный  
элемент, сенсор  
**separate**, adj отдельный  
**sequence**, n серия, последователь-  
ность, ряд  
**sequence of operations** серия опе-  
раций

**shape**, v формировать, придавать форму  
**side-light**, n поворотный сигнал  
**situated**, adj расположенный  
**be situated** располагаться  
**socket**, n розетка  
**source**, n источник  
**spanner**, n гаечный ключ  
**spark**, n искра  
**spark plug** свеча зажигания  
**spare**, adj запасной; свободный; лишний  
**spare parts** запасные части  
**specifications**, n технические характеристики  
**speed**, n скорость  
**spread**, v наносить на поверхность; распределять  
**speedometer**, n спидометр  
**spring**, v, n, пружинить; пружина  
**start**, v ( the engine ) завести (двигатель)  
**square**, n, adj квадрат; квадратный  
**start**, v начинать  
**steam**, n пар  
**steam engine** паровой двигатель  
**steering**, n рулевое управление  
**steering wheel** рулевое колесо  
**straight**, adj прямой  
**straighten**, v выпрямлять, разгибать  
**strength**, v прочность  
**strengthen**, v усиливать, упрочнять  
**stretch**, v растягивать(ся), натягивать  
**stroke**, n ход, такт  
**compression stroke** такт сжатия  
**exhaust stroke** такт выпуска  
**induction stroke** ход впуска  
**power stroke** рабочий ход  
**superior**, adj лучший, превосходный, высший  
**surface**, n поверхность  
**suspension**, n подвеска  
**independent suspension** независимая подвеска  
**switch**, n, v переключатель; переключать

**switch function selector** переключатель функций  
**switch on**, v включать  
**switch off**, v выключать  
**system**, n система, комплекс, установка  
**automatic braking system** система автоматического торможения  
**cooling system** система охлаждения  
**fuel system** топливная система  
**lubrication system** смазочная система

## T

**tachometer**, n тахометр  
**tank**, n бак, цистерна  
**fuel tank** топливный бак  
**test**, n проверка  
**test**, v ( the device ) тестировать (устройство)  
**tighten**, v закреплять  
**time-consuming**, adj отнимающий много времени  
**tool**, n орудие (производства), инструмент  
**cutting tool** режущий инструмент  
**hand tool** ручной инструмент  
**machine tool** станочная (авторизованная) система  
**metal-cutting tool** металлорежущий инструмент  
**toolbox**, n ящик для инструментов  
**torque**, n вращающий момент; крутящий момент  
**transport**, n транспорт  
**transmission**, n трансмиссия  
**treat**, v подвергать обработке, обрабатывать  
**triangular**, adj треугольный  
**truck**, n грузовой автомобиль, тележка  
**turbine**, n турбина  
**turbulator**, n турбулизатор

**turn**, v вращаться  
**twist**, v крутить, скручивать  
**two-cylinder**, adj двухцилиндровый  
**two-stroke**, adj двухтактный  
**tyre**, n шина  
**type**, n тип, вид  
**types of fuels** виды топлива

## U

**unit**, n элемент; единица  
**use**, v использовать

## V

**value**, n значение, величина, показатель, число  
**valve**, n клапан  
**venturi**, n трубка Вентури  
**vehicle**, n транспортное средство  
**land, sea, air vehicles** наземные, водные, воздушные транспортные средства)  
**vessel**, n резервуар, баллон  
**vice**, n тиски

**voltage**, n напряжение  
**volume**, n объём

## W

**watch**, v (the indications of speedometer) следить (за показаниями спидометра)  
**wear**, n износ  
**wheel**, n колесо  
**wide**, adj широкий  
**width**, n ширина  
**windscreen**, n лобовое стекло  
**wipers**, n стеклоочистители, «дворники»  
**wire**, n проволока  
**work**, v работать  
**workbench**, n верстак  
**workload**, n нагрузка  
**workpiece**, n обрабатываемая деталь, заготовка  
**works**, n завод  
**workshop**, n мастерская

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