

Министерство образования и науки Российской Федерации
Вологодский государственный университет

Машиностроительный техникум

АНГЛИЙСКИЙ ЯЗЫК

Методические указания по чтению и переводу
для студентов 3 курса

Специальность 190631 «Техническое обслуживание
и ремонт автомобильного транспорта»

Вологда
2014

УДК

Английский язык: методические указания по чтению и переводу. – Вологда: ВоГУ, 2014. – 35 с.

Методические указания разработаны на основе Федерального государственного образовательного стандарта (ФГОС) по специальности среднего профессионального образования 190631 «Техническое обслуживание и ремонт автомобильного транспорта» и адресованы студентам очной формы обучения.

Утверждено редакционно-издательским отделом ВоГУ

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ПРЕДИСЛОВИЕ

Методические указания разработаны для студентов третьего курса средних профессиональных учебных заведений по специальности среднего профессионального образования 190631 «Техническое обслуживание и ремонт автомобильного транспорта» и предназначены для использования на практических занятиях по английскому языку.

Методические указания написаны на основе рабочей программы, которая соответствует Федеральному государственному образовательному стандарту.

В методических указаниях представлены теоретический материал изучаемого курса, задания для его практического применения, перечень тем для самостоятельной работы, которая развивает творческое мышление, умение пользоваться справочной литературой, помогает осмыслению изученного материала, стимулирует приобретение дополнительных специальных знаний и применение полученных знаний на практике.

Методические указания являются самостоятельным пособием для развития навыков чтения, извлечения и обработки информации.

Тексты и упражнения в работе распределены по темам, они информативны и профессионально ориентированы. Каждый текст предваряется заданиями, выполнение которых облегчает задачу его понимания и последующей работы с ним на послетекстовом этапе. В процессе работы над текстом усваивается лексика, что должно сформировать умение читать иноязычную статью по специальности с общим охватом содержания и, если необходимо, с точным пониманием всех его деталей при минимальном обращении к словарю.

Степень проработки того или иного текста определяется преподавателем в соответствии с целями и уровнем подготовленности группы.

В конце методических указаний помещен библиографический список.

PART I

Unit One

Text: Automobile Production

Предтекстовые упражнения

The exercises to be done before reading the text

Упражнение 1. Прочтите слова и словосочетания и запомните их русские эквиваленты.

technician — техник

deal with manufacturing cars—

иметь дело с производством
автомобилей

**work out the technology of
manufacturing processes** — раз-
рабатывать технологию произ-
водственных процессов

put into mass production — за-
пустить в массовое
производство

subject to tests — подвергать
испытаниям

dependable brakes— надежные
тормоза

driving safety — безопасность
управления автомобилем

long service life — долгий срок
службы

rapid acceleration — приеми-
стость

ease of maintenance — простота
техобслуживания

**meet up-to-date demands
(requirements)** — отвечать со-
временным требованиям

be stable on the road — быть
устойчивым на дороге

ignition system — система зажи-
гания

fuel consumption — расход топ-
лива

car — легковой автомобиль

truck грузовой автомобиля

Упражнение 2. Переведите предложения на русский язык, обращая внимание на термины.

1. After graduating from the college I shall become a technician.
2. I shall deal with manufacturing cars.
3. The production of the automobile comprises five phases, such as: designing, working out the technology of manufacturing processes, laboratory tests, road tests, mass production.
4. The automobile of today must have high efficiency, long service life, driving safety, ease of maintenance and be stable on the road.
5. The automobile must meet up-to-date demands, that is, it must have rapid acceleration, smooth-acting clutch, silent gearbox, dependable braking and steering systems, dependable ignition system.
6. Before the car is put into mass-production it must be subjected to laboratory and road tests.
7. Technicians should know the technology of manufacturing processes.

Упражнение 3. Прочтите и переведите интернациональные слова.

Specialist, automobile, industry, production, phase, technology, process, test, mass, fact, service, comfortable, ecological, method, type, corrosion, material, optimal, problem, mechanism, control, system.

Прочтите и переведите текст, а затем выполните следующие за ним упражнения.

TEXT

Automobile Production

I study at the college, at the automobile-construction department. When I graduate from the college I shall become a technician. All specialists in automobile industry dealing with manufacturing automobiles (cars or trucks) must know that the production of the automobile comprises the following phases:

- designing;
- working out the technology of manufacturing processes;
- laboratory tests;
- road tests;
- mass manufacturing (production).

Why is it necessary to know all these facts? It is important to know them, as before the automobile is put into mass production it should be properly designed and the car must meet up-to-date requirements. What are these requirements?

The automobile must have high efficiency, long service life, driving safety, ease of handling and maintenance, pleasant appearance. Also it must be comfortable and ecological. In order to obtain these qualities the specialists should develop up-to-date methods of designing cars using new types of resistant to corrosion light materials. Also it is important to know computer sciences because computers offer quick and optimal solutions of the problems. Besides they are used for better operation of mechanisms in cars.

Before the car is put into mass production the units of the car are subjected to tests in the Works laboratory and then the car undergoes a rigid quality control in road tests. Why are these tests required? What qualities are required of the automobile? They are needed because the modern automobile must be rapid in acceleration, have smooth acting clutch, silent gearbox, dependable braking and steering systems, dependable ignition system, low fuel consumption and be stable on the road.

Послетекстовые упражнения

The exercises to be done after reading the text

Упражнение 4. Найдите и выпишите из текста слова, относящиеся:

- а) к производству автомобиля;
- б) к характеристикам автомобиля. Дайте их русские эквиваленты:

Упражнение 5. Найдите в тексте ответы на вопросы:

1. What department do you study at?
2. What will you become after graduating from the college?
3. What should automobile specialists know?
4. What phases does the production of the automobile comprise?
5. What requirements must modern automobiles meet?
6. Why are automobile units and mechanisms subjected to laboratory and road tests?
7. What qualities are required of the automobile?
8. Why are computers used in cars?

Упражнение 6. Закончите предложения, выбрав соответствующий вариант окончания.

1. An automobile specialist deals with
 - a. working out technological processes;
 - b. constructing and manufacturing cars;
 - c. producing new resistant to corrosion light materials.
2. The production of the automobile comprises
 - a. designing and mass production;
 - b. manufacturing and tests;
 - c. designing and working out technological processes, laboratory and road tests and mass production.
3. The cars are subjected to tests in order....
 - a. to work out new technological processes;
 - b. to meet up-to-date requirements;
 - c. to shorten the time between designing and manufacturing.
4. The qualities required of the automobile are
 - a. high efficiency, long service life, driving safety and pleasant appearance;
 - b. smooth acting clutch, silent gearbox, dependable braking and steering systems;
 - c. new types of resistant to corrosion materials.
5. The car must have the following units:....
 - a. high efficiency, long service life, driving safety and pleasant appearance;
 - b. smooth-acting clutch, silent gearbox, dependable braking and steering systems;
 - c. new types of resistant to corrosion materials.

Упражнение 7. Прочтите диалог :

DIALOGUE

Nick: Hullo, Boris!

Boris: Hullo, Nick. How are things?

N: Perfectly well, thank you. I entered the technical school

B: That's nice, what will you become after graduating from it?

N: I'll become a technician and deal with new cars.

B: Why did you choose this profession?

N: I enjoy learning about a car. I enjoy working with metal. And

most of all I enjoy being able to construct cars.

B: Do you enjoy the course?

N: Yes, of course.

B: Tell me about your profession in detail, please?

N: With great pleasure. As you know the car of today must be rapid in acceleration, it must have dependable clutch, brakes, and steering system, be stable on the road and have pleasant appearance . You know the production of the car comprises five phases.

A: What are they?

B: They are designing, working out the technology, laboratory tests, road tests, mass production.

A: And why are laboratory and road tests needed?

B: The cars are subjected to tests in order to meet up-to-date demands.

A: And what are these demands?

B: They are high efficiency, long service life, driving safety, ease of maintenance and so on.

And in order to achieve these qualities a lot of work must be done.

B: Thank you very much for your information. I believe you like your profession very much.

N: Oh, yes, very much, indeed.

Упражнение 8. Найдите в тексте диалога английские эквиваленты следующих русских слов и выражений и запишите их:

Учусь в техникуме, техник, люблю работать с машинами, современный автомобиль, надежные тормоза, плавное сцепление, приятный внешний вид, массовое производство автомобилей, стендовые испытания, отвечать современным требованиям, долгий срок службы, легкость техобслуживания, надежность, быстро разгоняться (приёмистость), подвергаться дорожным испытаниям

Unit Two

Text: Components of the Automobile

Dialogue

The exercises to be done before reading the text

Предтекстовые упражнения

Упражнение 1. Прочтите слова и словосочетания и запомните их русские эквиваленты.

engine (power plant) — двигатель
(силовая установка)

chassis — шасси

body — кузов

power train — силовая
передача

running gear — ходовая часть

steering system — рулевое управле-
ние

brakes — тормоза

clutch сцепление

gearbox — коробка передач

propeller shaft — карданный вал

final drive — главная передача

differential — дифференциал

rear axle — задний мост

axle shafts — полуоси

frame with axles — рама с осями

wheels and springs — колеса с
рессорами

hood — капот

fenders — крылья

heater — отопитель

windshield wiper — стеклоочи-
ститель

include — включать в себя

consist of — состоять из

as well — также

in turn — в свою очередь

source of power — источник
энергии

fuel — топливо

cooling — охлаждение

lubricating — смазка

Упражнение 2. Прочтите и переведите интернациональные слова.

Automobile, chassis, electric, system, control, differential, ventilator, cylinder.

Прочтите и переведите текст, а затем выполните следующие за ним упражнения.

TEXT

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.

The exercises to be done after reading the text

(Послетекстовые упражнения)

Упражнение 3. Выберите и запишите термины, данные ниже, которые относятся к:

the engine (двигателю); the chassis (шасси); the body (кузову).

Fuel system, axle shaft, accessories, cooling system, frame with axles, running gear, lubricating system, steering system, heater, propeller shaft, power transmission, final drive, windshield wiper, clutch, wheels and axle shafts, gearbox, electric system, differential.

Дайте русские эквиваленты приведенных выше терминов.

Упражнение 4. Найдите в тексте ответы на вопросы:

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?

Упражнение 5. Закончите предложения, выбрав соответствующее по смыслу окончание.

1. The automobile is made up of...	1. a power transmission, running gear, steering and braking systems.
2. The engine is ...	2. the clutch, gearbox, propeller shaft, final drive, differential and axle shafts.
3. The engine includes ...	3. a hood, fenders and accessories.
4. The chassis consists of...	4. the engine, the chassis and the body.
5. The power transmission comprises ...	5. a frame with axles, wheels and springs.
6. The running gear consists of.. .	6. the source of power.
7. The body has ...	7. fuel, cooling, electric and lubricating systems.

Упражнение 6. Найдите в тексте английские эквиваленты предложений и запишите их.

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, магнитолу, кондиционер и т. п.

Упражнение 7. Прочтите диалог несколько раз, а затем выполните следующие за ним упражнения.

DIALOGUE

A: Do you know what parts the automobile is made up of?

B: Certainly. It is made up of the engine, the chassis and the body,

A: What is the source of power?

B: The source of power is the engine. It includes fuel, cooling, lubricating and electric systems.

A: And what does the chassis consist of?

B: It consists of a power transmission, running gear, steering and braking systems. By the way, the power transmission, in turn, comprises the clutch, gearbox, propeller shaft, final drive, differential, rear axle and axle shafts.

A: And what has the body?

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

A: Thank you very much for your information.

B: Don't mention it. I am glad to help you.

Упражнение 8. Найдите в диалоге слова и словосочетания, эквивалентные русским словам и словосочетаниям, приведенным ниже.

Сделан из; шасси; кузов; включать в себя; топливная, охлаждающая, смазывающая и электрическая системы; трансмиссия; ходовая часть; рулевая и тормозная системы; карданный вал; главная передача; дифференциал; задний мост; полуоси; капот; крылья; вспомогательные устройства; стеклоочистители.

Упражнение 9. Закончите предложения, используя необходимые слова или словосочетания, данные ниже.

A: What parts does the automobile ... ?

B: It is made up of...

A: What is...?

B: The source of power is the ...

A: What systems does the engine ...?

B: It includes ...

A: What does the chassis ... ?

B: The chassis

A: What does the power train include?

B: The power train includes ...

A: What units does the body comprise?

B: It comprises ... and accessories such as ...

A: Thank you for your

Engine, chassis, body, power train, running gear, steering system, brakes, clutch, gearbox, propeller shaft, final drive, differential, rear axle, axle shafts, hood and fenders, heater, windshield wipers, information, conditioner, consist(s) of, the source of power, include, fuel, cooling, lubricating, electric systems.

Упражнение 10. Выпишите из правой колонки русские слова и словосочетания, соответствующие английским из левой колонки.

- | | |
|------------------------|--------------------------------|
| 1. power plant | a. сцепление |
| 2. chassis | b. силовая передача |
| 3. body | c. главная передача |
| 4. power train | d. колеса |
| 5. running gear | e. система рулевого управления |
| 6. steering system | f. капот |
| 7. brakes | g. полуоси |
| 8. clutch | h. ходовая часть |
| 9. gearbox | i. топливная система |
| 10. propeller shaft | j. стеклоочистители |
| 11. final drive | k. коробка передач |
| 12. rear axle | l. система смазки |
| 13. axle shafts | m. силовая установка |
| 14. frame | n. рама |
| 15. wheels | o. в свою очередь |
| 16. springs | p. тормоза |
| 17. hood | q. рессоры |
| 18. fenders | r. также |
| 19. windshield wipers | s. шасси |
| 20. fuel system | t. карданный вал |
| 21. cooling system | u. задний мост |
| 22. lubricating system | v. источник энергии |
| 23. in turn | w. система охлаждения |
| 24. as well | x. крылья |
| 25. source of power | y. кузов |

Упражнение 11. Ответьте на вопросы.

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?

Упражнение 12. Выберите и запишите соответствующий описанию механизм.

1. Mechanism which is used to stop the car.
a) clutch; b) brakes; c) gearbox; d) steering system.
2. Mechanism which is used to guide the car.
a) clutch; b) brakes; c) gearbox; d) steering system.
3. Mechanism which engages or disengages the engine and the car wheels.
a) clutch; b) brakes; c) gearbox; d) steering system.
4. Mechanism which is used to change the speed of the car.
a) clutch; b) brakes; c) gearbox; d) accelerator.
5. Mechanism which is used to guide the car in one or the other directions.
a) clutch; b) brakes; c) gearbox; d) steering system.
6. Device which is designed to measure the speed of the car.
a) heater; b) windscreen; c) speedometer; d) tachometer.

Unit Three

Text: Principle of Operation of the Four-Stroke Petrol Engine

The exercises to be done before reading the text

Предтекстовые упражнения

Упражнение 1. Прочтите слова и словосочетания и запомните их русские эквиваленты.

bottom dead center — нижняя мертвая точка

charge of fuel — заряд топлива

combustion — сгорание

combustion chamber — камера сгорания

compression stroke — такт сжатия (смеси)

connecting rod — шатун

crankshaft — коленчатый вал

cylinder — цилиндр

diesel engine — дизельный двигатель

engine — двигатель

exhaust stroke — такт выпуска

four-stroke cycle — четырехтактный цикл

fuel injection — впрыск топлива

ignite — воспламенять

ignition — воспламенение

intake (inlet) stroke — такт впуска

internal combustion engine — двигатель внутреннего сгорания

mixture — смесь

operating cycle — рабочий цикл

petrol engine — бензиновый двигатель

piston — поршень

power stroke — рабочий ход

pressure — давление

reciprocating movement — возвратно-поступательное движение

residual gas — остаточный газ

rotary movement — вращательное движение

spark plug — свеча зажигания

stroke — ход (поршня);

top dead center — верхняя мертвая точка

valve — клапан

Упражнение 2. Переведите слова на русский язык, обращая внимание на суффиксы.

to combust — **combustion**; to operate — **operation**; to ignite — **ignition**;
to reciprocate — **reciprocation**; to connect — **connection**; to compress — **compression**; to describe — **description**.

Упражнение 3. Прочтите и переведите интернациональные слова.

Principle, cycle, piston, center, cylinder, atmosphere.

Упражнение 4. Переведите предложения на русский язык, используя терминологию упражнения 1.

1. During the inlet (intake) stroke the inlet valve opens and a charge of fuel (mixture) flows into the cylinder.
2. During the compression stroke the inlet valve is closed and the fuel is compressed by the rising piston.
3. During the power stroke both valves are closed, pressure rises in the combustion chamber, and the spark ignites the mixture.
4. During the exhaust stroke the exhaust valve is opened, pressure is released and the residual gases flow into the atmosphere through the exhaust valve.

Прочтите и переведите текст, а затем выполните следующие за ним упражнения.

TEXT

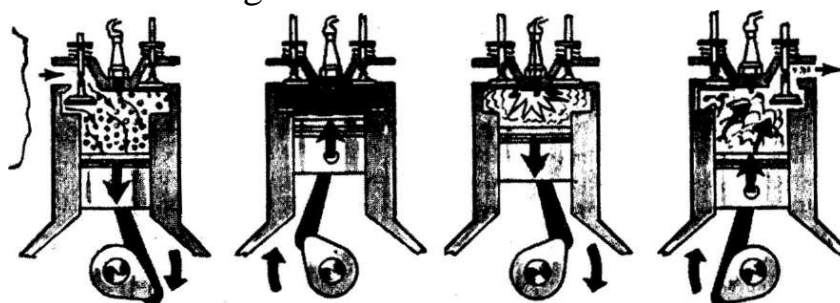
Principle of Operation of the Four-Stroke Petrol Engine

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 on 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.



1 - intake 2 - compression 3 - power 4 - exhaust

Рис. 1. Principle of Operation of the Four-Stroke Petrol Engine

1. **intake** — такт впуска 3. **power** — рабочий такт
2. **compression** — такт сжатия 4. **exhaust** — такт выхлопа

The exercises to be done after reading the text

Послетекстовые упражнения

Упражнение 5. Найдите в тексте абзацы, где идет речь о такте впуска, о такте сжатия, о рабочем ходе, о такте выпуска и переведите их на русский язык.

Упражнение 6. Выберите правильные по смыслу ответы на вопросы.

1. Why is the engine called the internal combustion engine?
2. What stroke is called the inlet one?
3. What is a compression stroke?
4. What takes place in the cylinder on power stroke?
5. What takes place on the exhaust stroke?
6. By means of what is the reciprocating movement of the pistons converted into rotary movement of a crankshaft?
 1. It is called so because the fuel (the mixture) is burned...
 - a) directly inside the engine;
 - b) outside the engine.

2. 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. 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. 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. 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. It is done
 - a) by means of pistons;
 - b) by means of the connecting rods.

Упражнение 6. Закончите предложения, выбрав правильный по смыслу вариант окончания.

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 intake 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.

Упражнение 7. Прочтите диалог несколько раз, а затем разыграйте его в парах.

DIALOGUE

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 carburettor 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.

Упражнение 9. Переведите русские предложения на английский язык, а затем разыграйте диалоги в парах.

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. May be 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.

Упражнение 10. Прочтите диалог и расскажите, о чем в нем идет речь.

DIALOGUE B

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.

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!

Unit Four

Text: Chassis

Dialogue: Transmission Mechanism

Предтекстовые упражнения

The exercises to be done before reading the text

Упражнение 1. Прочтите слова и словосочетания и выучите их русские эквиваленты.

unit — узел, блок, агрегат

gear — шестерня

power transmission — силовая

gearbox — коробка передач
передача

tractive effort — тяговое усилие

running gear — ходовая часть

driving wheels — ведущие колеса

steering system — система руле-
вого управления

shaft — вал

car springs — рессоры

автомобиля

flywheel — маховик

rear axle — задний мост

clutch — сцепление

final drive — главная передача

friction device — фрикционное
устройство

axle shafts — полуоси

crankshaft — коленчатый вал

brakes — тормоза

Упражнение 2. Переведите слова на русский язык, обращая внимание на суффиксы.

to transmit — **transmission**; to connect — **connection**;

to found — **foundation**; to move — **movement**.

Упражнение 3. Переведите на русский язык интернациональные слова.

Transmission, system, mechanism, radiator, friction, automobile, cardan, portion, final, accelerator, pedal, position.

Упражнение 4. Переведите предложения на русский язык, используя приведенные в упражнении 1 слова.

1. The chassis includes the running gear, the power transmission and the steering mechanism.
2. The power transmission consists of the clutch, gearbox, cardan shaft, rear axle, final drive, differential and axle shafts.
3. The clutch connects the engine with the driving wheels.
4. The gearbox changes the speed of the car movement.
5. The steering mechanism changes the direction of the car.

*Прочтите и переведите текст, а затем выполните следующие за ним упражнения.

TEXT

Chassis

The main units of the chassis are: the power transmission, the running gear and the steering mechanism. The power transmission includes the whole mechanism between the engine and the rear wheels. This entire mechanism consists of the clutch, gearbox, propeller (cardan) shaft, rear axle, final drive, differential and axle shafts.

At the front end of the car is the engine. On the back of it is the flywheel. Behind the flywheel is the clutch. The clutch is a friction device connecting the engine with the gears of the gearbox. The main function of the gearbox is to change the speed of the car.

The power is always transmitted by the cardan shaft to the live back axle. The final drive reduces the high speed of the engine to the low speed of the driving wheels. The differential enables the driving wheels to turn at different speeds which is necessary when turning the car. The foundation of the automobile is the frame to which different chassis units are attached.

The rear axle is capable of moving up and down about the frame. The rear axle is an important part of the transmission. It carries the greater portion of the weight of the car.

The steering mechanism is designed for changing the direction of the car.

The brakes are used for stopping the car, for decreasing its speed and for holding the car position.

Послетекстовые упражнения

The exercises to be done after reading the text

Упражнение 5. Найдите в тексте ответы на следующие вопросы.

- 1.What main units does the chassis consist of?
- 2.Where is the engine located?
- 3.Where is the flywheel fixed?
- 4.Where is the clutch placed?
- 5.What is the gearbox designed for?
- 6.By what shaft is the power transmitted to the back axle?
- 7.What does the rear axle do?
- 8.. What is the function of the differential?
9. What purpose is the steering system designed for?
10. What is the function of the brakes?

Упражнение 6. Переведите на английский язык следующие предложения (при выполнении задания вы можете обращаться к тексту).

- 1.Основными узлами шасси являются: трансмиссия, ходовая часть и рулевой механизм.
- 2.Радиатор расположен в передней части автомобиля.
- 3.Маховик крепится на задней части двигателя.
- 4.Сцепление соединяет двигатель с коробкой передач.
- 5.Коробка передач предназначена для изменения скорости движения автомобиля.
- 6.Усилие передается карданным валом.
- 7.Главная передача снижает высокие обороты двигателя до невысоких оборотов ведущих колес.
- 8.Дифференциал позволяет ведущим колесам вращаться с разной скоростью при повороте автомобиля.
- 9.Рулевой механизм предназначен для изменения направления движения автомобиля.
- 10.Тормоза используются для остановки или снижения скорости автомобиля.

Упражнение 7. Подберите из правой колонки соответствующее описание узла или механизма автомобиля, названия, которых представлены в левой колонке.

- | | |
|-------------------|--|
| 1.differential | a).mechanism used to increase the speed of the car |
| 2.steering wheel | b).wheel used to turn the direction of the car |
| 3.clutch | c).mechanism used to transmit power to the back axle |
| 4.rear axle | d).instrument used to measure the speed of the car |
| 5.steering system | e).mechanism that slows or stops the car |
| 6.speedometer | f).mechanism used to guide the car |
| 7.brakes | g).mechanism used to engage or disengage the engine with gearbox |
| 8.gearbox | h).mechanism used to carry the greater portion of the car weight |
| 9.cardan shaft | e).mechanism used to turn the wheels at different speeds |

Упражнение 8. Прочтите диалог и разыграйте его в парах.

DIALOGUE

Transmission Mechanism

Teacher: Let's speak about the transmission mechanism. What main units does the transmission include?

Student: The transmission is the entire mechanism between the engine and the rear wheels. It includes the clutch, gearbox, cardan shaft, rear axle, final drive and differential.

T.:What does the clutch connect?

S.:The clutch connects the engine with the gearbox.

T.:And what does the gearbox do?

S.:The gearbox changes the speed of the car.

T.:What does the differential enable?

S.:The differential enables the driving wheels to move at different speeds when turning the car.

T.: For what purpose is the steering system used?

S.: The steering system is used for changing the direction of the car movement.

T.: And what is the function of the brakes?

S.: Brakes are used to slow or stop the car.

T.: That's right. You know the subject very well.

Упражнение 10. Переведите текст на русский язык, пользуясь словарем.

Basic Troubles of Transmission Mechanism

The transmission of the engine torque to the driving wheels of the automobile must be smooth. There should be no vibration in the operation of transmission mechanism within the range of travelling speeds.

The indications of malfunctions in the transmission mechanism components are as follows:

- 1.incomplete disengagement of the clutch;
- 2.difficult engagement or self-demeshing of gears;
- 3.run out and vibration of the cardan-drive shaft.

What to do in these cases:

- 1.Check the free travel of the clutch pedal and adjust it.
- 2.Check the oil level in the gearbox housing and wash breather channel.
- 3.Check to see that all the fastening bolts are securely tightened and that the trunnion crosses fit properly the bearings, and the bearings, in turn, the universal-joint forks.

Unit Five

Text: Frame

Предтекстовые упражнения

The exercises to be done before reading the text

Упражнение 1. Прочтите слова и словосочетания и выучите их русские эквиваленты.

frame — рама

twist — кручение

support — опора

suspension — подвеска

body — кузов

channel section — полая секция

longitudinal members —

лонжероны

weld — сваривать

cross members — поперечины

rivet — заклепывать

reinforce — усиливать

insulate — изолировать

rigid — жестки

rubber pad — резиновая прокладка

mining — прочный

unibody construction — кон-

струкция

withstand strains — выдерживать

с несущим кузовом нагрузки

strengthen — укреплять

Упражнение 2. Переведите на русский язык интернациональные слова.

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

Упражнение 3*. Переведите слова, обращая внимание на суффиксы.

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

Прочтите и переведите текст, а затем выполните следующие за ним упражнения.

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.

Послетекстовые упражнения

The exercises to be done after reading the text

Упражнение 4. Найдите в тексте и выпишите английские эквиваленты русским терминам.

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

Упражнение 5. Найдите в тексте ответы на вопросы.

- 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.By what is the frame insulated from the other car parts? For what purpose?
- 6.What do you know about unibody frames?

Упражнение 6. Подберите из правой колонки соответствующие окончания для предложений из левой колонки.

- | | |
|---|---|
| 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. |

Упражнение 7. Переведите текст, не пользуясь словарем.

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.

Упражнение 8. Переведите предложения на английский язык.

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 совместно 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.

Упражнение 9. Прочтите диалог, а затем разыграйте его в парах.

DIALOGUE

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;

get into trouble — попасть в беду;

be wrong with — что-то не так;

sure — конечно (без сомнения);

find out the damage — отыскать повреждение;

cope with — справиться (с проблемой).

Unit Six

Text: Clutch Dialogue

Предтекстовые упражнения

The exercises to be done before reading the text

Упражнение 1. Прочтите слова и словосочетания и постарайтесь запомнить их русские эквиваленты.

friction device — фрикционное

pressure disc — нажимной диск
устройство

hard-wearing material — износостойкий материал

connect — соединять

gearbox — коробка передач

frictional force — сила трения

start the car — завести автомобиль

clutch pedal — педаль сцепления

release the engine — отсоединить
двигатель

at rest — в покое

is engaged — включено
(подсоединено)

fix — крепить (устанавливать)

flywheel — маховик

is disengaged — отключено

friction disc (plate) — фрикционный
диск

run idly — работать вхолостую
диск

Упражнение 2*. Переведите слова, обращая внимание на суффиксы и префиксы.

Connect — **disconnect** — connection — **disconnection**; operate — operation; friction — **frictional**; engage — engagement — **disengagement**.

Упражнение 3. Прочтите и переведите интернациональные слова.

Start, disc, friction, frictional, material, base, principal, control, pedal.

Прочтите и переведите текст, а затем выполните следующие за ним упражнения.

TEXT

Clutch

The clutch is a friction device. It connects the engine to the gears in the gearbox. It is used for disconnecting the engine from the gearbox, for starting the car and for releasing the engine from the car wheels.

The clutch is fixed between the flywheel of the engine and the gearbox and consists of two plates (discs): the friction disc and the pressure disc. The friction disc is situated between the flywheel and the pressure plate and has a hard-wearing material on each side.

The basic principal operation of the clutch is a frictional force acting between two discs. The clutch is controlled by the clutch pedal. When the pedal is at rest the clutch is engaged and the running engine is connected to the gearbox. When the pedal is pressed down the clutch is disengaged and the engine runs idly

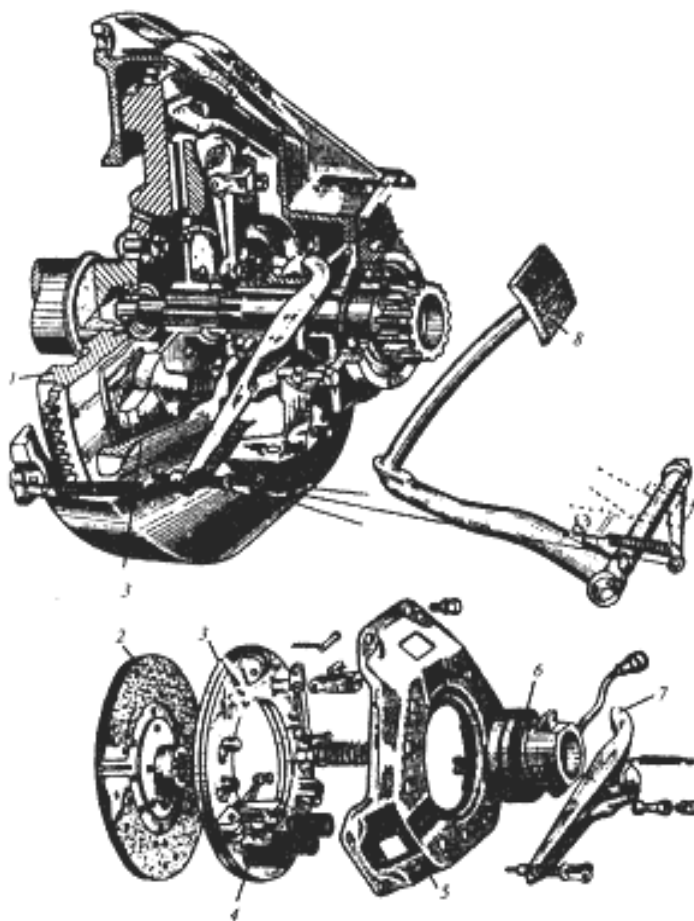


Рис. 2. Clutch

- 1. flywheel – маховик
- 2. friction disc – фрикционный диск
- 3. pressure disc – нажимной диск
- 4. spring – пружина
- 5. cover – крышка
- 6. thrust bearing – упорный подшипник
- 7. lever – рычаг
- 8. pedal – педаль.

Послетекстовые упражнения

The exercises to be done after reading the text

Упражнение 4. Найдите в тексте данные ниже слова и напишите их русские эквиваленты.

Friction device, clutch, gearbox, to free, to start, to release, flywheel, pressure plate, basic principle of operation, to fix, hard-wearing material, to consist of, to be controlled by, running engine, to run idly, to engage, to disengage, to press down, to be at rest.

Упражнение 5. Найдите в тексте ответы на следующие вопросы:

1. What device is the clutch?
2. What units does it connect?
3. What is the clutch used for?
4. Where is the clutch placed?
5. What plates does the clutch consist of?
6. What is the basic principal operation of the clutch?
7. What is the clutch controlled by?
8. What takes place when the clutch pedal is at rest?
9. When does the engine run idly?

Упражнение 6. Закончите предложения, выбрав соответствующее логике окончание.

1. The clutch is a device connecting
 - a). the rear axle and axle shafts.
 - b). the gearbox and differential.
 - c). the engine and the gearbox.
2. The clutch is situated between
 - a). the gearbox and cardan shaft.
 - b). the flywheel and the gearbox.
 - c). the gearbox and rear axle.
3. The clutch is controlled by
 - a). the brake pedal
 - b). the clutch pedal.
 - c). the gearbox and rear axle.

4.The clutch is engaged

a).when the clutch pedal is pressed down.

b).when the clutch pedal is at rest.

5.The clutch is disengaged

a).when the clutch pedal is at rest.

b).when the clutch pedal is pressed down.

Упражнение 7. Прочтите диалог и выполните следующие за ним упражнения.

DIALOGUE

A.: What is the function of the clutch?

B.: You see, it serves three functions. It is used for freeing the engine from the gearbox, for starting the car and for freeing the engine from car wheels.

A.: Is it a friction device?

B.: Yes, of course. It is fixed between the flywheel of the engine and the gearbox and usually consists of two discs.

A.: What discs?

B.: The friction disc (driven disc) and the pressure disc.

A.: I suppose the principle of operation of clutches is a frictional force between discs. Am I right?

B.: Yes, you are. When the clutch is fully engaged the frictional force makes discs rotate at the same speed.

A.: And by what is the clutch controlled?

B.:By the clutch pedal. When it is at rest the clutch is engaged and when it is pressed down the clutch is disengaged and the engine is disconnected from the car wheels.

A.: Thank you. And what types of clutches do you know?

B.: Positive clutches and gradual engagement clutches.

A.: Thank you very much for your information.

B.: Not at all. Glad to help you.

Упражнение 8. Найдите в диалоге английские эквиваленты следующим русским терминам и выпишите их.

Функция сцепления, для отключения двигателя от коробки передач, крепится между маховиком и коробкой передач, фрикционный (ведомый) диск, нажимной диск, фрикционная сила, сцепление включено, педаль в исходном положении, педаль сцепления нажата.

Упражнение 9. Подберите из правой колонки русские эквиваленты английским словам из левой колонки и проверьте себя по ключу.

1. a friction device	a. завести автомобиль
2. gearbox	b. фрикционный диск
3. to start the car	c. маховик
4. to release the engine	d. износостойкий материал
5. is fixed	e. работать вхолостую
6. flywheel	f. соединяться
7. the friction disc	g. сила трения
8. the pressure disc	h. разъединяться
9. hard-wearing material	i. фрикционное устройство
10. frictional force	j. находиться в покое
11. the clutch pedal	k. закреплен
12. to be engaged	l. педаль сцепления
13. to be at rest	m. нажать на педаль
14. to be disengaged	n. отсоединить двигатель
15. to press down on the pedal	o. нажимной диск
16. to run idly	p. коробка передач

Упражнение 10. Переведите на английский язык следующие предложения.

1. Сцепление — это фрикционное устройство.
2. Сцепление соединяет двигатель и коробку передач.
3. Сцепление расположено между маховиком двигателя и коробкой передач.
4. Как правило, сцепление состоит из двух дисков: ведомого и нажимного.
5. Сцепление управляется педалью сцепления.
6. Когда педаль сцепления находится в покое, диски сцепления соединены и работающий двигатель соединен с коробкой передач и колесами.
7. Когда водитель нажимает на педаль сцепления, диски отходят, сцепление отсоединяется и двигатель работает вхолостую.

Подписано в печать 30.10.2014.	Усл. печ. л. 2,2	Тираж	экз.
Печать офсетная.	Бумага писчая.	Заказ №	_____.

Отпечатано: РИО ВоГУ, г. Вологда, ул. С. Орлова, 6