



高职高专“十二五”规划教材·专业英语系列

English

汽车专业英语

主 编 关云霞 缙庆伟

配套资源

- ★ 生词及专业词汇解析
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Automotive Engineering



E nglish



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汽车专业英语

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内 容 简 介

本书分为四个部分:汽车总体构造(Unit 1)、汽车主要系统的基本结构与原理(Unit 2~Unit 8)、汽车的维护与修理(Unit 9、Unit 10)、汽车商务英语(Unit 11~Unit 18),内容涵盖汽车结构、汽车原理、汽车维修、汽车商务等领域,可根据需要对教材内容进行选择性的教学。另外,本书针对每个单元添加了大量的习题训练和大量的插图,以便读者更好地理解课文的内容。

本书可作为高等院校汽车工程、汽车运用技术、汽车商务等相关专业的教材,也可作为汽车专业人员英语进修班培训教材,还可作为汽车维修技术人员的参考用书。

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前 言

汽车专业英语是汽车专业大学英语课程教学的一个重要组成部分,是促进学生完成从英语学习过渡到实际应用的有效途径。本书的编写思路是以学生为中心,以自主学习为主,让学生结合课内与课外、结合学习与应用,把基础阶段学到的语言知识在所学专业领域中得到应用、巩固、扩展和提高,进一步掌握良好的英语学习方法,打下扎实的专业英语知识基础,具备较强的专业英语应用能力,并能用英语进行专业知识的交流、理解,更好地适应未来工作需要和进一步提高自己的高级英语应用能力。

本书的教学目标是通过学习,使学生熟悉和掌握汽车专业常用的 600~800 个英语单词、词组及其用法,巩固已经掌握的基本语汇和语法知识,牢固掌握专业词汇,掌握专业文章的语法结构和本专业方面的知识,提高英语应用能力,达到以英语为工具获得专业所需知识、翻译和阅读相关专业文章的要求。

本书分为四部分:汽车总体构造(Unit 1)、汽车主要系统的基本结构与原理(Unit 2~Unit 8)、汽车的维护与修理(Unit 9、Unit 10)、汽车商务英语(Unit 11~Unit 18)。内容涵盖汽车结构、汽车原理、汽车维修、汽车商务等领域,可根据需要对教材内容进行选择性的教学。另外,本书针对每个单元添加了大量的习题训练,供读者更好地理解课文的内容。

本书是大学汽车专业英语必修课教材,可供汽车工程、汽车运用技术、汽车商务等相近专业本科、高职学生使用,也可作为汽车专业人员英语进修班培训教材,还可作为汽车维修技术人员的参考用书。

本书由北京吉利大学的关云霞(Unit 3 和 Unit 7)和北京交通运输职业学院的缙庆伟(Unit 9)担任主编,由山东交通学院的吴芷红(Unit 1)和北京吉利大学的王云蕾(Unit 11~Unit 18)担任副主编。参编人员为上海大学的袁文燕(Unit 2)、南京三江学院的秦洪艳(Unit 5)、北京交通运输职业学院的悦中原(Unit 10)、姚建玲(Unit 6)、杨文华(Unit 4、Unit 8)。

由于编者水平有限,疏漏、不当之处在所难免,欢迎广大读者提出宝贵意见,以便今后修订改进。

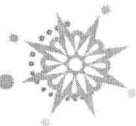
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Unit 1

The Basic Structure of an Automobile

Today's average automobile contains more than 15,000 separate parts that they must work together. These parts can be grouped into four major categories: engine, body, chassis and electrical equipments. The layout of modern automobile is shown as Fig.1.1.

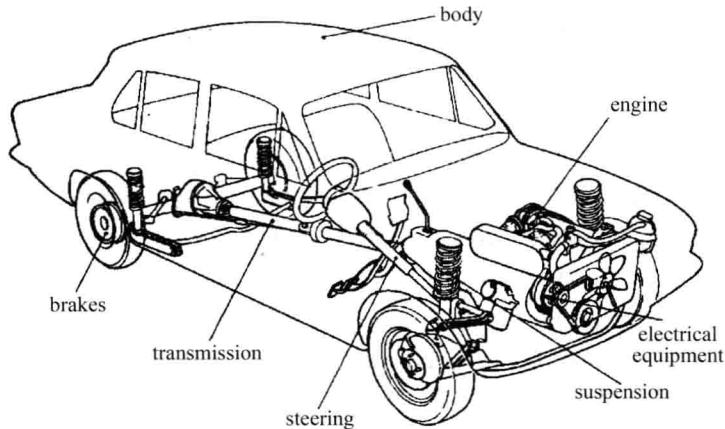


Fig.1.1 Layout of a Modern Automobile

☆ Engine

The engine supplies the power for the vehicle. Most automotive engines are located at the front of the vehicle and drive the wheels through a power train made up of gears, shafts, and other mechanical and hydraulic components. Most automotive vehicles are powered by a four-stroke-cycle internal combustion engine. The in-line four-cylinder engine and V-type six-cylinder engine are the most widely used, with V-8 engines are also common. Some passenger cars and trucks have diesel engines.

☆ Body

The automobile body is the assembly of sheet-metal, plastic or composite material panels together with windows, doors, seats, upholstery and other parts.

In older vehicle designs, the frame is a separate rigid structure; newer passenger-car designs have the frame and body structure combined into an integral unit.

☆ Suspension

The suspension supports the weight of the vehicle, absorbs road shocks, transmits brake-reaction forces, helps maintain traction between the tires and the road. The springs may be coil, leaf, torsion bar, or air. Most automotive vehicles have coil springs at the front and either coil or leaf springs at the rear.

☆ Steering

The steering system enables the driver to turn the front wheels left or right to control the direction of vehicle travel. Steering systems are classified as either manual steering or power steering, with power assist provided hydraulically or by an electric motor.

☆ Brake

A brake is a device that uses a controlled force to reduce the speed or to stop a moving vehicle, or to hold the vehicle stationary.

☆ Transmission

The transmission is the device in the power train that provides different forward gear ratios between the engine and drive wheels, as well as neutral and reverse. The two types of transmission are manual transmission, which the driver shifts by hand, and automatic transmission, which shifts automatically.

In power train, the final drive is the speed-reduction gear set that drives the differential. The differential is the gear assembly between axle shafts that permits one wheel to rotate at a speed different from that of the other (if necessary), while transmitting torque from the final-drive ring gear to the axle shafts.

☆ Electrical Equipment

Most automotive engines have electronic fuel injection instead of a carburetor. A computer-controlled engine managing system automatically manages various emissions devices and engine operation, including the fuel injection and spark timing.

NEW WORDS AND PHRASES

automobile[ˌɔ:təmə'bi:l]

n. 汽车

average ['ævərɪdʒ]

adj. 平均的, 普通的, 一般的

categories['kætɪgəraɪz]

n. 种类, 类别

engine ['endʒɪn]

n. 发动机

body['bɒdi]

n. 汽车车身



chassis[ˈʃæsi]
 layout[ˈleɪ.əʊt]
 power [ˈpaʊə]
 automotive [ɔːtəˈməʊtɪv]
 vehicle [ˈviːɪkl]
 power train
 gear [ɡiə]
 shaft [ʃɑːft]
 mechanical[miˈkænikl]
 hydraulic[haɪˈdrɔːlik]
 combustion [kəmˈbʌstʃən]
 stroke[stɹəʊk]
 cylinder [ˈsɪlɪndə]
 passenger [ˈpæsiŋdʒə]
 truck[trʌk]
 diesel[ˈdiːzəl]
 composite[ˈkɒmpəzɪt, -zəɪt]
 material[məˈtɪəriəl]
 panel[ˈpænl]
 upholstery[ʌpˈhəʊlstəri]
 frame[freɪm]
 rigid[ˈrɪdʒɪd]
 integral[ˈɪntɪgrəl]
 suspension[səsˈpenʃən]
 transmit[trænzˈmɪt]
 brake-reaction force
 maintain[mənˈteɪn]
 traction[ˈtrækʃən]
 tire[ˈtaɪə]
 spring[sprɪŋ]
 coil[kɔɪl]
 leaf[liːf]
 torsion[ˈtɔːʃən]
 rear[riə]
 steering[ˈstiəriŋ]
 manual[ˈmænjuəl]
 transmission[trænzˈmɪʃən]
 ratio[ˈreɪʃiəʊ]

n. 底盘
n. 布局, 安排
n. 动力, 功率
adj. 有关汽车的; 机动(车)的
n. 交通工具, 车辆
 传动系
n. 齿轮, 传动装置; *vt.* 齿轮传动; *vi.* 换挡
n. 轴
adj. 机械学的; 力学的
adj. 液力的, 液压的
n. 燃烧
n. 冲程
n. 汽缸
n. 乘客
n. 卡车, 载重汽车
n. 柴油
adj. 复合的, 合成的
n. 材料
n. 仪表板; 控制板; 面板
n. 车身衬里, 内饰
n. 车架
adj. 刚硬的
adj. 完整的, 整体的
n. 悬挂
vt. 传送
 制动作用力
vt. 保持
n. 驱动力
n. 轮胎
n. 弹簧
n. 线圈, 螺旋(弹簧)
n. 叶片
n. 扭转
n. 后部
n. 转向装置
adj. 手动操作的; *n.* 手册
n. 传动装置, 变速器
n. 比; 传动比



| | |
|------------------------------|---------------|
| neutral['nju:trəl] | adj. 空挡的 |
| reverse[ri'veə:s] | adj. 相反的, 反向的 |
| automatic[ɔ:tə'mætik] | adj. 自动的 |
| automatically [ɔ:tə'mætɪklɪ] | adv. 自动地 |
| final drive | 主减速器 |
| speed-reduction | 减速装置 |
| differential[,dɪfə'renʃ əl] | n. 差速器 |
| axle['æksl] | n. 轴, 车桥 |
| torque[tɔ:k] | n. 力矩 |
| electronic fuel injection | 电子燃油喷射 |
| carburetor [kɑ:bə'retə(r)] | n. 化油器 |
| spark[spɑ:k] | n. 火花 |
| timing['taɪmɪŋ] | n. (点火、喷油等)正时 |
| emission['ɪmɪʃ ən] | n. 排放 |

NOTES TO THE TEXT

1. Most automotive engines are located at the front of the vehicle and drive the rear wheels through a power train made up of gears, shafts, and other mechanical and hydraulic components.

大多数汽车发动机位于汽车的前部, 通过传动系驱动车轮, 动力传动系是由齿轮、轴和其他的机械与液压元件组成的。

made up of 为分词, 修饰 power train。

2. The automobile body is the assembly of sheet-metal, plastic or composite material panels together with windows, doors, seats, upholstery and other parts.

汽车车身是由薄钢板、塑料或合成材料构成的带有车窗、车门、座椅、汽车内饰和其他部件的装配体。

3. The suspension supports the weight of the vehicle, absorbs road shocks, transmits brake-reaction forces, helps maintain traction between the tires and the road.

悬架支撑车体重量, 吸收来自路面的冲击, 传送制动作用力, 从而有助于维持轮胎和路面之间的牵引力。

此句采用并列谓语。

4. The steering system enables the driver to turn the front wheels left or right to control the direction of vehicle travel.

转向系统使驾驶员以前轮向左或右转来控制汽车行驶的方向。

enable sb to do: 某人可以干某事。

5. The transmission is the device in the power train that provides different forward gear ratios between the engine and drive wheels, as well as neutral and reverse.

传动系中变速器的作用是在发动机和驱动轮之间的前进挡中提供不同的传动比, 同时也有空挡和倒挡。



that 从句修饰的是 the device。

6. The differential is the gear assembly between axle shafts that permits one wheel to rotate at a speed different from that of the other (if necessary), while transmitting torque from the final-drive ring gear to the axle shafts.

差速器是车轮半轴之间的齿轮总成，当把主动动环形齿轮的扭矩传送给车轮半轴时，它允许内、外车轮以不同的速度旋转(如果必要的话)。

EXERCISES

1. Translate the following expressions into Chinese.

| | |
|---------------------------|--|
| automatic | |
| final drive | |
| automobile | |
| automotive | |
| frame | |
| axle | |
| body | |
| brake-reaction force | |
| carburetor | |
| manual | |
| chassis | |
| panel | |
| combustion | |
| power | |
| cylinder | |
| diesel | |
| differential | |
| electronic fuel injection | |
| emission | |
| engine | |

2. Translate the following expressions into English.

| | |
|---------|--|
| 传动系 | |
| 比；传动比 | |
| 后部 | |
| 相反的，反向的 | |
| 刚硬的 | |

(续)

| | |
|------------|--|
| 轴 | |
| 火花 | |
| 减速装置 | |
| 弹簧 | |
| 转向装置 | |
| 冲程 | |
| 悬挂 | |
| (点火、喷油等)正时 | |
| 轮胎 | |
| 力矩 | |
| 机械学的 | |
| 驱动力 | |
| 传动装置, 变速器 | |
| 车辆 | |
| 卡车, 载重汽车 | |

3. Read each statement below and indicate if it is true (T) or false (F) according to your understanding of the text, and then translate the true sentences.

(1) The suspension supports the weight of the vehicle, absorbs road shocks, transmits brake-reaction forces. ()

(2) The steering system enables the driver to turn the rear wheels to control the direction of most vehicle travel. ()

(3) A brake is a device that uses a uncontrolled force to reduce the speed of or stop a moving vehicle. ()

(4) The engine supplies the power to move the vehicle. ()

(5) V-type 12-cylinder engine are the most widely used today. ()

(6) Most automotive engines today have electronic fuel injection instead of a carburetor. ()

(7) The final drive is the speed-reduction gear set that drives the differential. ()

READING MATERIAL

History of the Automobile

The history of the automobile begins as early as 1769, with the creation of steam-powered automobiles capable of human transport. Steam-powered self-propelled vehicles are thought to have been devised in the late 18th century. German engineer Karl Benz, inventor of numerous



car-related technologies, is generally regarded as the inventor of the modern automobile. Karl Benz built his first automobile in 1885 in Mannheim(Fig.1.2). Benz was granted a patent for his automobile on 29 January 1886, and began the first production of automobiles in 1888.

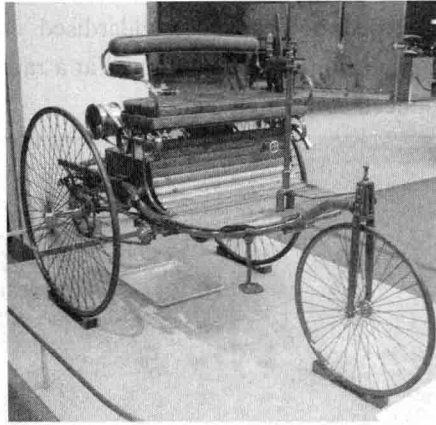


Fig.1.2 The 1885-built Benz Patent Motorwagen

☆ Veteran Car Era

By 1900, mass production of automobiles had begun in France and the United States. Innovation was rapid and rampant, with no clear standards for basic vehicle architectures, body styles, construction materials, or controls. Major breakthroughs in proving the usefulness of the automobile came with the historic long-distance drive of Bertha Benz in 1888, when she traveled more than 80 kilometres (50 mi) from Mannheim to Pforzheim, to make people aware of the potential of the vehicles her husband, Karl Benz, manufactured.

☆ Edwardian Era

Edwardian era lasted from roughly 1905 through to the beginning of World War I in 1914. The most popular car is shown as Fig.1.3. Key developments included electric ignition system (by Robert Bosch, 1903), independent suspension, and four-wheel brakes (by the Arrol-Johnston Company of Scotland in 1909).

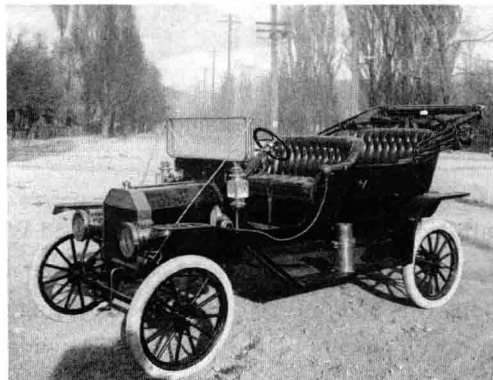


Fig.1.3 The 1910 Model T, Photographed in Salt Lake City

☆ Vintage Era

The vintage era lasted from the end of World War I (1919), through the Wall Street Crash at the end of 1929. The most popular car is shown as Fig.1.4. During this period, the front-engined car came to dominate, with closed bodies and standardised controls becoming the norm. Development of the internal combustion engine continued at a rapid pace, with multi-valve and overhead camshaft engines produced at the high end.

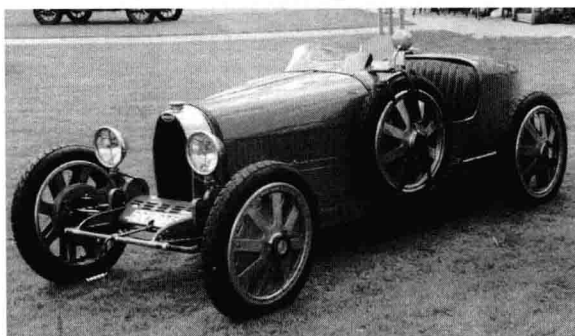


Fig.1.4 Bugatti Type 35A Grand Prix Racer 1925

☆ Pre-WWII Era

The pre-war era began with the Great Depression in 1930, and ended at 1948. The most popular car is shown as Fig.1.5. By the 1930s, most of the mechanical technology used in today's automobiles had been invented.

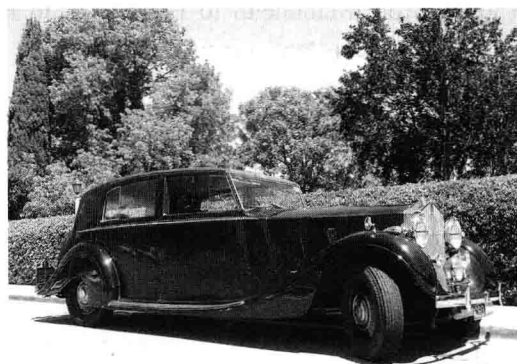


Fig.1.5 Rolls Royce Phantom, Circa 1936

☆ Post-war Era

Automobile design finally emerged from the shadow of World War II in 1949. In Italy, Enzo Ferrari was beginning his 250 series. In America, performance became a prime focus of marketing, exemplified by pony cars and muscle cars. But everything changed in the 1970s as the 1973 oil crisis. The biggest developments of the era were the widespread use of independent suspensions, wider application of fuel injection, and an increasing focus on safety in the design of automobiles. The most popular car is shown as Fig.1.6.



Fig.1.6 1974—1978 Mustang II.

☆ Modern Era

The modern era is normally defined as the 25 years preceding the current year. The modern era has been one of increasing standardisation, platform sharing, and computer-aided design. Some particularly notable advances in modern times are the widespread of front-wheel drive and all-wheel drive, the adoption of the V6 engine configuration, and the ubiquity of fuel injection. The modern era has also seen rapidly rising fuel efficiency and engine output. The most popular car is shown as Fig.1.7.



Fig.1.7 1992—1993 Honda Accord sedan (U.S.)

| | |
|-------------------------------------|----------------------------------|
| era ['iərə] | <i>n.</i> 纪元; 年代 |
| rampant ['ræmpənt] | <i>adj.</i> 无法控制的 |
| breakthrough ['breik'θru:] | <i>n.</i> 突破点 |
| suspension [səs'penʃən] | <i>n.</i> 悬挂 |
| vintage ['vintidʒ] | <i>adj.</i> 古老的; 过时的(尤指曾经一度为最佳的) |
| standardise [ˌstændədaɪ'zeɪʃən] | <i>vt.</i> 使标准化 |
| exemplify [ɪg'zemplɪfaɪ] | <i>vt.</i> 举例证明 |
| standardisation [ˌstændədaɪ'zeɪʃən] | <i>n.</i> 标准化 |
| platform ['plætfɔ:m] | <i>n.</i> 平台 |



Unit 2

The Basic Principle of Engine

Text A Classification and Main Components of Engine

The internal combustion engine is an engine in which the combustion of fuel occurs with oxygen(usually air) in a combustion chamber, as shown in Fig.2.1.

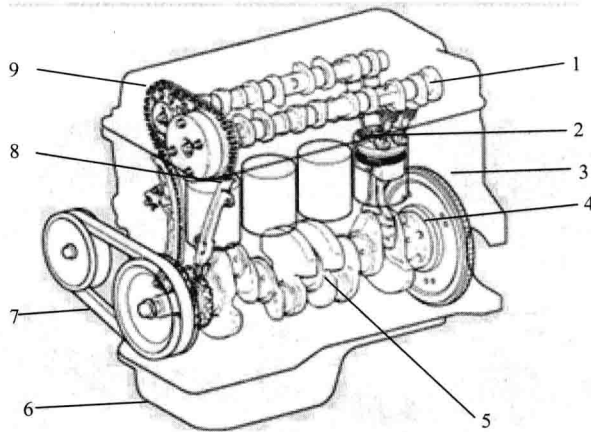


Fig.2.1 Internal Combustion Engine

- | | | | | |
|--------------------------------|-----------|----------------|------------|---------------|
| 1—the cap of the cylinder head | 2—valve | 3—engine block | 4—flywheel | |
| 5—crankshaft | 6—oil pan | 7—pulley | 8—cylinder | 9—timing gear |

Classification of Engine

The engine can be classified in following ways:

☆ By Fuel System

Gasoline engine and diesel engine are used. In a gasoline engine, the air-fuel mixture is exploded in the engine. A diesel engine uses diesel fuel. It generates high power at low speeds. The fuel efficiency is better than that of a gasoline engine.