МЕТОДИЧЕСКИЕ УКАЗАНИЯ
по дисциплине «Английский язык»
для специальности 35.02.16 Эксплуатация и ремонт сельскохозяйственной техники и оборудования

Данное учебное пособие предназначено для студентов специальности «Эксплуатация и ремонт сельскохозяйственной техники и оборудования» по дисциплине «Иностранный язык (английский)». В пособие включены технические тексты и тексты для дополнительного чтения. Материал представлен для изучения и закрепления специальной лексики будущих специалистов.

Оглавление

History of the automobile ……..…....
Inventors of the first cars……....
Russian automobile engineering...……...…….…….……
Automobile production.….…….…….
Список литературы ……...

HISTORY OF THE AUTOMOBILE

Задание 1. Выпишите новые слова и словосочетания:

to propel a vehicle – передвижное транспортное средство
a steam boiler – паровой котел
a steam jet – паровые струи
rear – задняя часть
self-propelled vehicle – самодвижущееся средство передвижения
steam-driven carriage – экипаж, приводимый в движение паром
three-wheeled carriage – 3-колесный экипаж
brake – тормоз
roller – каток
gear-box – коробка передач
steam-engine – паровой двигатель
internal combustion engine – двигатель внутреннего сгорания
ignite – зажигать, воспламенятся
electric spark – электрическая искра
four-stroke cycle engine – 4-тактовый двигатель
conventional vehicles – обычное средство передвижения
exhaust – выхлоп
gallon of fuel – галлон топлива (от 3,79 до 4,55 литра)
mileage – пробег
is drawn into – вовлекать, втягивать
pressure – давление
petroleum – нефть
alloys - сплавы
external - внешний
burner – камера сгорания

Задание 2. Прочитайте и переведите текст:

The history of the automobile goes back several hundred years. One of the earliest attempts to propel a vehicle by mechanical power was suggested by sir Isaac Newton about 1680. It was little more than a toy consisting of a steam boiler supplying a steam jet turned to the rear.

However, the credit for building the first self-propelled road vehicle must undoubtedly go to the French military engineer, Nicholas Cugnot (Кюньо). Between 1763 and 1769 two steam-driven carriages were built and tried.

In 1784 the Russian inventor Kulibin built a three-wheeled carriage. In his vehicle he used for the first time such new elements as brakes, rollers and a gear-box. The first Englishman to build a full-size self-propelled vehicle for use on the roads and to obtain practical results was Threvithick (Тревитик). Between 1798-1800 he built several working models.

Up to 1860 most of road vehicles were powered by steam engines which ran at slow speeds. In 1860 Lenior (Ленуар) of Paris built an internal combustion engine which ran on city gas, the gas being ignited by an electric spark. In 1866, Otto invented the type of four-stroke cycle engine which is used today.

Slowly but surely the auto industry is perfecting a number of alternatives to the conventional engines found in almost all of today's passenger cars. Two prime factors lie behind the search for different engines - the necessity to reduce air pollution by requiring cleaner auto exhaust and the desire to produce cars that will run farther on a gallon of fuel. While basic research is continuing on electric and steam powered engines, the diesel, turbine and Stirling are current industry favourites.

Diesels get better mileage than gasoline engines, and the fuel is usually cheaper. In 1890's, Rudolf Diesel, invented the engine that bears his name. As air is drawn into the engine and compressed internal temperatures rise, and pressures reach two to three times those in a gasoline engine. The extreme pressures have meant that diesels usually are much larger and heavier than gasoline engines of the same power potential.

The disadvantages of diesels as passengers - car engines are slow performance, noise and smoke.

The turbine and Stirling are multifuel engines, capable of running on any liquid that will burn, including such exotic types as peanut oil and perfume. This would be a major advantage if severe petroleum shortages develop.

The turbine cars now operating are handbuilt models that cost more than 1 million dollars each. Alloys of precious metals of high durability are still required for certain vital turbine parts. Engineers believe that progress in ceramics hold the key to making turbines practical alternatives to present-day engines.

The Stirling concept, first offered more than 150 years ago by a Scottish clergyman, involves external instead of internal combustion. In the new design, hydrogen gas is heated by a burner, which can run on virtually all kinds of fuel. Engineers point out that a Stirling engine would be quieter than an equivalent internal combustion engine, would emit less toxic gases, and would use fuel more economically.

Yet, there is still opinion in the auto industry that the conventional gasoline powered engine - the type in almost universal use now - will continue to dominate until or unless outside circumstances dictate otherwise.

Задание 3. Answer the questions.

1. Who made an attempt to propel a vehicle?
2. Who built the first self-propelled road vehicle?
3. What kind of carriage did the Russian inventor Kulibin build in 1784?
4. What did Kulibin use in his vehicle for the first time?
5. What were all road vehicles up to 1860 powered by?
6. What did Lenoir built in 1860?
7. How did an internal combustion engine run on?
8. When was the four-stroke cycle engine invented?
9. What are the main factors that are important search for different engines?
10. Why are these factors very important?
11. What are the disadvantages of diesel?
12. When was the Stirling engine invented?
13. Will electric cars replace the conventional vehicles?
14. What kind of engine will dominate in the near future?

Задание 4. Выпишите предложения где говорится:
а) о первых попытках использовать механическую энергию для приведения в движение экипажа;
б) об основных требованиях, предъявляемых к автомобилю.

Задание 5. Выберите утверждения, соответствующие содержанию текста.
1. The history of the automobile goes back...
a) a hundred years;
b) a thousand years;
c) several hundred years.

2. Diesels are usually much larger and heavier than...
a) gasoline engines;
b) turbine cars;
c) Stirling engines.

3. The disadvantages of diesels are...
a) low speeds;
b) noise and smoke;
c) heavy weights.

4. The turbine and Stirling are multifuel engines, capable of running on...
a) petrol only;
b) peanut oil and perfume;
c) benzene.

Задание 6. Прочтите текст еще раз, обращая внимание на даты, цифры и связанные с ними факты. Выпишите эти предложения.

Задание 7. Переведите на русский язык следующие слова и словосочетания:

vehicle, mechanical power, self-propelled, was constructed, a steam-driven carriages, wheels, passengers, motor cars, issued, prosecuted, of gasoline engines, introduced the four-stroke cycle of operation, two-seated cars, efficient, international combustion engine, abolition, automobile industry, collect antique cars, advertisements.

Задание 8. Закончите предложения, используя текст

1) In … the Russian inventor Kulibin built a three-wheeled carriage.
2) Diesels get better … than gasoline engines, and the fuel is usually cheaper.
3) Alloys of precious metals of high durability are still required for certain …
4) In the new design, … gas is heated by a burner.
5) One of the earliest attempts to propel a vehicle by … was suggested by sir Isaac Newton.

Задание 9. Расскажите об истории автомобилестроения, используя следующие выражения и глаголы:

the history of the automobile mechanical power, a steam boiler, selfpropelled, vehicle steam-driven carriages, brakes, gear-box, steam engines, internal-combustion engine, air-pollution, diesel engines, turbine cars, Stirling engine;
to go back, to propel, to build, to use, to obtain, to be powered by, to invent, to reduce, to produce, to offer, to involve, to dominate.

Задание 10. Подберите к слову его описание.

1. production	a. to make or draw plans for something, for example clothes or b
	b. damage caused to water, air, etc. by harmful substances or was
2. to design	c. a road vehicle with an engine, four wheels, and seats for a sma
	people
3. automobile	d. to start to burn
	e. a substance that is used to provide heat or power, usually by b
4. carriage	f. the process of making or growing goods to be sold
5. pollution	g. a vehicle with four wheels that is usually pulled by horses a
	mainly in the past
6. engine	h. a machine that uses the energy from liquid fuel or steam
7. vehicle	movement
	i. a person whose job is to repair or control machines, engines,
8. engineer	equipment
	j. a machine, usually with wheels and an engine, used for transpo
9. fuel	or goods on land, especially on roads
10. to combust	

Additional texts

History of the automobile

The Ford Model T (foreground) and Volkswagen Beetle (background) are among the most mass-produced car models in history.

The early history of the automobile can be divided into a number of eras, based on the prevalent means of propulsion. Later periods were defined by trends in exterior styling, size, and utility preferences.

In 1769 the first steam-powered automobile capable of human transportation was built by Nicolas-Joseph Cugnot.

In 1808, François Isaac de Rivaz designed the first car powered by an internal combustion engine fueled by hydrogen.

In 1870 Siegfried Marcus built the first gasoline powered combustion engine, which he placed on a pushcart, building four progressively sophisticated combustion-engine cars over a 10-to-15-year span that influenced later cars. Marcus created the two-cycle combustion engine. The car's second incarnation in 1880 introduced a four-cycle, gasoline-powered engine, an ingenious carburetor design and magneto ignition. He created an additional two models further refining his design with steering, a clutch and a brake.

The four-stroke petrol (gasoline) internal combustion engine that still constitutes the most prevalent form of modern automotive propulsion was patented by Nikolaus Otto. The similar four-stroke diesel engine was invented by Rudolf Diesel. The hydrogen fuel cell, one of the technologies hailed as a replacement for gasoline as an energy source for cars, was discovered in principle by Christian Friedrich Schönbein in 1838. The battery electric car owes its beginnings to Ányos Jedlik, one of the inventors of the electric motor, and Gaston Planté, who invented the lead–acid battery in 1859.

In 1885, Karl Benz developed a petrol or gasoline powered automobile. This is also considered to be the first "production" vehicle as Benz made several other identical copies. The automobile was powered by a single cylinder four-stroke engine.

In 1913, the Ford Model T, created by the Ford Motor Company five years prior, became the first automobile to be mass-produced on a moving assembly line. By 1927, Ford had produced over 15,000,000 Model T automobiles.

At the turn of the 20th century electrically powered automobiles became a popular alternative method of automobile propulsion.

INVENTORS OF THE FIRST CARS

Задание 1. Выпишите новые слова и словосочетания:

advance, advanced, advantage	продвигать, современный, преимущество
candle, candle light	свеча, свет от свечи
chemist	химик
code, Morse code	код, азбука Морзе
design, to design	дизайн, конструировать
diesel	дизель
discovery	открытие
dot-and-dash alphabet	азбука Морзе
due to	благодаря
engine	двигатель
steam engine	паровой двигатель
internal combustion engine	двигатель внутреннего сгорания
petrol engine	бензиновый двигатель
fire	стрелять, палить
fire bullets	стрелять пулями
flunk	потерпеть фиаско
fuel	топливо, горючее
run on fuel	передвигаться на топливе
horsepower	лошадиная сила
invent, inventor, invention	изобретать, изобретатель, изобретение
patent	патентовать
penetrate	проникать, пропускать
to perfect	усовершенствовать
to produce	производить, вырабатывать
reliable	надежный, прочный
rubber, rubber solution	резина, каучуковый раствор
to split	расщеплять, раскалывать
to succeed in	преуспевать в

Задание 2. Прочитайте и переведите текст:

Over the centuries, man's way of life was changed by a relatively small number of discoveries and inventions. But changes have come more and more often since the steam engine was invented in 1765 by James Watt. In just two hundred years, man advanced from horsepower and candle light to aeroplanes and neon lams. Our ideas about travel have changed completely since Gottlieb Daimler and Charles Benz built their first petrol engine in 1885 and the Wright Brothers made the first flight in 1903.

In 1897 Rudolf Diesel invented a new internal combustion engine. It is known as a diesel and it began a transport revolution in cars, lorries, trains and ships. The main advantage of diesels is that they run on rather cheap fuel.

Charles Rolls was a British aristocrat and businessman, who was especially interested in cars. Once he met another enthusiast of cars Henry Royce, a famous car engineer. They decided to design the most comfortable and reliable car. At the beginning of the 20th century it seemed to be a fantasy. But in 1907 they managed to create the world – famous Rolls – Royce car. It was so comfortable and reliable that one of the models "Silver ghost" hadn't changed greatly for 20 years since 1907.

Samuel Colt, who was an American, designed and patented a pistol in 1836. It had a revolving barrel and could fire 6 bullets one after the other. It was the first pistol of its kind. Later there came many other pistols with 6 bullets.

Samuel Finley Morse was a portrait painter, who became an inventor. For 12 years he tried to perfect the telegraph and succeeded in inventing the telegraphic dot - and – dash alphabet, now known as Morse code. Though there were some other codes in America in the 19th century, Morse code is used nowadays all over the world.

Charles Makintosh was a chemist by profession. He worked in a textile industry and in 1823 he developed a rubber solution used for raincoat production. Raincoats with this rubber solution didn't allow water to penetrate. These raincoats were called makintoshes and people use them in rainy weather.

Some people say we live in the age of computers; but it is also correctly described as the atomic age or the space age. Today, a journey from London to Cairo takes hours. Only a hundred years ago it took weeks. Today, men think seriously of going to Mars. 50 years ago they only dreamt about it. Today we produce energy by splitting the atom. A century ago, no one believed it could be split. Due to inventions, technology has advanced so quickly that cars and televisions are out of date only a few years after they were made.

Задание 3. Соедините части предложения

1. A steam engine …	a. very popular even nowadays
2. A new internal combustion engine…	b. was the most comfortable and reliable car.
3. The main advantage of diesels is…	c. was invented by Rudolf Diesel.
4. The world famous Rolls Royce car…	d. was invented by James Watt.
5. All the cars produced by the firm "Daimler-Benz"…	e. was a car engineer by profession.
6. Henry Royce….	f. were called "Mercedes-Benz".
7. A German engineer Rudolf Diesel…	g. made his famous invention in 1897.
8. Morse code is…	h. that they run on rather cheap fuel.

Задание 4. Выберите продолжение предложений

1. Changes in the man's way of life have become more evident since
   a) the discovery of a pistol with 6 bullets;
   b) 1765;
   c) the birth of Edison, one of the greatest inventors;
   d) the first patented invention was registered.
2. An invention is
   a) the case of finding something which existed before but was not known to people. It is often a place or a scientific fact;
   b) a difficulty that needs attention and thought in order to solve it;
   c) something that is finished or gained through skill or hard work;
   d) a useful thing or idea which is produced by scientists for the first time.
3. The "Silver Ghost" model was
   a) famous for its reliability and comfort;
   b) created by Wright brothers;
   c) one of the best racing cars at the beginning of the 20th century.
   d) named after its creator Tom Silver.
4. Due to the development of a rubber solution
   a) raincoats were called makintoshes;
   b) a transport revolution began;
   c) the production of waterproof raincoats was quite successful;
   d) raincoats became very popular.

Задание 5. Поставьте предложения в хронологическом порядке.

1) These two inventors managed to design the most reliable and comfortable car for the beginning of the last century.
2) He invented the first gun with 6 bullets.
3) This invention got its name after the inventor and is used in rainy weather.
4) The invention of this engine gave birth to a large number of other discoveries and inventions.
5) This invention is used nowadays all over the world though there were some other inventions on analogy in the 19th century.
6) Last century was remarkable for the introduction of the laser, the proliferation of calculators and computers and a revolution in the telecommunication industry
7) The main advantage of that invention was that it used rather cheap fuel.

Задание 6. Допишите предложения, используя текст:

1) Changes have come more and more often since…
2) The main advantages of diesels is …
3) Charles Rolls was a British aristocrat and businessman…
4) Some people say we live ….
5) Today men think ….
6) Due to inventions ….

Задание 7. Напишите, что изобрели эти люди:

1) R. Diesel
2) S. Colt
3) C. Rolls
4) C. Makintosh
5) S. Morse
6) C. Benz

Задание 8. Заполните пропуски, изменив слова справа

1. His____ could not be used to protect tall buildings during a storm.	DISCOVER
2. This _____ became very popular because it gave off much heat.	INVENT
3. He persuaded the _____ to try locomotives.	DIRECT
4. The _____ of the colliery bought some engines and began to experiment for himself.	OWN
5. Samuel Morse was the pioneer of the most widely used electrical _____ in the world today.	COMMUNICATE
6. What he needed was a _____ lamp.	SAFE
7. Franklin's _____ about natural phenomena can be observed from his boyhood.	CURIOUS
8. At that time people were _____ afraid of lightning.	TERRIBLE
9. One day he brought a new _____ to the laboratory.	TRANSMIT

Задание 9. Соедините слова из обоих столбцов, чтобы получились словосочетания, переведите их:

A	B
lightning	service
metal	power
steam	lines
railroad	lamps
coal	conductor
telegraph	light
horse	locomotive
passenger	gas
oil	engine
candle	key

Задание 10. Прочитайте и переведите текст. Выпишите выделенные слова с переводом.

Inventors on both sides of the Atlantic discovered during the 1880s that technologies for making self-propelled carriages and wagons had progressed dramatically. Soon sundry vehicles powered by steam, internal combustion engines, and electricity were rolling across Germany, France, and the United States.

The first practical internal combustion engine was built by Etienne Lenoir, a Belgian living in France. Patented in 1860, his water-cooled contraption burned coal gas and was noisy and inefficient; even so, for two decades it had many buyers. Lenoir's engine was a clear proof of concept to other inventors, especially in Europe.

Nikolaus Otto, a German, was one of many inspired by Lenoir's technical and commercial success. Mechanically gifted, Otto sought to improve the Lenoir engine, and in the late 1870s he did. Otto's four-cycle design embodied features that would become standard in gasoline automobile engines.

The cars of that time were very small, two-seated cars with no roof, driven by an engine placed under the seat. Motorists had to carry large cans of fuel and separate spare parts, for there were no repair or filling stations to serve them.

The Otto engine and the many clones it spawned, though intended to replace small steam engines in industry, inaugurated the era of the gasoline-powered automobile. Clearly, the compact internal combustion engine was a most suitable technology for the self-propelled vehicle.

Karl Benz, also a German, employed his own Otto-type engine to power a three-wheel carriage in 1885. These tri-wheelers, with a one-cylinder engine that developed 0.8 hp, were put on the market in 1887, perhaps the earliest commercial automobiles.

In 1891 Benz added a four-wheel motorized carriage to his company's offerings. These automobiles sold well and were widely imitated. In the early 1890s,

for example, Planhardet Levassoras well as Pfeugeot in France were peddling cars to the public. Henry Ford, however, was still a long way from building automobiles.

Задание 11. Найдите в тексте синонимы слова *vehicle*.

Задание 12. Заполните пропуски в предложениях, в соответствии с содержанием текста и переведите предложения.

1. Inventors on both sides of the Atlantic … during the 1880s that technologies … had progressed dramatically.
2. Patented in 1860, his water-cooled contraption … and was … and … .
3. Otto's four-cycle design … that would become standard in … engines.
4. Motorists had to carry … and separate … , for there were no … or … to serve them.
5. The compact internal combustion engine was a most … for the … .
6. Karl Benz … his own Otto-type engine … a three-wheel carriage in 1885.

Задание 13. Ответьте на вопросы и перескажите текст

1. Who built the first practical internal combustion engine?
2. Who improved the Lenoir engine?
3. What era did the Otto engine inaugurate?
4. Who introduced the First commercial automobile?

Additional texts

Karl Benz and Nicolaus Otto

Benz, Karl (1844 — 1929) was a German inventor of the automobile, who devoted his life to making a horseless vehicle. When Benz's three-wheeled engine-driven machine (the first "car") appeared on I lie streets in 1885, people couldn't believe that it moved without the aid of horses. It was a great triumph to him because Benz built a new engine that was lighter and more powerful than any other. He put it onto a chassis and got power from the engine to the wheels. Benz's first car was a great achievement for him. Everything — the engine, fuel transmission, controls — had been developed and designed by him. The wheels were driven by means of a chain, and there were two speeds.

In his early days the speed limits were 12 kilometers an hour outside the city, six - inside. Benz realized that he would never be able to improve his cars if this rule were not changed. He thought up a plan. He invited the Minister to ride in his car and agreed with a milkman that the latter would wait with his horse for them on a certain place. When Benz, with the Minister in his car, passed the milkman, the latter started off, passed the car at a good speed and laughed at them. The plan worked perfectly. The Minister ordered to go faster. But Benz referred to speed limit. "Never mind", said the Minister. Thus Benz won the day.

Nicolaus Otto (June 14, 1832 – January 26, 1891) – one of the most important landmarks in engine design comes from Nicolaus Otto who in 1876 invented an effective gas motor engine—the first practical alternative to the steam engine. Otto built the first practical four-stroke internal combustion engine called the "Otto Cycle Engine," and when he completed his engine, he built it into a motorcycle.

In May 1876, Nicolaus Otto built the first practical four-stroke piston cycle internal combustion engine. He continued to develop his four-stroke engine after 1876 and he considered his work finished after his invention of the first magneto ignition system for low voltage ignition in 1884. Otto's patent was overturned in 1886 in favor of the patent granted to Alphonse Beau de Roaches for his four-stroke engine. However, Otto built a working engine while Roaches' design stayed on paper. On October 23, 1877, another patent for a gas motor engine was issued to Nicolaus Otto, and Francis and William Crossley.

In all, Otto built the following engines:

- 1861 A copy of Lenoir's atmospheric engine
- 1862 A four-cycle compressed charge engine (prior to Rochas's patent) which failed as it broke almost immediately
- 1864 The first successful atmospheric engine
- 1876 The four-stroke compressed charge engine which is acknowledged as the "Otto" cycle engine. The term Otto cycle is applied to all compressed charge, four cycle engines.

Nicolas-Joseph Cugnot

Nicolas-Joseph Cugnot (26 February 1725 – 2 October 1804) was a French inventor. He is believed to have built the first self-propelled mechanical vehicle.

French military engineer designed and built the world's first true automobile, a huge, heavy, steam-powered tricycle.

After serving in the Austro-Hungarian army in the Seven Years' War, Cugnot returned to Paris in 1763 to devote his time to writing military treatises and tinkering with a number of inventions he had conceived while campaigning.

He built two steam-propelled tractors for hauling artillery, the first in 1769, the second in 1770. The second alone survived and is preserved in the National Conservatory of Arts and Crafts, Paris.

This vehicle's two-piston steam engine was designed independently of Thomas Newcomen and James Watt and was based directly on the theoretical descriptions of the French physicist Denis Papin. The engine in it was the first to employ high-pressure steam expansively without condensation. The carriage was tricycle-mounted, with the single front wheel performing both steering and driving functions. The problems of water supply and maintaining pressure severely handicapped the vehicle, which nevertheless proved the feasibility of steam-powered traction.

Jean Joseph Étienne Lenoir

Étienne Lenoir, (born Jan. 12, 1822, Mussy-la-Ville, Belg.—died Aug. 4, 1900, La Varenne-Saint-Hilaire, Fr.), Belgian inventor who devised the first commercially successful internal-combustion engine.

Lenoir’s engine was a converted double-acting steam engine with slide valves to admit the air-fuel mixture and to discharge exhaust products. A two-stroke cycle engine, it used a mixture of coal gas and air. Though only about 4 percent efficient in fuel consumption, it was a smooth-running and durable machine (some machines were in perfect condition after 20 years of continuous

operation), and by 1865 more than 400 were in use in France and 1,000 in Britain, used for such low-power jobs as pumping and printing.

In 1862 Lenoir built the first automobile with an internal-combustion engine. He had adapted his engine to run on liquid fuel and with his vehicle made a 6-mile (10-kilometre) trip that required two to three hours. His other inventions include an electric brake for trains (1855), a motorboat using his engine (1886), and a method of tanning leather with ozone.

Gottlieb Daimler

Gottlieb Daimler, in full Gottlieb Wilhelm Daimler, (born March 17, 1834, Schorndorf, Württemberg [Germany]—died March 6, 1900, Cannstatt, near Stuttgart), German mechanical engineer who was a major figure in the early history of the automotive industry.

Daimler studied engineering at the Stuttgart polytechnic institute and then worked in various German engineering firms, gaining experience with engines. In 1872 he became technical director in the firm of Nikolaus A. Otto, the man who had invented the four-stroke internal-combustion engine. In 1882 Daimler and his coworker Wilhelm Maybach left Otto's firm and started their own engine-building shop. They patented one of the first successful high-speed internal-combustion engines (1885) and developed a carburetor that made possible the use of gasoline as fuel. The two used their early gasoline engines on a bicycle (1885; perhaps the first motorcycle in the world), a four-wheeled (originally horse-drawn) carriage driven by a one-cylinder engine (1886), and a boat (1887). The two men's efforts culminated in a four-wheeled vehicle designed from the start as an automobile (1889). This commercially feasible vehicle had a framework of light tubing, a rear-mounted engine, belt-driven wheels, and four speeds. In 1890 Daimler-Motoren-Gesellschaft was founded at Cannstatt, and in 1899 the firm built the first Mercedes car.

Charles Stewart Rolls

Charles Stewart Rolls (27 August 1877 - 12 July 1910) was a motoring and aviation pioneer. Together with Frederick Henry Royce he co-founded the Rolls-Royce car manufacturing firm. He was the first Briton to be killed in a flying accident, when the tail of his Wright Flyer broke off during a flying display near Bournemouth, England. He was aged 32.

Rolls was born in Berkeley Square, London, third son of the 1st Baron Llangattock. Despite his London birth, he retained a strong family connection with his ancestral home of The Hendre, near Monmouth, Wales. After attending Mortimer Vicarage Preparatory School in Berkshire, he was educated at Eton College where his developing interest in engines earned him the nickname dirty Rolls.

In 1894 he attended a private crammer in Cambridge which helped him gain entry to Trinity College, Cambridge where he studied Mechanical and Applied Science. In 1896, at the age of 18, he travelled to Paris to buy his first car, a Peugeot Phaeton, and joined the Automobile Club of France. His Peugeot is believed to have been the first car based in Cambridge, and one of the first three cars owned in Wales.

An early motoring enthusiast, he joined the Self-Propelled Traffic Association which campaigned against the restrictions imposed on motor vehicles by the Locomotive Act, and became a founder member of the Automobile Club of Great Britain with which it merged 1897.

RUSSIAN AUTOMOBILE ENGINEERING

Задание 1. Прочтите текст и переведите его письменно.

The automobile industry in our country has been developed since 1916. Before that time Russia had no automobile industry at all, technical schools had no departments to train specialists in automobile engineering. But in the history of the automobile such names as Shamshurenkov, Blinov, Mamin and other Russian experts in mechanics must be remembered.

The first automobile built by Shamshurenkov, a Russian inventor, was put into motion by the pedalling of the driver himself. Blinov designed and constructed tractor driven by steam engine. Mamin was one of the pioneers in Russian internal combustion engines.

Today Russian automobiles are engineered and built in such a manner that they are able to withstand heavy loads for long periods of operation. The modem automobile is much more than a means of riding from one place to another. The passenger's safety and comfort must be considered as much as the car's reliable performance and ability to travel on the highways.

The modern automobile must have a steel body and a steel roof and this roof must be insulated against the summer's heat and winter's (old Ventilation is also of great importance. The comfort and convenience of the driver must be taken into consideration too. The automobile must have a heater with special defrosting devices which insure clear vision to the driver. The automobile must have great power for riding, have dependable clutch and brakes, have good riding qualities, good lights, dependable starting and ignition systems, low fuel consumption, as well as long service life.

Задание 2. Ответьте на вопросы

1. Since what time has the automobile industry been developed in our country?
2. Who are the most famous Russian experts in mechanics?
3. How was the first automobile put into motion?
4. How are Russian automobiles engineered and built today?

Additional texts

Fyodor Abramovich Blinov and Yakov Mamin

The Russian inventor-taught, a creator of the first in the world caterpillar tractor, F.A. Blinov was born in 1827 in the village of Nikolskoye in the family of a serf. In 1840 Blinov received his freedom and began to work on a ship. Soon he became well-known on the Volga as an experienced master for the repairing of equipment. By 1895 Blinov developed the world’s first tractor, in which was

installed steam machine. Fyodor Abramovich, the creator of the first in the world tracked tractor was given the rank of “Honorary citizen of the city Balakovo”.

Inventors-self-taught Fyodor Abramovich Blinov and Yakov Mamin glorified Balakovo as the birthplace of the world's first caterpillar tractor, wheel self-propelled gun and Russian diesel engine; the plant of oil engines and tractors Yakov Mamin in 1915 produced 325 diesel engines, with a total capacity of 5100 horsepower.

Leonty Shamshurenkov

Leonty Luk'yanovich Shamshurenkov (1687—1758) was a self-taught Russian inventor of peasant origin, who designed a device for lifting the Tsar Bell onto a bell-tower, constructed in 1752 the first self-propelling or *self-running* carriage (may be regarded as precursor to both quadrocycle and automobile) and proposed projects of an original odometer and self-propelling sledge.

Caterpillar tracks, track assembly

In 1837, Russian army captain Dmitry Zagryazhsky came up with drawings of a caterpillar drive and applied to the Ministry of Finance for a patent for his invention of a “carriage with a flat chain mechanical caterpillar”. He was granted a patent but his invention did not interest manufacturers at that time and the patent was annulled in 1839. Much later, in 1877, Russian peasant and self-taught inventor Fyodor Blinov completed Zagryazhsky’s unfinshed task and created a wagon that moved on caterpillars. This invention gave the green light to production of tractors and, subsequently, of tanks.

Electrically-powered railway wagons

The invention of an electrically-powered railway wagon was a precondition for the transport revolution that spurred the development of towns and industrial centres. It all started in 1874-1876, when Fyodor Pirotsky conducted a slew of experiments on transmitting electricity over a distance, with one rail serving as a direct conductor and the other, as a reverse conductor. An electric motor, located one kilometre from the power source, worked. A few years later, he conducted an experiment at a railway spur near Sestroretsk. There were 40 people in the wagon. The first electrified tram line was opened as late as 1881 in a Berlin suburb on the basis of designs by the Russian inventor

Helicopter

Igor Sikorsky was another Russian inventor whose potential was fully realized abroad. In 1910, he created the prototype of a rotor-driven device, which successfully got off the ground. In 1912, he created the first hydroplane in the world and then the first multiple-engine aircraft. After the 1917 Revolution in Russia, he had to emigrate to the US, where he established his own company, Sikorsky Aero Engineering Company, using a contribution from remarkable Russian composer Sergei Rachmaninoff. Sikorsky's first experimental helicopter designed in the United States got off the ground in September 1939. The design of that machine, which has been considered a classic helicopter design for more than fifty years now, has been used for almost 95% helicopters built around the world. In 1942, Sikorsky created a two-seater helicopter.

AUTOMOBILE PRODUCTION

Задание 1. Найдите в правой колонке русские эквиваленты английских слов и словосочетаний:

1.mechanical engineer	a. долгий срок службы
2.to deal (with)	b. запустить в массовое производство
3.designing cars	c. подвергать испытаниям
4. to put into mass production	d. плавное сцепление
5. long service life	e. отвечать современным требованиям
6.driving safety	f. иметь дело *(с кем-л., чем-л.)*
7.to meet up-to-date demands	g. надежные тормоза и рулевое управление
8.smooth-acting clutch	h. безопасность езды (вождения)
9.silent gearbox	i. бесшумная коробка передач
10.dependable brakes and steering system	j. инженер-механик
11.to subject to tests	k. конструирование автомобилей

Задание 2. Переведите на русский язык встречающиеся в тексте интернациональные слова:

mechanical, mechanism, specialist, industry, phase, technology, process, laboratory, test, fact, automobile, engineer, method, principle, corrosion, type, material, comfortable.

Задание 3. Прочтите текст и выполните следующие за ним упражнения:

1. Specialists in automobile industry deal with designing and manufacturing cars, so they should know that the production of the automobile comprises the following phases:

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

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

3. What are these requirements? The automobile must have high efficiency, long service life, driving safety, ease of maintenance and pleasant appearance. In order to obtain all these qualities engineers 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 science because it is intended to shorten the time between designing and manufacturing. Computers offer quick and optimal solutions of problems.

4. But before the car is put into mass production all its units and mechanisms are subjected to tests, first in the plant's laboratory, then the car undergoes a rigid quality control in road tests. Only then the car is put into mass production. Why are these tests required? What qualities are required of the automobile? The modern automobile must be rapid in acceleration, must have smooth acting clutch, silent gearbox, dependable brakes and steering system, as well as pleasant appearance. Also it must be comfortable and have all conveniences.

Задание 5. Переведите на русский язык в письменной форме абзацы 3 и 4.

Задание 6. Ответить на вопросы:

1. What phases does the production of the automobile comprise?
2. What requirements must the automobile meet?
3. Why are cars subjected to road tests?
4. What qualities are required of the automobile?
5. Why is it important for the specialists in automobile industry to know computing methods?

Задание 7. Закончите предложения, выбрав соответствующий вариант окончания:

1. The cars are subjected to road tests in order....

a) to shorten the time between designing and manufacturing
b) to meet up-to-date requirements
c) to work out new technological processes

2.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 brakes and steering system.

3. The car must have the following qualities....

a) high efficiency, long service life, driving safety and pleasant appearance;
b) smooth acting clutch, silent gearbox dependable brakes and steering system.