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**АНГЛИЙСКИЙ ЯЗЫК ДЛЯ СПЕЦИАЛЬНЫХ ЦЕЛЕЙ:
АВТОМОБИЛЬ, ДОРОГИ**

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FOREWORD

Learning a foreign language presupposes the use of the language for obtaining new knowledge. English for special purposes aims at developing skills which are connected with the technical aspects of the language functioning.

The aim of the manual is to provide the students with the material which include the main terms, commonly used words and expressions describing automobiles, their constituent parts and technology of car production.

The selection of the material corresponds to the syllabus for updating of interpreters. The series of exercises is helpful for further development of speech skills based on the specific items of the vocabulary.

The translation of technical texts differs greatly from social ones. It is based on conceptual rather than lexical presentation that is why the topical vocabulary is given with the definitions which correspond to the English mind map, the English perception of the outer world.

The textbook contains pictures and schemes that may serve as visual assistance by the description of the most important parts of cars. Laboratory works are for self-study of the updaters. The achievement test is compiled so that the main vocabulary, grammar rules and syntactic structures can be obviously seen by means of adequate translation into the native language.

The material of the textbook may be used not only for updaters. It provides language training in various aspects and may be of use for foreign language learners of different qualifications.

TOPIC 1 “TRANSPORT”

Exercise 1. Learn the topical vocabulary.

trans'port (v) – to move people / things from one place to another in a train, bus, lorry, aeroplane, etc.

'transport (n, u) – something, e.g., a car or a bus, that transports people and things from place to place, especially on land (formal **vehicle**)

The animals are transported to the docks by lorry. Road / rail / air / sea transport.

Transport by air, road, rail, sea. Public transport (transport that anyone can use).

Every year there are more and more vehicles on the road.

TRANSPORTING GOODS

goods (n, pl), **freight** (n, u) – things that are transported by lorries, trains, aeroplanes, etc. *A goods vehicle, a freight train*

cargo (n, c, u) – goods that are carried in a ship or aircraft. *A cargo plane, a ship carries a cargo (cargoes) of coal*

load – something (heavy) that is being transported or that is going to be transported. *A lorry with a heavy load, a load of bricks / sand*

shipment – a load that is being carried, especially by a ship. *A further shipment of grain is expected to arrive in a few days.*

container – a large metal box that is used for transporting goods by sea, road or rail. *A container ship / lorry*

crate – a large box in which goods are transported or stored. *We had to pack everything into crates when we moved house.*

packing case – a wooden box that you put thing into to be transported or stored

send – to transport something by some means. *Would it be cheaper to send the books by rail or by road?*

ship – to transport, especially by ship

airlift (v, n) – to transport many people and things by air. *Food and medical supplies were airlifted into the city.*

pack (v, n) – to put things into boxes, etc so that they are ready to be transported

load (v, n) – to put a load or a large quantity of something in or on a lorry, ship, train. *Crates of fish were loaded on to plane.*

unload – to take a load or a large quantity of something off a lorry, ship, train. *To unload bricks from a lorry. Vehicles may only park here when loading or unloading.*

Exercise 2. Read and translate the text. Write out the words in bold; give their explanations and definitions.

Public Transport in Great Britain

A taxi, sometimes called *a cab*, is the most comfortable way to travel. You simply *hail a taxi* in the street or go to *a taxi rank* where there are several taxis waiting, for example, at a station. At the end of your journey, you can see how much *the fare* is by looking at *the meter*. You add a tip to this, and that is all. Very simple, but expensive.

What about taking a bus? It has two floors, it is called *a double-decker* and you can get a splendid view from the top. If it has only one floor, it is called a single-decker. Most buses have *a two-person crew*: the driver and the conductor. Keep the ticket because an inspector might want to check it. You catch a bus by waiting at a bus stop. You can see where a bus is going because *the destination* is written on the front. However, try to avoid the rush hour.

Quicker than the bus is *the underground* (called *the tube* in London, *the subway* in New York and *the metro* in Paris and many other cities). You buy your ticket at the ticket-office; go down to the platform on the escalator or on the lift. The train comes, *the sliding door* opens, and you *get on*. You look at the map of the underground system to learn how many stations you have to travel. Very simple.

For longer distances take a train or a long distance bus, usually called *a coach*, which is slower but cheaper. The train is very fast. On the train, you can put the luggage on *the rack*, sit, and wait until you arrive.

Exercise 3. Read, translate and put five questions to the contents of the text.

Public Transport in the USA

Getting around the city on public transportation in the US is generally not as easy as it is in many other countries, but it is possible. Only a few cities have subways, but most towns of 50,000 or more have some kind of city bus service.

There are several ways to pay for the bus transportation in the city. In some cities, you drop your money into the fare box. In others, you have to buy tickets before you get on the bus. In some, you can buy a special pass to be used for the day, week, or month. Moreover, in some, you buy tokens, which look sometimes like coins, and you use them to get on the bus and enter the subway.

Subways in cities are known by different names. In Boston, the system is the MTA, sometimes called “the T”. Washington, D.C., has a new subway they call the Metro, and the San Francisco Bay Area’s system is BART – Bay Area Rapid Transit. In New York, it is the subway, but people often say the name of the line, e.g. the 8th Avenue. And in Chicago, the tracks are partly underground and partly elevated, and people call the system “the el.”

If you cannot get where you want to by bus or subway, you can always take a cab. In many cities, it is almost impossible to stop a cab on the street. It is easier to call a taxi company listed in the Yellow Pages and ask them to send a cab to your door. The meter will show the amount you have to pay. The driver will

usually expect a tip at least 10%. In New York, the cabs are everywhere in the streets, and cabbies expect a tip of 15%.

Exercise 4. Put the verbs in brackets into appropriate tense form.

In the London Tube

Tom (to look) forward to his first journey by tube, as the underground railway in London is called. He (to hear) a great deal about it from his friends who already (to be) in England.

Tom (to enter) the station shortly after five o'clock in the afternoon. This is a bad time to travel in London, both by bus and train, because crowds of people go home from work at this hour. He (to join) a long line of people who (to queue) for tickets. When at last his turn (to come), he (to have) some difficulty in making the man understand the name of the station he (to want) to go to. He (to get) the right ticket in the end and, by asking several people the way, he also (to find) the right platform. It was full of people who (to come) earlier. He (to be swept) on to the train by the rush of people from behind. The doors (to close) and the train (to move off). He (to be unable) to see the names of the stations where the train (to stop), but before he (to get) on the train he (to count) the number of stops, so he (to know) exactly where to get off. His station (to be) the sixth along the line. When he (to reach) the sixth station, Tom (to get off), feeling relieved that his journey (to be) so easy. But he (to be alarmed) to see that he (to get off) at a station that he (to hear, never) of. He (not to know) what to do. He (to explain) his difficulty to a man nearby. With a look of amusement on his face the man (to tell) Tom that he (to travel) on a train going in the wrong direction.

Exercise 5. Put each of the following words or phrases into its correct place in the text.

air vents	cabin	captain	carry
co-pilot	crew	cruising speed	distances
flight	flight engineer	galley	jet-propelled
passenger	passenger list	safety belts	seats
size	tourist	stewardess	take-off
trip			

Airliner

Airliners, or planes, differ from light planes not only in but also in speed and equipment. They are designed to a greater number of people over longer without stopping to fuel.

A passenger airliner has a comfortable with soft carpets, adjustable upholstered , washrooms, and individual and reading lights. It has a for preparing food. Many airlines offer , or economy service which costs less than first-class travel.

The of four-engine airliners range from about 350 mph for propeller-driven planes to more than 500 mph for planes.

The of an airliner works as a team to make the trip smooth and pleasant. While the passengers take their seats, the pilot or , co-pilot, flight engineer, and stewardesses prepare the plane for The pilot, assisted by the , checks the instruments and tests the controls. The checks the other mechanical equipment. The stewardesses check the , make sure that the passengers fasten their for Later, the distribute magazines, serve meals, and do other things to make the enjoyable.

Exercise 6. Read, transcribe and learn the names of the main parts of an airplane. Look at the picture and find English equivalents to the Russian ones.

Cockpit, nose, fin, rudder, fuselage, undercarriage, hatch, wing



TOPIC 2 “ROAD”

Exercise 1. Learn the topical vocabulary.

DESCRIBING ROADS

- a way between places, with a hard surface, which cars, buses, etc. can drive along = **road**

big and important roads

- a big road which takes a lot of traffic: **main road**
- a main road between towns: **road** (AmE **highway**)
- a wide road that is specially built for fast traffic: **motorway** (AmE **freeway**, **expressway**)
- a road like a motorway which has a fence or area of grass down the middle to separate the traffic going in different directions: **dual carriageway** (AmE **divided highway**)
- a road that traffic can use to go round a town instead of through it: **bypass**; when a road does this, it **bypasses a town**
- a road which is built all round a town: **ring road** (AmE **beltway**)
- a system of roads: **road network**

where roads meet

- a place where roads join or meet: **junction**; a junction which forms the shape of a T: **T-junction**
- a place where two or more roads cross each other: **crossroads**; a place where two or more main roads or motorways cross each other: **intersection**
- a circular area where several roads meet: you drive around it until you come to the exit you want: **roundabout** (AmE **traffic circle**)
- a place where one road joins or leads off from another: **turning**, **turn-off**
- when a side road leaves a main road, it **branches off**
- a place where two roads meet: **corner**

the shape of roads

- a place where a road turns to the left or to the right: **bend**, **curve**, **corner**; to do this: **curve**
- a very sharp bend in a road: **hairpin bend** (AmE **hairpin curve**, **hairpin turn**)
- a road which does not bend in any direction is **straight**

the sides of a road

- the inner part or edge of a road which is furthest from the centre: **inside**; the part nearest the centre: **outside**
- the edge of a road: **roadside**
- a special place where vehicles can stop on the roadside: **lay-by** (AmE **rest stop**)

motorways

- one of the two sides of a motorway or dual carriageway on which vehicles travel in one direction: **carriageway**; part of a carriageway for one line of traffic: **lane**

- a lane for slow traffic: **slow lane, inside lane**; for fast traffic: **fast lane, outside lane**
- a narrow strip of road at the side of a motorway where cars are allowed to stop in an emergency: **hard shoulder**
- a fence on a motorway, etc that keeps vehicles apart: **crash barrier**
- an area of land between two carriageways on a motorway, etc: **(central) reservation** (AmE **median**)
- a road that onto or off a motorway: **slip road** (AmE **access road**)
- a place where you can drive onto or off a motorway: **junction**
- a type of bridge that carries one road over another: **flyover** (AmE **overpass**)

small roads

- a way across a piece of land that is made or used by people walking: **path, footpath**
- a path or rough road: **track**
- a narrow road in the country: **lane, alley**
- a road which leads from a main road and is less important or busy: **side road, minor road**

roads in town

- a road in a town, etc that has shops, houses, etc on one or both sides: **street**
- the main street of a town, especially as a name: **high street** (AmE **main street**)
- a narrow or less important street that usually joins a main road: **side street**
- a wide street, especially one with trees or tall buildings on each side: **avenue**
- a narrow street between buildings: **lane**
- a street that is closed at one end: **cul-de-sac**; if a street does not continue any further, you reach a **dead end**
- a street along which cars can travel only in one direction: **one-way street**
- a private road or path that leads to a house: **drive, driveway**
- a path at the side of a road that is for people to walk on: **pavement** (AmE **sidewalk**)
- a line of stones from the edge of a pavement where it joins the road: **kerb** (AmE **curb**)
- a channel between the road and the pavement that carries away rainwater: **gutter**
- a raised area in the middle of a road that you can stand on when you are crossing: **(traffic) island** (AmE **safety zone**)

bridges

- a structure that carries a road across the river, valley, road, etc: **bridge**
- a bridge where people who are on foot can cross a road: **footbridge**
- a passage under the ground, under the sea, etc: **tunnel**

- a road that goes under another road, railway, etc: **underpass**
- a place where a railroad line crosses a road: **level crossing** (AmE **grade crossing**)
- a shallow place in a river where cars drive through: **ford**; to use a ford: **ford something**

the surface of a road

- the thick, black, sticky material from petroleum that is used on the surface of roads: **tar** (noun U), **tarmac** (noun U)
- special rounded stones that cover the surface of (old) streets: **cobbles**, **cobblestones**; a street that is covered with cobblestones is **cobbled**
- a piece of stone used for a path or pavement: **paving stone**
- a road that is difficult to drive on because it is wet, icy, etc is **slippery**
- ice on the road that is very slippery and black in colour: **black ice**
- a road that has a lot of raised parts in it is **bumpy**; a raised part in a road: **bump**
- a hole in the surface of a road: **pothole**
- a road that is flat, with no bumps, is **smooth**
- if a road is blocked and you cannot travel on it, it is **impassible**

lights and road signs

- a sign that tells drivers where to go, what to do, what not to do, etc: **road sign**, **traffic sign**
- a sign with two or three coloured lights used for controlling traffic at road junctions: **traffic lights** (noun plural) (AmE **stoplight**)
- a sign at the roadside that gives information about directions and distances to towns, etc: **signpost**
- the lights on a street: **street lights**
- a tall pole with a light on top, often placed on a pavement: **lamp-post**
- a special spot in the road that shines in a car's headlights at night: **catseye**
- painted marks on the road surface that show drivers where to go, etc: **road markings**

Exercise 2. Describe the pictures using words from exercise 1.

PICTURE 1



PICTURE 2



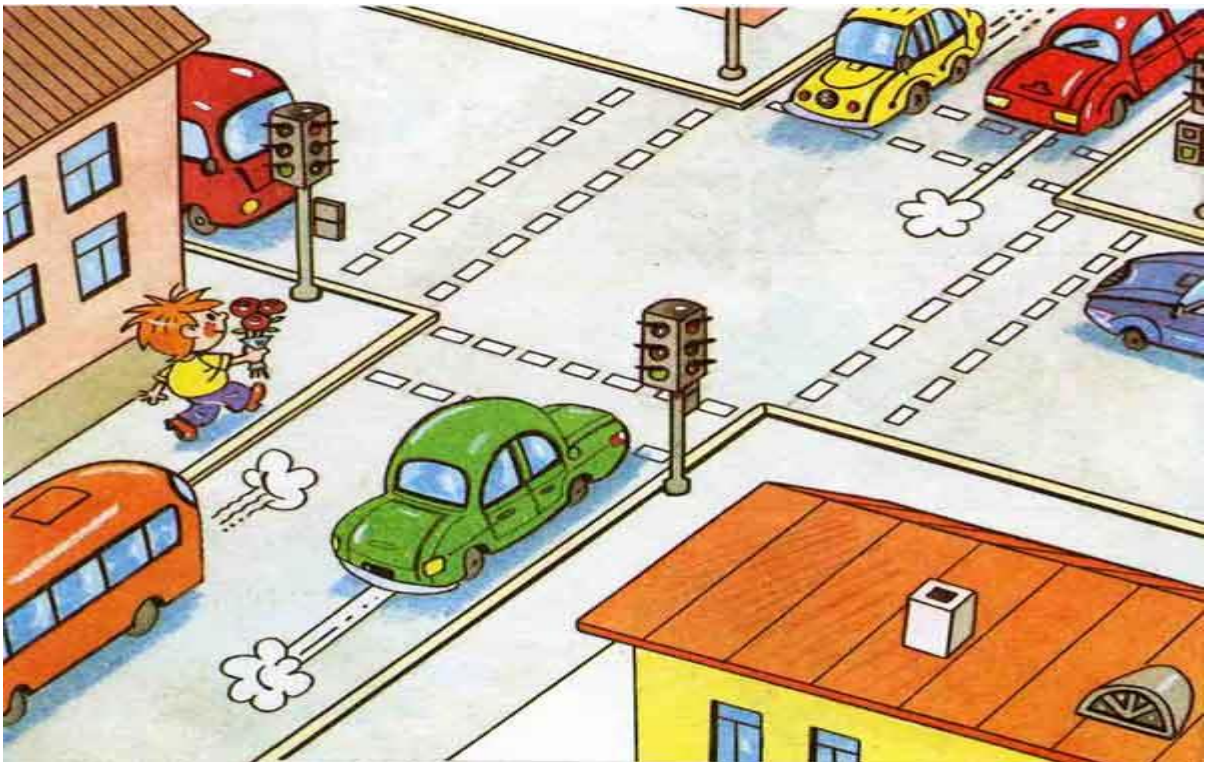
PICTURE 3



PICTURE 4



PICTURE 5



PICTURE 6



PICTURE 7



PICTURE 8



PICTURE 9



Exercise 3. Give corresponding words to the definitions.

A wide road that is especially built for fast traffic	
A road which has a fence or area of grass down the middle to separate the traffic going in different directions	
A narrow road in the country	
A very sharp bend in a road	
A narrow strip of road at the side of a motorway where cars are allowed to stop in an emergency	
A channel between the road and the pavement that carries away rainwater	
A street that is closed at the end	
A circular area where you drive around it until you come to the exit	
The street that does not continue any further	
A special place where vehicles can stop on the road side	

Exercise 4. Give definitions to the following words.

tar, tarmac	
pothole	
black ice	
track	
catseye	

level crossing, grade crossing	
tunnel	
cobbles	
kerb (curb)	
drive, driveway	

Exercise 5. Complete the sentences, using the correct word or phrase. The first letter of each word is given.

- 1) A b_____ enables motorists to pass by towns on the m_____ r_____ instead of going through them.
- 2) A r_____ r_____ goes round the town, allowing you enter it at the most convenient point.
- 3) A f_____ goes under the main road while an u_____ goes over it.
- 4) Never overtake another car when approaching a b_____ in the road because you cannot see oncoming traffic.
- 5) The c_____ l_____ on roads is for lorries and similar traffic.
- 6) A o_____ w_____ street is one where all traffic must go in the same d_____.
- 7) The place where the road crosses railway lines is called a j_____, or a l_____ c_____.
- 8) Special rounded stones that cover the surface of old streets are called c_____.
- 9) A shallow place in a river where cars, people, animals can drive or go through is called a f_____.
- 10) A special spot in the road that shines in a car's headlights at night is named c_____.

Exercise 6. Complete the sentences using the words given.

1. If you drive down the road and the road stops suddenly, it is a _____.	a) bend
2. Motorways usually have three _____, the slow one for lorries, the middle one for cars, and the fast one for overtaking and for breaking the law!	b) crossroads
3. A curve in a road is called a _____.	c) black ice
4. When you come to a _____ you have to decide which direction to go in.	d) congested
5. A private road that leads to a house is called a _____.	e) dead-end
6. When the ice on the roads is very slippery, it is _____.	f) grit
7. A channel between the road and the pavement that carries away rainwater is called a _____.	g) drive

8. A road with so much traffic that vehicles are stopped or are moving very slowly is _____	h) cul-de-sac
9. Small pieces of stone that are put on the road in icy weather are _____	i) gutter
10. A street that is closed at one end is called a _____	j) lane (s)

Exercise 7. Translate into English.

1. Место, где одна дорога сливается с одной или ответвляется от нее, называется поворотом.
2. Крутой и резкий поворот дороги называется шпилька.
3. Узкая полоска дороги вдоль автомагистрали, на которой машины могут остановиться в случае необходимости, называется обочиной.
4. Чёрный, липкий материал, производимый из нефти, называется асфальтом.
5. Нарисованные на проезжей части метки указывают водителям направление движения.

TOPIC 3 “VEHICLES ON ROADS”

Exercise 1. Learn topical vocabulary.

- to go somewhere in a car: **drive**
- a person who is driving a car or other vehicle: **driver**; a person who drives a car: **motorist**
- the money that you have to pay to drive on some roads or bridges: **toll**
- all cars, lorries, buses, bicycles, etc. using the roads: **traffic** (noun U)
- a road where there is a lot of traffic is **busy** (opposite **quiet**)
- a road with so many vehicles that cars are stopped or are moving slowly is **congested**; **congestion** (noun U)
- if there is no congestion the road is **clear**
- to stop and leave the car, lorry, etc. somewhere for some time: **park**; the action of doing this: **parking** (noun U)
- a person whose job is to check that cars are not parked in the wrong place: **traffic warden**
- a barrier put across the road by the police or the army to stop traffic: **roadblock**
- to stop traffic from coming down a road: **block something off**, **close something**

PEOPLE ON FOOT

- to go somewhere without using a vehicle: **go on foot**

- a person who is walking in the street: **pedestrian**
- to go from one side of a road to another on foot: **cross the road**
- a place where pedestrians can cross the road: **(pedestrian) crossing, zebra crossing, pelican crossing** (AmE **crosswalk**)
- a man / woman whose job is to help schoolchildren to cross roads: **lollipop man / woman**

REPAIRING AND CLEANING ROADS

- the work of building or repairing roads; the place where a road is being repaired: **roadworks** (noun plural)
- a plastic (usually orange and white) pointed object that marks off an area where there are roadworks: **cone**
- a vehicle that clears snow off roads: **snowplough** (AmE **snowplow**)
- small pieces of stone that are put on the road in icy weather: **grit**; to put grit on the road: **grit the road**
- a person whose job is to clean roads: **road cleaner, road sweeper**

Exercise 2. Describe the pictures using topical vocabulary.

PICTURE 1



PICTURE 2



Exercise 3. Read and translate the text. Pay attention to the words in bold. Match them with the correct definitions.

Driving in Britain

One of the most enjoyable ways of seeing Britain is by driving. The country has a very extensive network of modern motorways and roads linking all its main cities. When visiting Britain, the motorist from abroad should remember a number of differences in using 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**.

In spite of **dense** traffic on almost all British roads, the country has one of the lowest number of road deaths in Europe. There are a few reasons for this. First, British drivers are known for their **courtesy** and consideration. Second, both drivers and front-seat passengers are obliged to wear seat belts. Third, there are very strict rules against drinking and driving. A drunken person can be **banned** from driving for two or three years, **fined** heavily, or even **imprisoned**. Forth, the maximum permitted speed in towns and built-up areas is only 30 mph (about 50 km/h).

According to recent estimates, about 70% (percent) of British families own one or more cars. For that reason, driving in big cities is often frustrating with frequent **hold-ups** and crowded streets. However, motorists can avoid traffic jams if they **refrain from** driving during rush hours (between 8 and 9 o'clock a.m. and 5 and 6 o'clock p.m.). Heavy traffic is not the only inconvenience in big cities. Many 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 mph (112 km/h). If they are tired of driving, they may stop at any motorway service centre beside the road. It usually includes a cafeteria, parking space, a motor hotel and a shop where newspapers, sweets, soft drinks and souvenirs can be bought. If travellers have more time to spare, they may leave the motorway at almost any exit and within a radius of 3 miles enjoy the quiet English countryside and the hospitality of local people.

No	word	letter	definition
1	to overtake	a	to make someone pay money as a punishment
2	roundabout	b	to put someone in prison
3	courtesy	c	a delay, especially one caused by traffic
4	dense	d	to go past a moving vehicle because you are driving faster than it
5	to ban	e	a circular area where several roads meet
6	to imprison	f	(<i>formal</i>) not to do something that you want to do
7	hold-up	g	polite behaviour
8	infringement	h	a piece of equipment that can be fastened onto the wheel of a car that is illegally parked, so that it cannot move
9	wheel clamp	i	to say officially that something must not be done
10	to fine	j	something that is against the law or that limits someone's legal rights
11	to refrain from	k	containing lots of things or people close together

TOPIC 4 “DIFFERENT KINDS OF CAR”

Exercise 1. Learn the following words and their definitions.

a vehicle with an engine and four wheels that up to five people can travel in: **car, motor car (AmE automobile)** *a new/second-hand car; Let's go for a drive in the car. We came by car.*

a car with a fixed roof and a separate area for luggage: **saloon (AmE sedan)**

a car with a door at the back and a large space for luggage behind the back seat: **estate (car) (AmE station wagon)**

a car (usually small) with a large door at the back that opens upwards: **hatchback**

a very large, expensive car: **limousine, (informal) limo**

a low, fast car, usually with room for two people, often with a roof that can open: **sports car**

a car with a roof that can open: **convertible**

a strong car that is suitable for travelling over rough ground: **four-wheel drive (vehicle)**

a car with a driver whose job it is to take you somewhere for money: **taxi**, (especially AmE) **cab** (*You'll have to take a taxi from the airport to the hotel.*)

a vehicle like a car that is used for transporting things: **van**

a large, black car used for carrying a dead body to a funeral: **hearse**

Exercise 2. Look at the picture, find a corresponding English word and describe the car.



THE PARTS OF A CAR

Exercise 3. Learn the words and their definitions.

car interior

the electrical system that starts the engine of a car: **ignition**; the key that is used for starting the ignition: **(ignition) key**. *I turned the key in the ignition but the engine didn't start.*

an instrument for showing the speed of a car: **speedometer**

an instrument for showing the distance a car has travelled: **milometer** (AmE **odometer**) (informal **clock**). *I bought this car with 20000 miles on the clock.*

a thing that gives a loud warning sound: **horn**. *I sounded my horn.*

a thing for heating the car: **heater**. *Can you turn up the heater a bit? I'm rather cold.*

where the driver sits: **driver's seat**; where a passenger sits: **passenger seat**
 a belt that you wear in a car, etc to protect yourself if there is an accident: **seat belt, safety belt**

a special kind of bag in the front of a car that fills up with air to stop your head being injured if you crash: **air bag**

car exterior

the main outside part of a car: **bodywork** (*noun U*). *The engine's fine but the bodywork's starting to rust.*

the metal frame of the car onto which the other parts fit: **chassis**

a metal box which contains petrol: **petrol tank** (*AmE gas tank*)

waste gas that comes out of a car, etc.: **exhaust** (*noun U*); the pipe from which exhaust gases come out of the car's engine: **exhaust (pipe)**

one of the windows at the side of the car: **(side) window**; to move a car window up or down by turning a handle: **wind sth up/down**. *Could you wind your window down to let a little air in?*

a useful or attractive item that can be added to your car: **accessory**. *My car has several accessories, including a CD player.*

the engine

a thing which provides electricity for starting a car **battery**

a set of wheels that pass power from the engine to the wheels of the car: **gears**. (*noun plural*) *Most cars have five forward gears and a reverse.*

the metal box containing the gears: **gearbox**

if the gears of a car change automatically, the car is an **automatic (car)**

the device containing water which helps to cool engine: **radiator**. *We'll have to stop at the next service station to put some more water in the radiator.*

the thing which cools the engine by blowing air onto it: **fan**

the belt that drives the fan: **fan belt**

Exercise 4. Read and translate the text. Learn the text by heart.

Components of the Automobile

The automobile is made up of three basic parts: the power plant, or the engine, the chassis and the body.

The engine is the source of power that makes the wheels rotate and the car move. It includes fuel, cooling, lubricating and electric systems. Most automobile engines have six or eight cylinders.

The chassis includes a power train (power transmission), a running gear, steering and braking systems as well.

The power train carries the power from the engine to the car wheels.

The power transmission, in turn, contains the clutch, gearbox, propeller or cardan shaft, final drive, differential, rear axle and axle shafts. The running gear consists of a frame with axles, wheels and springs.

The body has a hood, fenders and accessories: the heater, stereo tape recorder, windshield wipers, conditioner, speedometer and so on.

Exercise 5. Find the corresponding equivalents.

No	word	letter	equivalent
1	engine (power plant)	A	ходовая часть
2	chassis	B	рулевое управление
3	body	C	сцепление
4	power train	D	главная передача
5	running gear	E	дифференциал
6	steering system	F	полуоси
7	brakes	G	колеса с рессорами
8	clutch	H	крылья
9	gearbox	I	кузов
10	propeller shaft	J	смазка
11	final drive	K	топливо
12	differential	L	охлаждение
13	rear axle	M	источник энергии
14	axle shafts	N	стеклоочиститель
15	frame with axles	O	силовая передача
16	wheels and springs	P	отопитель
17	hood	Q	рама с осями
18	fenders	R	капот
19	heater	S	коробка передач
20	windshield wiper	T	задний мост
21	source of power	U	двигатель (силовая установка)
22	fuel	V	тормоза
23	cooling	W	карданный вал
24	lubricating	X	шасси

Exercise 4. Write out the answers to the questions from the text.

1. What main parts is the automobile made up of?
2. What is the function of the engine?
3. What systems does the engine include?
4. What does the chassis consist of?
5. What units does the power transmission comprise?
6. What assemblies does the running gear consist of?
7. What has the body?

Exercise 5. Translate into English.

1. Автомобиль состоит из трех основных частей: двигателя, шасси и кузова.
2. Двигатель – это источник энергии.
3. Двигатель включает в себя топливную, охлаждающую, смазывающую и электрическую системы.
4. Шасси включает в себя силовую передачу, ходовую часть, рулевую и тормозную системы.
5. Силовая передача (трансмиссия), в свою очередь, состоит из сцепления, коробки передач, карданного вала, главной передачи, дифференциала, заднего моста и полуосей.
6. Ходовая часть включает в себя раму с осями, колеса и рессоры.
7. Кузов включает в себя капот, крылья и вспомогательные аксессуары: отопитель, стеклоочистители, магнитола, кондиционер и т. п.

Exercise 6. Read and translate the text.

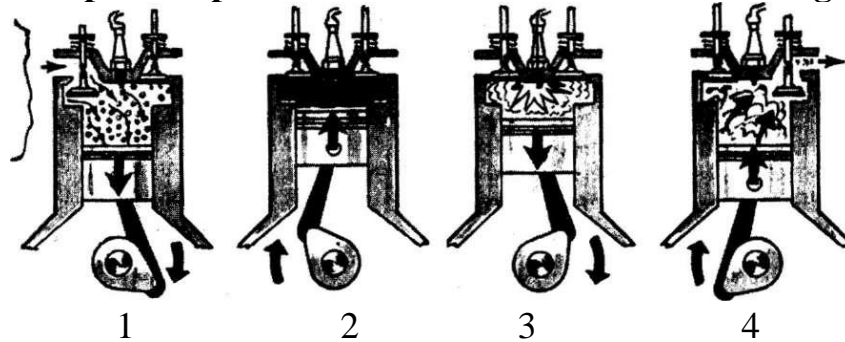
Principle of Operation of the Four-Stroke Petrol Engine

The internal combustion engine is called so because fuel is burned directly inside the engine itself. Most automobile engines work on a 4-stroke cycle. A cycle is one complete sequence of 4 strokes of the piston in the cylinder. The operating cycle of the four-stroke petrol engine includes: inlet stroke (intake valve opens), compression stroke (both valves closed), power stroke (both valves closed), exhaust stroke (exhaust valve is opened).

To describe the complete cycle, let's assume that the piston is at the top of the stroke (top dead center) and the inlet and the exhaust valves are closed. When the piston moves down the inlet valve opens to intake a charge of fuel into the cylinder. This is called the inlet (intake) stroke. On reaching the lowest position (bottom dead center) the piston begins to move upward into the closed upper part of the cylinder, the inlet valve is closed and the mixture is compressed by the rising piston. This is called the compression stroke. As the piston again reaches the top dead center the spark plugs ignite the mixture, both valves being closed during its combustion. As a result of burning mixtures the gases expand and great pressure makes the piston move back down the cylinder. This stroke is called the power stroke. When the piston reaches the bottom of its stroke, the exhaust valve is opened, pressure is released, and the piston again rises. It lets the burnt gas flow through the exhaust valve into the atmosphere. This is called the exhaust stroke which completes the cycle. So the piston moves in the cylinder down (intake stroke), up (compression stroke), down (power stroke), up (exhaust stroke).

The heat released by the fuel is transformed into work so that the reciprocating movement of the pistons is converted into rotary movement of a crankshaft by means of connecting rods.

Principle of Operation of the Four-Stroke Petrol Engine

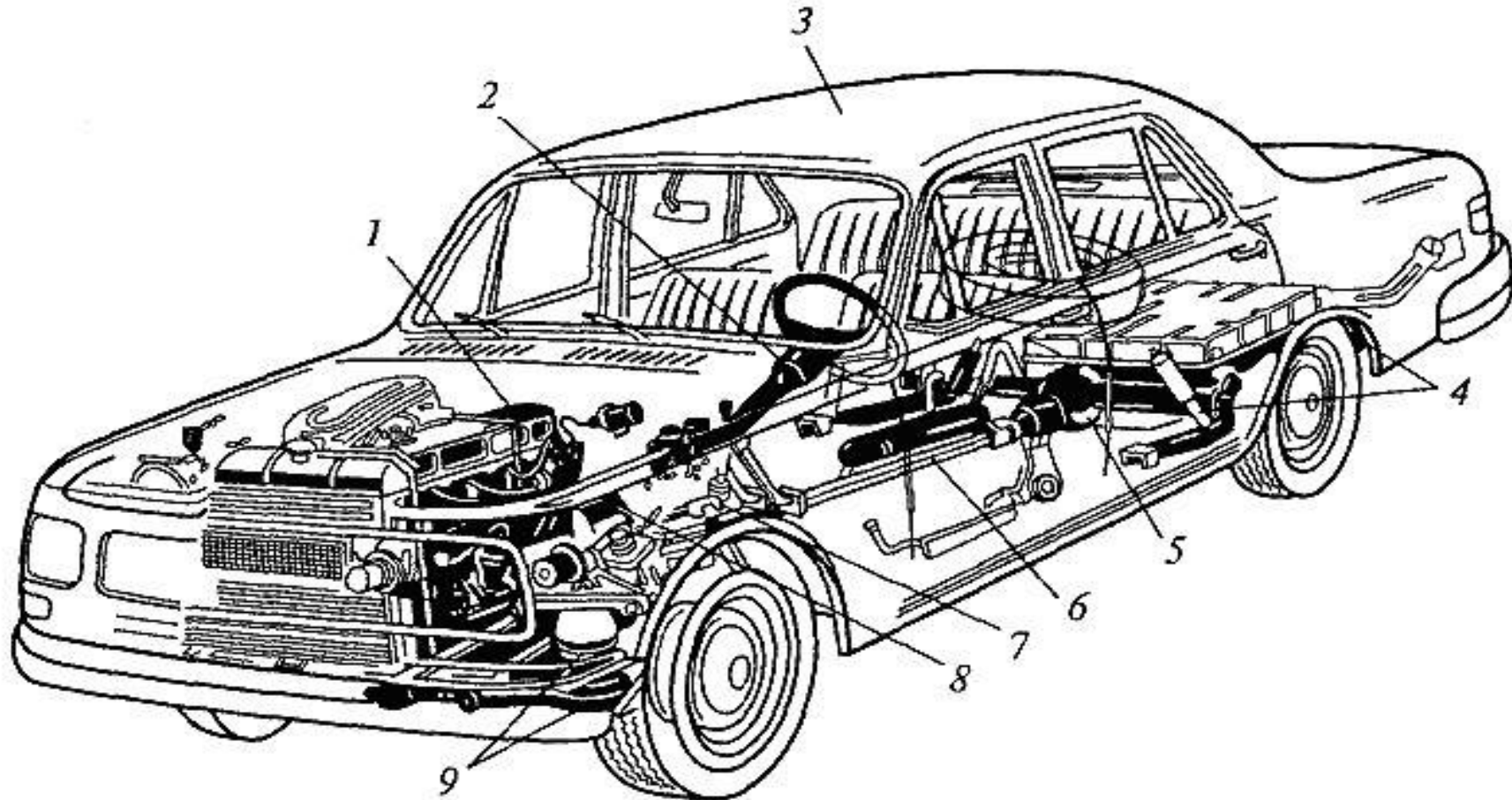


1. – intake – такт впуска, 2. – compression – такт сжатия, 3. – power – рабочий такт, 4. – exhaust – такт выхлопа

Exercise 7. Fill in the table with missing equivalents.

bottom dead			двигатель
charge of fuel		diesel engine	
	сгорание	exhaust stroke	
combustion chamber		four-stroke cycle	
compression stroke		fuel injection	
connecting rod		ignite	
crankshaft			воспламенение
	цилиндр	intake stroke (inlet)	
internal combustion engine			давление
	смесь	reciprocating movement	
operating cycle		residual gas	
petrol engine		rotary movement	
piston		spark plug	
power stroke			ход (поршня)
top dead center		valve	

Exercise 8. Find the described parts of the car on the picture.



Exercise 9. Find the correct ending of the sentences.

1. The internal combustion engine is called so because fuel is burned ...
 - a) outside the engine;
 - b) inside the engine.
2. On the inlet stroke ...
 - a) the intake valve opens;
 - b) the intake valve is closed;
 - c) the intake and the exhaust valves are closed.
3. On the compression stroke ...
 - a) the exhaust valve opens;
 - b) the intake valve is closed;
 - c) the intake and the exhaust valves are closed.
4. On the power stroke ...
 - a) the intake valve opens;
 - b) the intake valve is closed;
 - c) the intake and the exhaust valves are closed.
5. On the exhaust stroke ...
 - a) the exhaust valve opens;
 - b) the intake valve is closed;
 - c) the intake and the exhaust valves are closed.

Exercise 10. Choose the correct answer to the questions.

1. Why is the engine called the internal combustion engine?
It is called so because the fuel (the mixture) is burned ...
 - a) directly inside the engine;
 - b) outside the engine.
2. What stroke is called the inlet one?
The inlet stroke is called so because during moving down the piston ...
 - a) the inlet valve opens to intake a charge of fuel into the cylinder;
 - b) the inlet valve is closed and the mixture is compressed.
3. What is a compression stroke?
The compression stroke is a stroke ...
 - a) when the inlet valve opens to intake a charge of fuel into the cylinder;
 - b) when the inlet valve is closed and the mixture is compressed.
4. What takes place in the cylinder on power stroke?
 - a) the spark plugs ignite the mixture, both valves are closed during its combustion;
 - b) the exhaust valve is opened and the residual gas flows through the exhaust valve into the atmosphere.

5. What takes place on the exhaust stroke?

On the exhaust stroke ...

- a) the spark plugs ignite the mixture, both valves are closed during its combustion;
- b) the exhaust valve is opened and the residual gas flows through the exhaust valve into the atmosphere.

6. What means is the reciprocating movement of the pistons converted into rotary movement of a crankshaft by?

It is done ...

- a) by means of pistons;
- b) by means of the connecting rods.

TOPIC 5 “KEEPING AND REPAIRING A CAR”

Exercise 1. Learn the following words and their definitions.

a building where cars are kept: **garage**. *I put the car in the garage and went into the house*

a place where you can have your car repaired and which often sells petrol: **garage**

a person whose job is to repair cars: **(car) mechanic, garage mechanic**

to look at and repair a car, lorry, etc. to make sure it is working properly: **service sth**; *noun: service*. *My car is going to be serviced next week. When is the car due for its next service?*

to take a car, etc. to a garage to get a service: **take sth in for a service, put sth in for a service**. *I've put my car in to the garage for its 10000 mile service.*

to put sth that is old or damaged back into good condition: **repair sth, fix sth, mend sth**. *After the accident it took three weeks to repair the car. How long will it take you to fix the clutch?*

a part of the car which you can use to replace an old part which is damaged or broken: **spare part, spare**

a place, usually at a petrol station, where your car is washed automatically: **car wash**

the amount of money that you spend to keep your car in good condition: **running costs** (*noun plural*). *My Metro has very low running costs.*

Exercise 2. Read the dialogue and learn it by heart.

Tracing a Fault

Nick: Peter, I know you are a good driver. I would like you to have a look at my car.

Peter: What's wrong with your car?

N.: I don't know.

P.: Let me have a look. When did you have your plugs checked?

N.: Three days ago. I thought I had run out of fuel but the tank is half full.

P.: The carburetor is in order but the engine is misfiring. I guess the battery has run down. It needs recharging.

N.: Too bad.

P.: Don't get upset about it. It won't take you long to have your battery recharged.

N.: Do you really think so?

P.: I am sure of it. I advise you to have the engine greased.

N.: I'll follow your advice. Thank you, Peter.

P.: Don't mention it, Nick. I'm very sorry I couldn't help you.

N.: Well, you helped me to find the fault. Thanks a lot. Good-bye.

P.: See you later.

Exercise 3. Translate the sentences into English. Dramatize the dialogues.

1.

- Не знаю, что случилось с моей машиной.
- Let me trace the fault.
- Пожалуйста.
- Ты опытный водитель?
- Yes, I am. I have been driving a car for fifteen years now.
- Maybe you have run out of fuel?
- Бак почти полный.
- When did you have your plugs checked?
- Вчера. Карбюратор тоже в порядке.
- В таком случае давай поедem до ближайшей ремонтной станции.
- Good idea. They will have the car fixed.

2.

- Когда тебе починили машину?
- Last month. The engine is in good condition now. It was well greased.
- Хорошо. Мне тоже надо чинить машину. Ослабли тормоза (The brakes are slack.) Аккумулятор разрядился (The battery has run down.)
- It can be easily done.
- Я рад это слышать.

3.

- Какую машину ты хочешь купить?
- I want a second-hand car. Could you help me?
- С большим удовольствием.
- I hear there are good cars on sale 42nd Street.
- Я знаю этот магазин. Давай поедem туда.

- Good idea. If I choose a car there, I won't have to bother any more.
- Совершенно верно.

Exercise 4. Read the dialogue and retell it.

At the Repairing Shop

Client: Good afternoon! Can you help me? There is something wrong with the engine.

Master: Hi! What is wrong with it?

C.: I don't know. It wouldn't start. Maybe the pistons and valves are in disorder.

M.: Let's have a look! Well, they are quite right.

C.: And what about the crankshaft or electric spark plugs. I know absolutely nothing about the operating cycle of the engine.

M.: Just a moment. Don't worry! We shall check up all units and how they work together.

Some time later

M.: My God! There is no petrol in the tank. How can you move drive?

C.: Really? Oh, I have forgotten to fill in the tank! I beg your pardon to trouble you!

M.: No trouble, at all. You are welcome!

TOPIC 6 “FRAME”

Exercise 1. Learn the following words and their equivalents.

frame – рама

twist – кручение

support – опора

suspension – подвеска

body – кузов

channel section – полая секция

longitudinal members – лонжероны

to weld – сваривать

cross members – поперечины

to rivet – заклепывать

to reinforce – усиливать

to insulate – изолировать

rigid – жесткий

rubber pad – резиновая прокладка

mining – прочный

unibody construction – конструкция с несущим кузовом

withstand strains – выдерживать нагрузки

to strengthen – укреплять

Exercise 2. Translate into Russian the international words.

Chassis, structure, system, integral, construction, steel, vibration, passenger, metal, contact.

Exercise 3. Translate into Russian paying attention to the suffixes.

To found – foundation; frame – frameless; to construct – construction; structure – structural – structurally; to attach – attachment; to vibrate – vibration; to insulate – insulation; usual – usually.

Exercise 4. Read and translate the text.**FRAME**

The foundation of the automobile chassis is the frame which provides support for the engine, body and power-train members. Cross members reinforce the frame. The frame is rigid and strong so that it can withstand the shocks, vibrations, twists and other strains to which it is put on the road.

The frame provides a firm structure for the body, as well as a good point for the suspension system. There are two types of frames, namely: conventional frames and integral (unibody) frames (frameless constructions).

Conventional frames are usually made of heavy steel channel sections welded or riveted together. All other parts of the car are attached to the frame. In order to prevent noise and vibrations from passing to the frame and from there to the passengers of the car, the frame is insulated from these parts by rubber pads. It is also important to insulate the frame in order to prevent metal-to-metal contacts.

Frameless (unibody) constructions are called so because they are made integral with the body. The body parts are used to structurally strengthen the entire car. Some unibody frames have partial front and rear frames for attaching the engine and suspension members.

Exercise 5. Pick out from the text the corresponding equivalents.

Лонжероны, поперечины, жесткий, прочный, выдерживать нагрузки, подвеска, обычная (общепринятая) рама, безрамная конструкция, полые секции, сваренные или заклепанные, прикреплять к раме, резиновые прокладки, укреплять.

Exercise 6. Find the answers to the questions in the text.

1. What does the frame provide?
2. Why is the frame rigid and strong?
3. What types of frames are there?
4. What is the conventional frame made of?
5. What is the frame insulated from the other car parts by? For what purpose?

6. What do you know about unibody frames?

Exercise 7. Find the correct ending (on the right) to the given beginning (on the left).

1. The frame provides support for....	a. channel sections welded together.
2. Conventional frames are made of....	b. prevent noise and vibrations from passing to the passengers.
3. Tameless constructions are made....	c. cross members.
4. The frame is insulated from other parts in order to	d. the engine, body and power train members.
5. The frame is reinforced by....	e. integral with the body.

Exercise 8. Translate the sentences into Russian paying attention to Complex Object.

1. We know the frame to be the structural centre of any car.
2. Car specialists consider the conventional frame to be extremely rigid and strong.
3. We know the frame to be insulated from the other parts by rubber pads to prevent metal-to-metal contacts.
4. Many specialists consider the body parts are used to structurally strengthen the entire car.
5. The manufacturers believe the unibody constructions to be called so because they are made integral with the body.

Exercise 9. Translate the text without using a dictionary.

The frame is a structural centre of any car as it provides support for the engine, body, wheels and power-train members.

Cross members reinforce the frame and provide support for the engine and wheels. The frame is extremely rigid and strong. The engine is attached to the frame in three or four points and insulated in these points by some rubber pads to prevent vibration and noise from passing to the frame and thus to the passengers. There are two types of frames: conventional construction and unibody one.

Exercise 10. Translate into English.

1. Рама обеспечивает опору для кузова, двигателя и узлов силовой передачи.
2. Она состоит из лонжеронов и поперечин, которые усиливают раму.

3. Рама должна выдерживать вибрацию, кручения и другие нагрузки (напряжения).
4. Рамы бывают двух типов: обычные (стандартные) и выполненные воедино с кузовом.
5. Стандартные рамы изготовлены из стальных полых секций, сваренных или заклепанных вместе.
6. Безрамные конструкции выполнены воедино с кузовом.
7. Рама изолируется от кузова резиновыми прокладками, чтобы шумы и вибрации не проходили к пассажирам автомобиля.

Exercise 11. Read, translate and learn the dialogue by heart.

Stas: Hi! Seen you for ages! How are you?

Vlad: Hi! I'm perfectly well! I am working at a repairing shop. Very interesting I can tell you.

S.: What are you doing there?

V.: Now, we are testing the frame. You see, the driver has got into trouble. Something is wrong with his car. He thinks it is the frame.

S.: Has the car a conventional frame or a unibody frame?

V.: Unibody frame.

S.: I think you have to do a lot of work as body parts strengthen the entire car.

V.: Sure. We are testing all parts in order to find out the damage.

S.: I think you will cope with the problem.

Notes:

seen you for ages – не видел тебя сто лет;

perfectly well – прекрасно;

to get into trouble – попасть в беду;

to be wrong with – что-то не так;

sure – конечно (без сомнения);

to find out the damage – отыскать повреждение;

to cope with – справиться (с проблемой)

LABORATORY WORKS

LABORATORY WORK 1

Exercise 1. Read the following words and word-combinations. Learn their Russian equivalents.

to invent – изобретать

a breaker point ignition – прерывистое зажигание

advanced – усовершенствованный

to fire the spark plug – воспламенять свечой зажигания

to meet emission control levels – отвечать требованиям по ограничению уровня вредных компонентов в выхлопных газах

gas mileage – пробег в милях на галлон топлива

smooth operation – плавная работа

to provide – обеспечить

onboard computer system – бортовой компьютер

hardware – аппаратная часть компьютера

software – программное обеспечение

CPU – Central Processing Unit – центральный процессор

integrated circuit – интегральная схема

semiconductor – полупроводник

silicon – кремний

until – пока не

specific sequence – специальная последовательность

permanent memory – постоянная память

ROM – read only memory – постоянная память, постоянное запоминающее устройство, ПЗУ

RAM – random access memory – оперативная память, оперативное запоминающее устройство, ОЗУ

PROM – programmable read only memory – программируемое постоянное запоминающее устройство, ППЗУ

trouble code – неисправный код

expensive – дорогостоящий

adaptive memory – адаптивная память

Exercise 2. Read the following words and compare their meaning with the corresponding Russian words.

To transform, battery, voltage, regulation, system, computer, microprocessor, transistor, diode, chip, material, electricity, magnetic, program, defective, limit, to compensate, variation, code.

Exercise 3. Translate the following words paying attention to the prefixes and suffixes.

To ignite – **ignition**, to transform – **transformation**, to regulate – **regulation**, to break – **breaker**, to conduct – **conductor**, to process – **processor**, to specify – **specific**, to adapt – **adapter** – **adaptive**, to expense – **expensive**, to adjust – **adjustment**, to connect – **disconnect**, to learn – to **relearn**.

Exercise 4. Read and translate the text in written form.

USING COMPUTER

Ever since the car was first invented, a breaker point ignition has been used to transform battery voltage into 20,000 volts to fire the spark plugs. With government intervention and regulation, more advanced system was needed. This system had to meet emission control levels, gas mileage, and provide a smooth and continuous operation. The answer was found in an on-board computer system. The computer mounted on modern cars has two components. One is the hardware and the other is the software.

The computer hardware on an automobile uses a Central Processing Unit (CPU), which, when made in an integrated circuit, is referred to as a microprocessor. The integrated circuit (IC) combines transistors, diodes, and capacitors, which are placed on a tiny chip of semiconductor material that is smaller and thinner than an eraser on a pencil. The material used most of the time is silicon. Silicon, like any semiconductor, does not conduct electricity until either voltage, a magnetic field, heat, or light is directed to the semiconductor. A program instructs the microprocessor what to do.

The computer software on a car carries a program. The program tells the computer what to do, and when to do it in a specific sequence. The program is stored in a permanent memory, which is referred to as Read Only Memory (ROM). The computer knows only what is placed in its memory.

There is another variation, which is called the Programmable Read Only Memory (PROM), which can be readily removed and replaced, while the ROM cannot. This makes it less expensive if the memory becomes defective. Only the PROM has to be replaced, not the entire microprocessor. The microprocessor contains a ROM (or PROM) and a RAM. RAM stands for Random Access Memory, which can be accessed without going through a specific sequence. The technician interfaces with the RAM whenever trouble codes are accessed. Not all computerized ignition systems have trouble codes, however. Some computers have the ability to learn. This is referred to as an adaptive memory. When a value falls outside of a specified limit, due to engine wear, the adaptive memory makes a slight adjustment in the program to compensate. The car must be driven from 20 to 30 miles, as it takes the computer this long to learn. Any time that power is disconnected from the computer, it will have to relearn everything.

Exercise 5. Translate into English.

1. Многие современные автомобили оборудованы бортовыми компьютерными системами для лучшей работы автомобиля.
2. Программа такого компьютера имеет только два запоминающих устройства: постоянную память (ПЗУ) и оперативную память (ОЗУ).
3. Компьютерная программа сообщает компьютеру, что надо делать и когда необходимо выполнить данное действие в соответствующей последовательности.
4. Программа хранится в постоянной памяти компьютера.
5. Микропроцессор содержит в себе постоянную и оперативную память.
6. Некоторые компьютеры обладают способностью запоминать (заучивать). Это относится к адаптивной памяти.

LABORATORY WORK 2**Exercise 1. Read the following words and word-combinations. Learn their Russian equivalents.****brakes** – тормоза**to force the fluid** – подавать жидкость**performance** – работа**under pressure** – под давлением**safety** – безопасность**brakes are applied** – тормоза срабатывают**to depend** – зависеть**to slow** – замедлять**braking effort** – тормозное усилие**to divide** – разделять**to push down on the brake pedal** – нажать на тормозную педаль**namely** – именно**drum brakes** – барабанные тормоза**band brake** – ленточный тормоз**disk brakes** – дисковые тормоза**shoe brake** – колодочный тормоз**hydraulic assisted brakes** – тормоза с гидравлическим приводом**brake shoes** – колодки тормоза**brake fluid** – тормозная жидкость**brake pedal** – тормозная педаль**master cylinder** – главный цилиндр

Exercise 2. Read and translate the international words.

Mechanism, passenger, type, hydraulic, cylinder, vacuum, function, classify, classification, mechanical, electric, electromagnet.

Exercise 3. Translate the following words paying attention to the suffixes.

Safe – safety; to improve – improvement; to move – movement; to drive – driver; to apply – application; to attach – attachment; to arrange – arrangement; to perform – performance; name – namely; to operate – operation; to equip – equipment.

Exercise 4. Read and translate the text in written form.

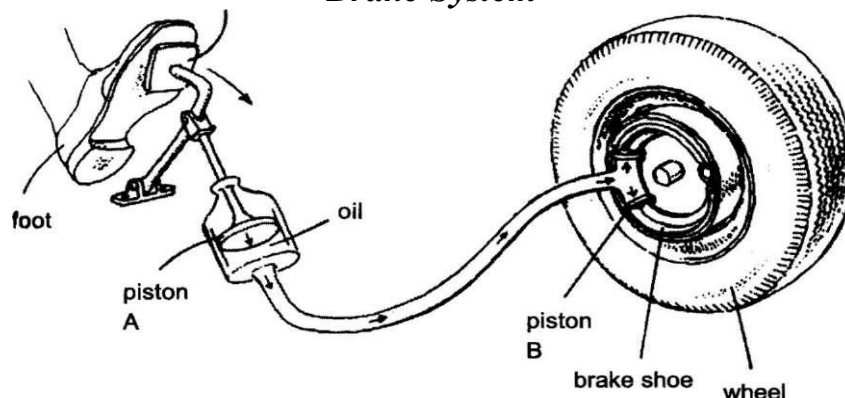
BRAKES

Brakes are used to slow or stop the car where it is necessary. It is one of the most important mechanisms of the car as upon its proper performance the safety of passengers depends. Car brakes can be divided into two types, namely: drum brakes and disc brakes. The drum type may be either a band brake or a shoe brake. Depending on their functions, the automobile has foot brakes and hand brakes (parking brakes). According to their mode of operation, the brakes are classified as: mechanical brakes, hydraulic brakes, airbrakes, electric brakes. Brakes are controlled by the brake pedal.

Most braking systems in use today are hydraulic. This system consists of a master cylinder mounted on the car frame and wheel cylinders. When the driver pushes down on the brake pedal, it forces the piston to move in the master cylinder and brake fluid is delivered from it to the wheel cylinders. The piston movement causes brake shoes to move and the brakes are applied (the brake shoes are pressed against the brake drums).

The air brake uses compressed air to apply the braking force to the brake shoes. Electric brakes use electromagnets to provide the braking effort against the brake shoes. Formerly brakes were applied only to the two rear wheels, but now all cars are equipped with all-wheels brakes. Today many improvements are being made in brakes.

Brake System



Exercise 5. Find in the text the English equivalents to the following Russian terms. Write them out.

Тормоза, безопасность пассажиров зависит от правильной работы тормозов, барабанные тормоза, дисковые тормоза, тормоза с усилителем, гидравлический привод тормозов, жидкость под давлением, тормоза срабатывают, тормозное усилие, нажать на тормозную педаль.

Exercise 6. Translate into English.

1. Тормоза являются наиболее важным механизмом автомобиля.
2. Они используются для замедления движения или остановки автомобиля.
3. Тормоза можно разделить на два типа, а именно: барабанные тормоза и дисковые тормоза.
4. На большинстве автомобилей используется гидравлический привод или пневматический привод.
5. Тормоза срабатывают, когда водитель нажимает на тормозную педаль.

LABORATORY WORK 3

Exercise 1. Read the following words and word-combinations. Learn their Russian equivalents.

To guide the car – управлять автомобилем

means of turning – средство поворота

front wheels – передние колеса

steering wheel – рулевое колесо

steering column – рулевая колонка

for this purpose – для этой цели

pivot – шарнир

to swing (swung, swung) – поворачиваться

steering knuckle arm – рычаг поворотного кулака

tie-rod – поперечная тяга

in turn – в свою очередь

pitman arm – рулевая сошка

rack and pinion assembly – рулевой механизм с рейкой и шестерней

ball joint – шаровой шарнир

leverage – рычажный механизм

hose – шланг, рукав

steering gear assembly – рулевой механизм

rack and pinion type – реечно-шестеренчатый тип (рулевого механизма)

recirculating ball steering – рулевой механизм с шариковой гайкой

worm and sector – червяк и сектор

injury – повреждение

steering box – картер рулевого механизма

Exercise 2. Read and compare the meanings of words in English and Russian.

column, spindle, system, hydraulic, pump, reservoir, popular, type, effective, effectiveness, effectively, energy, function, to deform, deformation.

Exercise 3. Translate the following words paying attention to the suffixes and prefixes.

To rotate – rotation, to apply – application, to move – movement, to develop – development, to drive – driver, to form – to reform – to deform – deformation, to guide – guidance.

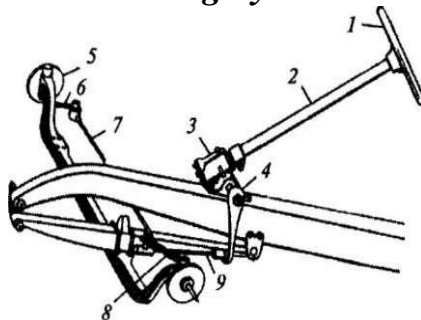
Exercise 4. Read and translate the text in written form.

STEERING SYSTEM

To guide the car, it is necessary to have some means of turning the front wheels so that the car can be pointed in the direction the driver wants to go. The steering wheel in front of the driver is linked by gears and levers to the front wheels for this purpose. The front wheels are on pivots so they can be swung to the left or right. They are attached by steering knuckle arms to the rods. The tie-rods are, in turn, attached to the pitman arm.

When the steering wheel is turned, gearing in the steering gear assembly causes the pitman arm to turn to the left or right. This movement is carried by the tie-rods to the steering knuckle arms, and wheels, causing them to turn to the left or right.

Steering System



1. steering wheel – рулевое колесо
2. steering column, steering mast – рулевая колонка
3. steering gear – рулевой механизм
4. steering arm, steering lever, (steering) pitman arm – рулевая сошка

5. steering knuckle – поворотная цапфа, поворотный кулак
6. steering knuckle lever, steering knuckle arm – рычаг поворотного кулака
7. single tie-rod – неразрезная поперечная рулевая тяга
8. steering knuckle lever, steering knuckle arm – рычаг поворотного кулака
9. drag link, steering gear connecting rod, steering drag rod – продольная рулевая тяга

The steering system incorporates: the steering wheel and column, steering gear, pitman arm, steering knuckle arm, front axle, steering knuckle pivot, tie-rods.

There are several different manual steering gears in current use, such as the rack and pinion type and the recirculating ball type. The rack and pinion steering gear is widely used. Another manual steering gear which is popular in imported cars is the worm and sector type.

The steering wheel and column are the source of injury to the driver, air bags and other devices being developed now to save the life of a driver.

Energy-absorbing columns must stop the steering wheel and column from being pushed to the rear as the front of the car is crushed in an impact.

Energy-absorbing columns must also provide the driver with a tolerable impact as he moves forward and strikes the wheel with his chest.

Exercise 5. Translate into English.

1. Для управления автомобилем необходима система рулевого управления.
2. Рулевое управление включает в себя: рулевое колесо и рулевую колонку, зубчатое соединение, рулевую сошку, рычаги поворотного кулака и шарнирные соединения, рычаги и поперечные тяги.
3. Существуют различные типы рулевых механизмов, а именно: реечно-шестеренчатый тип, механизм с шаровой гайкой, механизм с червяком и сектором.
4. Когда водитель поворачивает руль влево или вправо, то рулевой механизм заставляет рулевую сошку поворачиваться влево или вправо.
5. Это движение передается поперечными тягами к рычагам поворотных кулаков и к колесам, заставляя их поворачиваться влево или вправо.

ACHIEVEMENT TEST

Английский язык для специальных целей
ИПК и П 20__ – 20__ учебный год

ФИО слушателя _____

Контрольная работа

Переведите письменно тексты, обращая внимание на выделенные обороты.

Текст № 1

The automobile is known to be made up of three basic parts: the engine, the body and chassis, **the engine being the source of power. We know the body to include** the hood and fenders and accessories. The body **should** provide protection to the passengers from wind, cold and rain. Thus **to shape** a car means **to do** it in such a way that it offers small resistance to the air. Brakes are necessary **for stopping** the car. Most braking systems **used today** are hydraulic.

Текст № 2

We know the chassis to be one of the most important units of the car. **The chassis is known to consist** of a power train, a frame with axles, wheels and springs. It **should** be noted that the chassis includes the brake and the steering systems as well. Brakes are necessary **to stop** the car. Springs are used with additional devices **called shock absorbers**. The front wheels are attached to the rods by steering knuckle arms, **the same wheels being on** pivots.

Текст № 3

We know the power train to include the clutch, gearbox, propeller shaft, rear axle, final drive and differential. The clutch is used **for engaging** the engine with the gearbox, **the gearbox being located between the clutch and the propeller shaft. The clutch is known to consist** of two plates **incorporated** within the flywheel housing. **To shape** the car means **to make it** in such manner that it offers small resistance to the air.

Текст № 4

We know the engine to be the source of power. In some types of engines a V-type fan belt is utilized to drive the fan, **the same belt being used for driving** the generator pulley and the water pump. **The engine is known to comprise** the fuel, cooling, electric and lubricating systems. **It should be** noted that the gasoline pump is operated from the cam-shaft by the engine, **called also the power plant. To guide** the car means **to turn** it in one direction or the other.

Текст № 5

Brakes are known to be one of the most important mechanisms of the car. They are necessary **for stopping** the car. Most braking systems **used today** are hydraulic, **many vehicles are using power** brakes. **We know the brakes to be applied to** four wheels.

In order to stop the car, the driver **should** press down on the pedal. When the pedal is pressed down, the brakes are applied and the car is stopped.

Текст № 6

In order to drive the car, the driver should have some means of **turning** the front wheels. **We know the steering wheel to be located** at the front of the driver. It is linked by gears and levers to the front wheels, **these wheels being on pivots. The front wheels are known to swing** to the left or right when the steering wheel is turned in one direction or the other. The front wheels are attached to the rods, the rods are, in turn, attached to the pitman arm.

LITERATURE

1. Шляхова, А.В. Английский язык для студентов автомобилестроительных специальностей средних профессиональных учебных заведений : учеб. пособие / А.В. Шляхова. – М. : Высш. шк., 2008. – 120 с.