



21世纪 高职高专通用教材

# 汽车专业英语

● 蔡伟义 虞 兰 主编

上海交通大学出版社

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# 汽车专业英语

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上海交通大学出版社

## 内 容 提 要

本书以汽车构造为基础,着重选编现代汽车维修与检测方面的资料。按汽车结构分类进行编排,共分 20 个单元。每个单元包括课文、词汇、注释、练习和阅读材料。

本书可作为在校汽车运用工程专业及其相关专业的高职学生专业英语课程的教材,亦可供汽车维修与检测行业的从业者以及汽车爱好者自学参考。

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# 序

发展高等职业技术教育，是实施科教兴国战略、贯彻《高等教育法》与《职业教育法》、实现《中国教育改革与发展纲要》及其《实施意见》所确定的目标和任务的重要环节；也是建立健全职业教育体系、调整高等教育结构的重要举措。

近年来，年青的高等职业教育以自己鲜明的特色，独树一帜，打破了高等教育界传统大学一统天下的局面，在适应现代社会人才的多样化需求、实施高等教育大众化等方面，做出了重大贡献。从而在世界范围内日益受到重视，得到迅速发展。

我国改革开放不久，从1980年开始，在一些经济发展较快的中心城市就先后开办了一批职业大学。1985年，中共中央、国务院在关于教育体制改革的决定中提出，要建立从初级到高级的职业教育体系，并与普通教育相沟通。1996年《中华人民共和国职业教育法》的颁布，从法律上规定了高等职业教育的地位和作用。目前，我国高等职业教育的发展与改革正面临着很好的形势和机遇：职业大学、高等专科学校和成人高校正在积极发展专科层次的高等职业教育；部分民办高校也在试办高等职业教育；一些本科院校也建立了高等职业技术学院，为发展本科层次的高等职业教育进行探索。国家学位委员会1997年会议决定，设立工程硕士、医疗专业硕士、教育专业硕士等学位，并指出，上述学位与工程学硕士、医学科学硕士、教育学硕士等学位是不同类型的同一层次。这就为培养更高层次的一线岗位人才开了先河。

高等职业教育本身具有鲜明的职业特征，这就要求我们在改革课程体系的基础上，认真研究和改革课程教学内容及教学方法，努力加强教材建设。但迄今为止，符合职业特点和需求的教材却还不多。由泰州职业技术学院、上海第二工业大学、金陵职业大学、扬州职业大

学、彭城职业大学、沙洲职业工学院、上海交通高等职业技术学校、上海交通大学技术学院、上海汽车工业总公司职工大学、立信会计高等专科学校、江阴职工大学、江南学院、常州技术师范学院、苏州职业大学、锡山职业教育中心、上海商业职业技术学院、山东商业职业技术学院、福州大学职业技术学院、青岛职业技术学院、潍坊学院、上海工程技术大学等百余所院校长期从事高等职业教育、有丰富教学经验的资深教师共同编写的《21 世纪高职高专通用教材》，将由上海交通大学出版社等陆续向读者朋友推出，这是一件值得庆贺的大好事，在此，我们表示衷心的祝贺。并向参加编写的全体教师表示敬意。

高职教育的教材面广量大，花色品种甚多，是一项浩繁而艰巨的工程，除了高职院校和出版社的继续努力外，还要靠国家教育部和省(市)教委加强领导，并设立高等职业教育教材基金，以资助教材编写工作，促进高职教育的发展和改革。高职教育以培养一线人才岗位与岗位群能力为中心，理论教学与实践训练并重，二者密切结合。我们在这方面的改革实践还不充分。在肯定现已编写的高职教材所取得的成绩的同时，有关学校和教师要结合各校的实际情况和实训计划，加以灵活运用，并随着教学改革的深入，进行必要的充实、修改，使之日臻完善。

阳春三月，莺歌燕舞，百花齐放，愿我国高等职业教育及其教材建设如春天里的花园，群芳争妍，为我国的经济建设和社会发展作出应有的贡献！

叶春生

# 前 言

目前,汽车专业英语教材主要是面向高校本科学生,而针对汽车运用工程专业高等职业技术教育的专业英语教材至今仍然是空白。鉴于高职高专学生的培养目标与普通高等教育的学生有所不同,因此现有的汽车专业英语教材并不适用于高等职业技术教育。为充分适应高等职业技术教育的特点,特编写本教材。

汽车专业英语课程旨在使学生通过一定学时的专业英语学习,巩固已经掌握的基本词汇和语法知识,扩大专业词汇,掌握科技文章的语法结构及文体方面的知识,提高英语应用能力,使学生能够以英语为工具,获得专业所需要的信息。

本教材在内容上分为两大部分,第一部分课文介绍汽车各部件结构原理;第二部分阅读材料主要介绍汽车维修方面的内容。这样编排的内容针对性强,实用性好。同时,在课文的编排上还尽量照顾到汽车专业知识学习的系统性,基本上按汽车结构分类进行编排,并选编了汽车维修与检测资料及文献检索的内容。

课文内容及阅读材料还选编了一些现代汽车新技术方面的内容,如电控汽油喷射、自动变速器、ABS 防抱死制动系统等,使学生通过专业英语的学习,不仅能够提高英语的应用能力,还能进一步扩大对新技术的知识面。

本教材由南京林业大学汽车工程系蔡伟义和上海大学巴士汽车学院虞兰任主编,天津轻工业学院李海岩、浙江金华职业技术学院刘正怀、上海大学巴士汽车学院方铰、南京林业大学汽车工程系封晓强任副主编,上海大学巴士汽车学院顾问葛贤康教授担任主审。南京林业大学汽车工程系邱正祥和羊玢参加编写。其中蔡伟义编写 Unit4, Unit 5, Unit 6;邱正祥编写 Unit9, Unit10;封晓强编写 Unit13, Unit16;羊玢编写 Unit14, Unit15;虞兰编写 Unit1, Unit 3, Unit 7, Unit 8, U-

nit 17; 方铀编写 Unit 19, Unit 20; 李海岩编写 Unit 11, Unit 12; 刘正怀编写 Unit 2, Unit 18。全书由虞兰统稿。闵永军副教授校阅了部分课文及注释。在收集资料的过程中得到了黄银娣副教授、蔡仁林高级技师和万茂松的帮助,同时得到了上海交通大学出版社的大力支持,在此一并表示感谢。

**编 者**

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# UNIT 1

## STRUCTURE OF AUTOMOBILES

### BASIC STRUCTURES

Although automobiles have changed greatly in style and design since their invention, automobiles are basically the same in structure. Any automobile is composed of four sections such as the engine, chassis, body and electrical system. (See Fig. 1. 1)

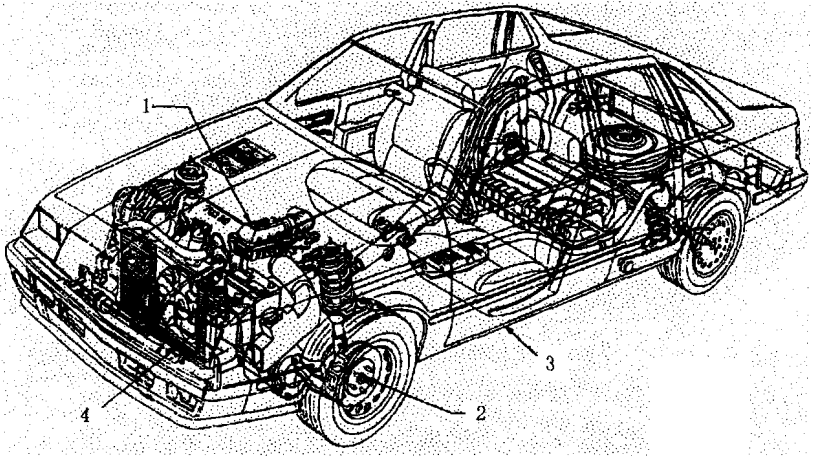


Fig. 1.1 structure of automobiles

1-engine 2-chassis 3-body 4-electrical system

An engine which is called the “heart” of a vehicle is used to supply power for an automobile. Generally, an automobile is operated by

internal combustion engine. The internal combustion engine burns fuel within the cylinders and converts the expanding force of the combustion or “explosion” into rotary force used to propel the vehicle.

A Chassis which is seen as a support frame for an auto body is used to assemble the auto components on it. Actually, the term “chassis” comprises a total assembly beginning with power train, going on to steering, wheel suspension, brakes and even tires. These individual components interact with each other closely. Therefore, a chassis itself can be divided into three systems like driving system, steering system and brake system;

- Driving system connects the transmission with the driving axle. In effect, the driving system works by transmitting engine power to the driving wheels. The driving system consists of the clutch, transmission, universal joint, driving axle, etc.
- Steering system is used to control the driving direction of an automobile. It is composed of the steering wheel, steering column, worm gear sector, steering drop arm and worm.
- Brake system is a balanced set of mechanical and hydraulic devices used to retard the motion of the vehicle by means of friction. It consists of the drum or disc brake assembly, brake lever assembly, etc.

An automobile body that is taken as an auto framework is seated on the chassis. An auto body usually consists of a driving room, a passenger or loading room and possibly a trunk.

An electrical system, which is considered an auto electric power source, supplies lighting and driving power for the automobile. The electrical system contains battery, lights, starting motor, generator, engine ignition, lighting circuit, and various switches that control their use.

## THE ADVANCES OF AUTOMOBILES TECHNOLOGY

Technical advances have made it possible to improve all the significant qualities of an automobile such as space, comfort, reliability, performance, fuel economy, safety and environmental compatibility. A steady stream of improvement in the automobile's most important areas is due to the technical advances. Generally, new technologies begin gradually; they expand as they are perfected and finally become the state of art where improvements are hardly possible anymore. Then, there appears another breakthrough in technology. Therefore, thanks to many conceivable and still-possible technological advances, it can safely be said that the automobile as a means of transportation still has a long developmental potential.

The further development of automobile will be determined; aside from improved components and structures, by the general developmental trends of technology. A large influence on automobile design and manufacturing will be exerted in the years to come by the advances in electronics, alternative materials, alternative fuels, fuel cell, micromachine, and computer-aided technology.

Electronics has played an essential role in almost all technical solutions. Electronic devices have replaced many mechanical systems and excel in precise and complex control systems. More researches in this area are dedicated to driver information system. With electronics, the information system will include information on all relevant traffic events and will develop traffic analyses and travel recommendations.

Progress in automotive engineering has always been tied to progress in material science. Many car interior requirements can be fulfilled through new soft and formable synthetic materials and, on the

other hand, corrosion-resistant plastic can be used to make outside parts more durable. Other advantages of using new lightweight materials include improved road performance and reduced fuel consumption. Generally speaking, a vehicle should be as light as possible, but in the case of an accident it should still be safe. Important criteria in the adoption and use of alternative materials — aside from their material properties — are suitability for mass production methods and guaranteed uniformity in manufacturing quality.

Computer and its help in design, measurement and test techniques, and precision control of machine tools are needed for further improvements in automotive engineering.

The development of uses for the new techniques with automobile systems is advancing rapidly. What will think next? There is no second guessing where it can all go from here, but consider this scenario:

Alex Smith slips under the steering wheel and settles into the plush driver's seat. He gently places his thumb into a small silvery cup on the dash and since the computer recognizes both his posterior and the thumbprint, the engine starts. While he waits for the All-System-Go light to turn from red to green, he slides a keyboard out from under the arm rest, punches a couple of buttons for a fresh cup of coffee and accesses the CNN stock market report, when a familiar voice says, "Where would you like to go today?" He Press the Drive button and motors on his way and during the short trip to the office, Alex punches a couple of more buttons to view his schedule. Since his afternoon is open, he references his Global Weather Reports and finds a great day in store then e-mails the club for a lunch reservation and Tee Time. With information from the CNN report, Alex is able to FAX a couple of buy orders to his local Wall Street contact before he reaches the office, He leans back, takes a deep breath, flips down the visor and says: "Mirror, Mirror on the Visor, Who's the one that's

so much wiser?"

## NEW WORDS & PHRASES

automobile, auto <i>n.</i>	汽车
engine <i>n.</i>	发动机
chassis <i>n.</i>	底盘
electrical system	电气系统
internal combustion engine	内燃机
fuel <i>n.</i>	燃料
cylinder <i>n.</i>	气缸
assembly <i>n.</i>	总成, 总装
power train	动力系, 传动系
driving system	传动系
steering system	转向系
wheel suspension	车轮悬架
brake system	制动系
transmission <i>n.</i>	变速器
driving axle	驱动轴, 驱动桥
clutch <i>n.</i>	离合器
universal joint	万向节
steering wheel	方向盘, 转向盘
steering column	转向柱, 转向盘柱
worm gear sector	蜗轮齿弧块, 扇形轮
steering drop arm	转向垂臂
worm <i>n.</i>	蜗杆
drum brake assembly	鼓式制动器总成
disc brake assembly	盘式制动器总成
brake lever assembly	制动杆总成
loading room	货厢

trunk <i>n.</i>	(车尾的)行李箱
generator <i>n.</i>	发电机
engine ignition	发动机点火装置
lighting circuit	照明电路
switch <i>n.</i>	开关
transmit <i>v.</i>	传动
retard <i>v.</i>	阻碍, 制动
mechanical <i>adj.</i>	机械的
hydraulic <i>adj.</i>	液压的
technology <i>n.</i>	技术
technique <i>n.</i>	技术, 技巧
performance <i>n.</i>	性能
fuel economy	燃油经济性
means of transportation	交通工具
electronics <i>n.</i>	电子学
alternative material	代用材料
alternative fuel	代用燃料
fuel cell	燃料电池
micromachine <i>n.</i>	微机械
computer-aided technology	计算机辅助技术
driver information system	驾驶员信息系统
synthetic material	合成材料
corrosion <i>n.</i>	腐蚀
corrosion-resistant <i>adj.</i>	抗腐蚀的
mass production	批量生产, 大规模生产
uniformity <i>n.</i>	一致性
scenario <i>n.</i>	场景, 情景
CNN(Cable News Network)	美国有线新闻网络

## NOTES TO THE TEXT

1. Although automobiles have changed greatly in style and design since their invention, automobiles are basically the same in structure.

虽然自从汽车发明以来,汽车在风格和设计上已发生了很大的变化,但是汽车的结构基本是同样的。

2. Any automobile is composed of four sections such as the engine, chassis, body and electrical system.

所有的汽车都由四个部分组成,即发动机、底盘、车身和电气系统。

“to be composed of”, 由...组成, 包括...。在课文中,类似的表达方法还有:“to comprise”, “to consist of”, “to contain”。

3. The internal combustion engine burns fuel within the cylinders and converts the expanding force of the combustion or “explosion” into rotary force used to propel the vehicle.

内燃机燃烧气缸内的燃油,然后将由燃烧或爆炸生成的膨胀力转化为旋转力,用来驱动车辆。

4. Actually, the term “chassis” comprises a total assembly beginning with power train, going on to steering, wheel suspension, brakes and even tires.

实际上,“底盘”这一术语包括完整的总成,它始于传动系,然后是转向、车轮悬架、制动直至轮胎。

“beginning with...”这一分词结构作为定语修饰 assembly。

5. Therefore, a chassis itself can be divided into three systems like driving system, steering system and brake system;

所以,底盘本身可分为传动系、转向系和制动系这三个系统:

6. The driving system consists of the clutch, transmission, universal joint, driving axle, etc.

传动系包括离合器、变速器、万向节和驱动轴等。



7. Brake system is a balanced set of mechanical and hydraulic devices used to retard the motion of the vehicle by means of friction.

制动系是一个机械力与液压平衡的装置,通过摩擦来阻止车辆的运动。

8. An auto body usually consists of a driving room, a passenger or loading room and possibly a trunk.

车身通常包括驾驶室、乘客车厢或货厢,还可能有后行李箱。

9. An electrical system, which is considered an auto electric power source, supplies lighting and driving power for the automobile.

电气系统被认为是汽车的电源,为汽车提供照明与驱动力。

10. The electrical system contains battery, lights, starting motor, generator, engine ignition, lighting circuit, and various switches that control their use.

电气系统包括蓄电池、照明、起动电机、发电机、发动机点火装置、照明电路和各种控制电气设备使用的开关。

11. Technical advances have made it possible to improve all the significant qualities of an automobile such as space, comfort, reliability, performance, fuel economy, safety and environmental compatibility.

技术进步使所有重要的汽车质量改进成为可能,这些改进包括汽车空间、舒适性、可靠性、性能、燃油经济性、安全性和与环境的相容性。

12. Therefore, thanks to many conceivable and still-possible technological advances, it can safely be said that the automobile as a means of transportation still has a long developmental potential.

因此,由于许多可以得到的和仅仅可能的技术进步,可以有把握地说,汽车作为一种交通工具仍将有长远的发展潜力。