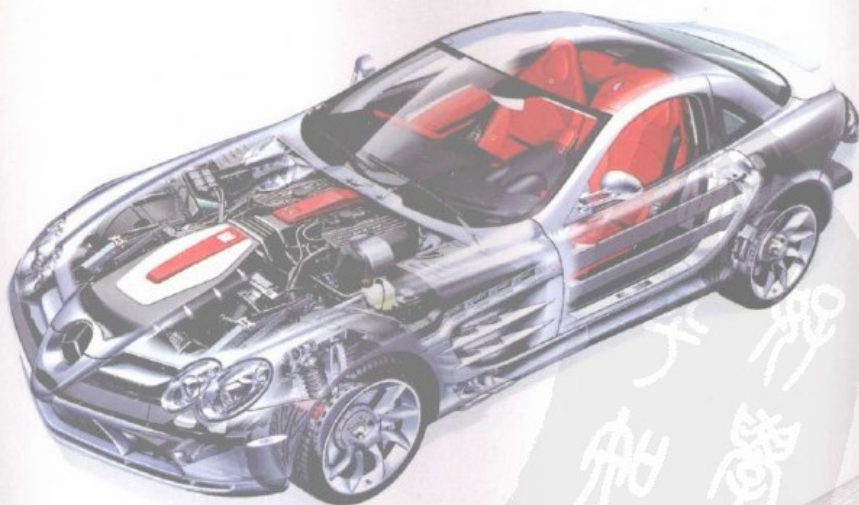


· 高职高专汽车技术服务与营销专业系列教材 ·



# 汽车专业英语

主 编 何宇漾  
副主编 徐 云  
参 编 高 慧 叶美桃



重庆大学出版社  
<http://www.cqup.com.cn>

QICHE ZHUANYE YINGYU

封面设计：程 晨

· 高职高专汽车技术服务与营销专业系列教材 ·



汽车概论  
汽车机械基础  
汽车工程材料  
汽车底盘构造  
汽车发动机构造  
汽车新技术  
汽车营销实务  
汽车市场调研与预测

汽车配件管理与营销  
汽车综合服务管理  
汽车美容  
旧车评估  
汽车保险与理赔  
汽车服务工程

► 汽车专业英语

汽车专业英语  
PDG

ISBN 978-7-5624-4534-0



9 787562 445340 >

定价：19.00元

高职高专汽车技术服务与营销专业系列教材

# 汽车专业英语

主 编 何宇漾  
副主编 徐 云  
参 编 高 慧 叶美桃

重庆大学出版社

PDG

## 内 容 提 要

本书根据高等职业院校教学实际编写而成,以汽车类专业学生所需要的词汇和短语为主,内容涵盖汽车文化、构造、检测、保养、维修等知识。主要包括:汽车基本知识、汽车发动机、曲柄连杆机构、发动机燃油系统、发动机冷却与润滑系统、发动机进排气系统、柴油发动机燃油系统、混合动力汽车、传动系、制动系、转向系与行驶系、充电与启动系统、点火与汽车空调系统、保养维修手册、用户手册等。本书每一单元附有补充阅读材料,书后附有汽车缩略词语表及汽车常用名词。

本书可作为高职高专院校汽车类专业的教材,也可作为汽车销售及汽车维修人员自学专业英语的参考书。

### 图书在版编目(CIP)数据

汽车专业英语/何宇漾主编. —重庆:重庆大学出版社,  
2008.9

(高职高专汽车技术服务与营销专业系列教材)

ISBN 978-7-5624-4534-0

I. 汽… II. 何… III. 汽车工程—英语—高等学校:技  
术学校—教材 IV. H31

中国版本图书馆 CIP 数据核字(2008)第 111667 号

高职高专汽车技术服务与营销专业系列教材

### 汽车专业英语

主 编 何宇漾

副主编 徐 云

参 编 高 慧 叶美桃

责任编辑:王维朗 刘丽萍 版式设计:王维朗

责任校对:谢 芳 责任印制:赵 晟

\*

重庆大学出版社出版发行

出版人:张鸽盛

社址:重庆市沙坪坝正街 174 号重庆大学(A 区)内

邮编:400030

电话:(023) 65102378 65105781

传真:(023) 65103686 65105565

网址: <http://www.cqup.com.cn>

邮箱: [fxk@cqup.com.cn](mailto:fxk@cqup.com.cn) (营销中心)

全国新华书店经销

重庆升光电力印务有限公司印刷

\*

开本:787×1092 1/16 印张:11 字数:275 千

2008 年 9 月第 1 版 2008 年 9 月第 1 次印刷

印数:1—3 000

ISBN 978-7-5624-4534-0 定价:19.00 元

本书如有印刷、装订等质量问题,本社负责调换

版权所有,请勿擅自翻印和用本书

制作各类出版物及配套用书,违者必究

# 前言

随着汽车工业的飞速发展,高职高专学生成为汽车整车及汽车零部件销售、汽车检测、汽车维修市场的主力军。为了更好地适应工作岗位,如阅读汽车英语资料和操作带有英文标识的汽车检测仪器,要求学生具有一定的专业英语阅读和翻译能力。

本书从高职高专学生的实际情况出发,以汽车构造体系为主线,深入浅出地介绍了汽车各主要系统的构造和工作原理,并将汽车的历史、文化、新技术、保养维修等融入其中,使学生能够比较系统地掌握汽车方面的英语知识。本书内容以汽车构造为主,并选编了汽车使用、汽车维修和汽车新技术等方面的文章,尽可能使汽车专业知识具有系统性和完整性,取材时考虑难度适中,并增加大量图片说明,提高学生的学习兴趣,并附以一定的练习。

本书由江苏信息职业技术学院何宇漾担任主编,黑龙江农业工程职业学院徐云担任副主编。书中第1,2,3,5,15,16,17单元由何宇漾编写;第9,10,11,12,13单元由徐云编写;第14,18,19单元由高慧编写;第4,6,7,8单元由叶美桃编写。

鉴于汽车技术的发展,编者的经历和水平有限,书中难免会有疏漏和不足之处,希望广大师生及读者提出宝贵意见,以便进行修改和补充。

编者  
2008年7月

# Contents

<b>Unit 1 Automobile Overview</b>	1
Part 1 Automobile classifications	1
Part 2 SANTANA 2000 GSI technical data	2
Reading material Kinds of cars	4
<b>Unit 2 Automobile Basics</b>	7
Part 1 Structure of automobile	7
Part 2 Logos of automakers	10
Reading material The history of automobile	15
<b>Unit 3 Automotive Engine</b>	17
Part 1 Engine types and operating	17
Part 2 Engine specifications	20
Reading material The components of the engine	22
<b>Unit 4 Crank and Connecting Rod Mechanism</b>	24
Part 1 Piston, connecting rod and crankshaft	24
Part 2 Cylinder block	27
Reading material Valves and valves train	29
<b>Unit 5 Engine Fuel System</b>	31
Part 1 Fuel injection system	31
Part 2 Petrol engine fuel system	34
Reading material Direct petrol injection	35
<b>Unit 6 Engine Cooling and Lubrication Systems</b>	38
Part 1 Engine cooling system	38
Part 2 Engine lubrication system	41
Reading material Lubrication system service and maintenance	43
<b>Unit 7 Engine Intake and Exhaust Systems</b>	45
Part 1 Engine intake air system	45
Part 2 Engine exhaust system	47
Reading material Three-way catalytic converter (TWC)	51
<b>Unit 8 Diesel Engine Fuel System</b>	55
Part 1 Common rail diesel injection system	55



Part 2 Principles .....	57
Reading material History of common rail direct fuel injection .....	59
<b>Unit 9 Hybrid Electric Vehicle .....</b>	<b>61</b>
Part 1 HEV basics .....	61
Part 2 The operation of HEV .....	63
Reading material Hybrid electric vehicles maintenance ...	66
<b>Unit 10 Transmission System .....</b>	<b>68</b>
Part 1 Overview .....	68
Part 2 Automatic transmission .....	71
Reading material Manual transmission .....	75
<b>Unit 11 Braking System .....</b>	<b>77</b>
Part 1 Braking system .....	77
Part 2 ABS (Anti-lock Braking System) .....	79
Reading material Electronic stability program (ESP) function .....	81
<b>Unit 12 Steering System and the Running Device .....</b>	<b>84</b>
Part 1 Steering system .....	84
Part 2 The running device of automobile .....	86
Reading material Power steering .....	90
<b>Unit 13 The Charging and Starting Systems .....</b>	<b>92</b>
Part 1 Charging system .....	92
Part 2 Starting system .....	94
Reading material Starting and charging system maintenance .....	96
<b>Unit 14 Ignition and Air Conditioning Systems .....</b>	<b>98</b>
Part 1 Ignition system .....	98
Part 2 Air conditioning system .....	100
Reading material Distributorless ignition systems .....	103
<b>Unit 15 Automotive Safety .....</b>	<b>105</b>
Part 1 Automotive safety introduction .....	105
Part 2 Air bags .....	107
Reading material Electronic immobiliser .....	109
<b>Unit 16 CAN-bus System .....</b>	<b>112</b>
Part 1 Controller area network .....	112
Part 2 Data transmission .....	115
Reading material A short trip on the CAN bus .....	117

<b>Unit 17 Vehicle Self-diagnosis</b>	120
Part 1 Self-diagnosis	120
Part 2 OBD (On-Board Diagnostic) systems	124
Reading material Trouble shooting	126
<b>Unit 18 Service and Repair Manual</b>	128
Part 1 How to proceed with trouble shooting	128
Part 2 Check the engine oil level	133
Reading material Looking for leaks	136
<b>Unit 19 Owner's Manual</b>	138
Part 1 Starting the engine	138
Part 2 Controls near the steering wheel	141
Reading material Identification numbers	143
<b>Appendix</b>	145
Glossary	145
名词缩写	156
常用名词	163



# Unit **I**

## Automobile Overview

---

### Part 1 Automobile classifications

The automobile has been invented for more than 100 years. Today it can be said that wheels run the world. There are numerous types of automobiles found in different parts of the world. The various types of automobiles are classified in different countries. Here is just an example of types of automobiles.

According to their application, automobiles are classified as trucks, passenger, and special-purpose vehicles. The trucks may be provided with beds to transport different goods or high special-purpose bodies such as dump bodies to transport loose and viscous cargo, tank bodies for liquids, refrigerator vans for the perishable, etc. Aside from a body type, trucks are classified according to their load-carrying capacity and cross-country capacity.

The passenger vehicles are divided into cars seating from one to six men, and buses. The buses are subdivided into city and intercity ones. Tourist buses make a separate group. According to their length, buses are classified as minibuses, small, large, and articulated buses.

The special-purpose automobiles are equipped for performing particular tasks. Among them are fire and garbage trucks, ambulances, towers, water tanks, etc.

#### Words and expressions

numerous[ 'nju:mərəs ] *adj.* 众多的, 许多的, 无数的

application[ ,æpli'keifən ] *n.* 请求, 申请, 应用, 运用

passenger[ 'pæsɪndʒə ] *n.* 乘客, 旅客

dump[ dʌmp ] *vt.* 倾倒(垃圾), 倾卸; *n.* 堆存处

viscous[ 'viskəs ] *adj.* 黏性的, 黏滞的, 胶黏的

refrigerator[ ri'frɪdʒəreɪtə ] *n.* 电冰箱, 冷藏库

van[ væn ] *n.* 有篷货车, 先锋, 先驱, 前卫

perishable[ 'perɪʃəbl ] *adj.* 容易腐烂的  
 load[ ləʊd ] *n.* 负荷,重担,装载量,工作量,负载,加载  
 capacity[ kə'pæsɪti ] *n.* 容量,生产量,容量  
 subdivide[ 'sʌbdi'vaɪd ] *v.* 再分,细分  
 intercity[ ,ɪntə'sɪti ] *adj.* 城市间的  
 separate[ 'sepəreɪt ] *adj.* 分开的,分离的,个别的,单独的  
 purpose[ 'pʊ:ps ] *n.* 目的,意图,用途,效果,决心,意志  
 articulated[ ɑ:'tɪkjʊlɪtɪd ] *adj.* 铰接(的),枢接(的),有关节的  
 ambulance[ 'æmbjʊləns ] *n.* 战时流动医院,救护车  
 tower[ 'taʊə ] *n.* 拖车  
 water tank 水槽车

### Exercises

#### I Fill in the blanks with the suitable words or phrases given below.

van	passenger	dump	ambulance	viscous
-----	-----------	------	-----------	---------

- The \_\_\_\_\_ vehicles are divided into cars and buses.
- The \_\_\_\_\_ bodies is to be used to transport loose and viscous cargo.
- \_\_\_\_\_ specially equipped vehicle used to transport the sick or injured.
- \_\_\_\_\_ An enclosed boxlike motor vehicle having rear or side doors and side panels especially for transporting people.
- \_\_\_\_\_ Having relatively high resistance to flow.

#### II Translate the following phrases into Chinese or English.

refrigerator

tower

water tank

special-purpose vehicle

救护车

负荷

## Part 2 SANTANA 2000 GSI technical data

Engine type	AJR type, electronic fuel injection
Displacement	1.78 L
Cylinder bore/stroke	81/86.4 mm
MAX. output	74 kW (5,200 r/min)

Continued

Engine type	AJR type, electronic fuel injection
MAX. torque	155 N · M (3,800 r/min)
Compression ratio	9.5:1
Fuel distribution system	Sequential multipoint fuel injection system 3.8.2
Transmission	5-speed manual gearbox, fully synchronized
Top speed	175 km/h
Fuel consumption	6.8 L/100 km at 90 km/h
Overall length	4,680 mm
Overall width	1,700 mm
Overall height( unladen )	1,423 mm
Wheelbase	2,656 mm
Track width; front	1,414 mm
rear	1,422 mm
Ground clearance	138 mm
Turning circle diameter	11 m
Type size	195/60 R14 86 H
Complete vehicle curb weight	1,120 kg
Cross weight authorized	1,540 kg

### Words and expressions

engine type 发动机型式

displacement[dis'pleismənt] *n.* 排量

cylinder bore *n.* 缸径

stroke[stɹəʊk] *n.* 行程

output *n.* 输出(功率)

torque[tɔ:k] *n.* 扭矩, 转矩

compression ratio 压缩比

fuel distribution system 燃油分配系统

transmission[trænz'miʃən] *n.* 变速器

top speed 最高车速

5-speed manual gearbox, fully synchronized 全同步五挡手动变速器

fuel consumption 油耗

overall length 总长

overall width 总宽

overall height(unladen ) 总高(空载)  
 wheelbase[ 'wi:lbeis ] n. 前后轮之车轮轴距离,轴距  
 track width 轮距  
 ground clearance 最小离地间隙  
 turning circle diameter 转弯直径  
 type size 轮胎型号  
 complete vehicle curb weight 整车整备质量  
 cross weight authorized 许用总质量

### Exercises

Translate the following phrases into Chinese or English.

#### *Technical specifications of 1998 Ferrari*

Type		2 + 2 FHC
Number of doors		2
	轴距	2,600 mm
	长	4,763 mm
Width		1,920 mm
	高	1,300 mm
	最小离地间隙	1.83
Kerb weight		
Engine type		DOHC 48 valves total 4 valves per cylind
Bore × stroke		88.00 mm × 75.00 mm
Fuel system		Bo Motronic ML 2.7 fuel inj.
Max. output		324.4 kW & 6,250 rpm
	最大扭矩	550.0 N · m & 4,500 rpm

## Reading material Kinds of cars

Vehicles of today have developed into many different body styles befitting their varied uses. Some of these styles are listed below:

Two-door sedan

Four-door sedan

Three-door hatch back sedan

Two-door hardtop

Four-door hardtop

Station wagon

Pickup truck

Van

Off-road sport vehicles

The best style for you depends on the use to which you'll put the vehicle, where you live, the amount of driving you do, your financial resources, and your personal tastes. The most common of these styles-the family automobile-come in many forms and are available in four basic sizes: subcompact, compact, intermediate, and full-size.

### **Subcompacts**

Cars of this size often have the lowest original cost and deliver the best fuel economy. Despite their impressive gas mileage figures, however, subcompact overall maintenance cost can sometimes run higher than their larger counterparts. This is due partly to the often cramped quarters in which engine parts are installed. Repair parts cost more, too, particularly for the imported cars.

Subcompacts generally provide the best handling and easiest maneuvering and parking. "However, due to their shorter wheelbase (distance from center of front wheel to center of rear wheel) and their lighter weight, subcompacts give a somewhat firmer ride, which some people prefer.

In addition, many people find themselves crowded inside a subcompact, especially in the some times minuscule back seats.

### **Compacts**

These models are a little larger than subcompacts. They give additional room in the front and rear seats as well as added crash-protection for passengers. Original cost is somewhat higher than the subcompacts. Fuel economy is comparable and maintenance access easier. Their somewhat roomier nature and better ride often make compacts the choice of the economy-minded driver.

### **Intermediates**

Also called mid-size cars. Intermediates provide what may be considered to be the best trade-off between economy and comfort. Parking maneuvering, and fuel economy are superior to the full-size models, while maintenance access, roominess, and long-trip comfort better than the compacts and subcompacts.

### **Full-size**

These are the big so-called gas guzzlers. Larger engine sizes and interior roominess make them the most comfortable vehicles for long trips, as well as the choice for trailer towing. They're still readily available in the new car market place. They're also potential bargains as used cars.

The federal Environmental Protection Agency has issued its own size categories: minicompact, subcompact, compact, midsize, and large. These are based on interior passenger and cargo room.

Most of the vehicles we've considered so far have been sedans, the most typical American car, and hardtops, which are similar to sedans but lack roof pillars behind the front doors. Gaining fast in popularity, however, is a wide variety of specialty vehicles, including station wagons, pickup trucks, vans and four-wheel-drive vehicles. Of these, especially the last three have gone far beyond the limits of basic transportation and are widely used as recreational vehicles. Pickup trucks are among the top-

selling new vehicles. They are even bought as status symbols when equipped with fancy paint jobs and other additions to their appearance. Specialty vehicles, though indispensable for some uses, generally fit into full-size car fuel economy classes. Therefore, they are not practical for many buyers. The mini-pickup truck is an exception.

### **Words and expressions**

befitting *adj.* 适合的,合适的,适当的

sedan *n.* 私家轿车

hardtop *n.* 硬顶汽车

van *n.* 箱式货车

subcompact *n.* 微型汽车

compact *n.* 小型汽车

intermediate *n.* 中型汽车

wheelbase *n.* 轴距

roomy *adj.* 宽敞的

# Unit 2

## Automobile Basics

---

### Part 1 Structure of automobile

Today's average car contains more than 15,000 separate, individual parts that must work together. These parts can be grouped into four major categories: engine, chassis, body and electrical system (Fig. 2.1 and Fig. 2.2).

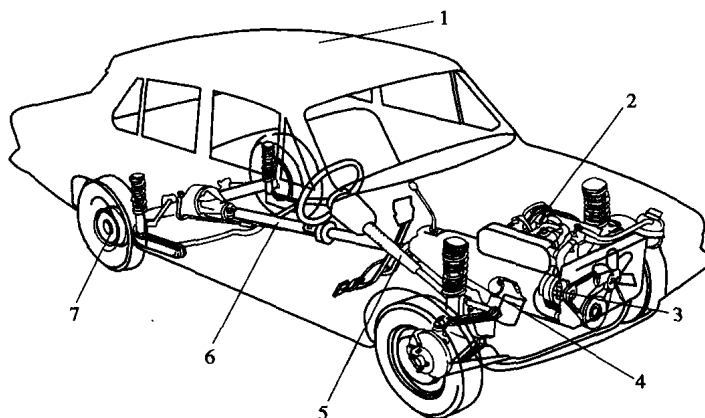


Fig. 2.1 Layout of a passenger car

1—body; 2—engine; 3—electrical equipment; 4—suspension;  
5—steering; 6—power train; 7—brakes

#### Engine

Today, internal combustion engines in cars, trucks, motorcycles, construction machinery and many others most commonly use a four-stroke cycle. The four strokes refer to intake, compression, combustion and exhaust strokes that occur during two crankshaft rotations per working cycle of Otto Cycle and Diesel engines.

The engine provides power to move the automobile. The most common type of automotive



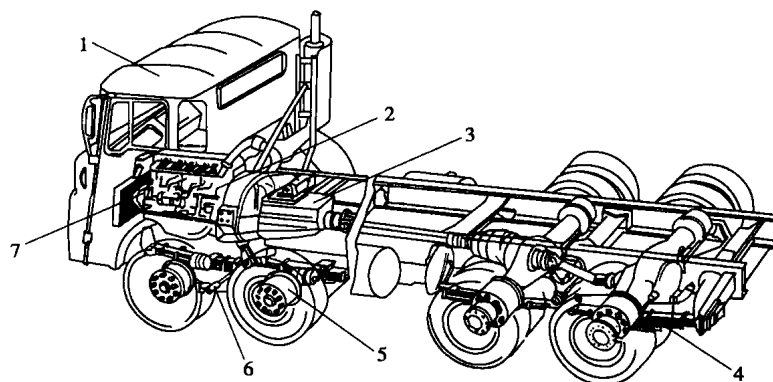


Fig. 2.2 Layout of a commercial vehicle

1—body; 2—engine; 3—power train; 4—suspension; 5—brakes;  
6—electrical system; 7—electrical equipment

engine is the gasoline-burning engine. It is found in most automobiles. Diesel-fuel burning engines are also used in modern passenger cars, as well as in large trucks. All engines have fuel, exhaust, cooling, and lubrication systems. Gasoline engines also have an ignition system.

### Chassis

A chassis which is considered as a support frame for an auto body is used to assemble all auto spare parts on it. In fact, when power from engine continues to be transmitted to chassis, it begins with power train, and goes on to steering, wheel suspension, brakes and tires. These individual components interact with each other closely.

### Body

The automobile body which is regarded as the framework is seated on the chassis. Its function is obvious for occupants to provide comfort, protection and shelter. The automobile body is generally divided into four sections: the front, the upper and top, rear and the underbody. These sections are further divided into small units, such as the hood, the fenders, the roof panels, the door, the instrument panel, the bumpers and the luggage compartment.

### The electrical system

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

### Words and expressions

contain [kən'tein] *vt.* 包含

intake ['inteik] *n.* (水管、煤气管等的)入口,进口,通风口

compression [kəm'preʃ(ə)n] *n.* 浓缩,压缩, [机] (发动机,如内燃机中工作液体的)压缩,密集

combustion [kəm'bʌstʃən] *n.* 燃烧

exhaust [ig'zɔ:st] *n.* 排气,排气装置

gasoline[ 'gæsəli:n] *n.* 汽油  
 diesel[ 'di:zəl] *n.* 柴油机  
 fuel[ fjuəl] *n.* 燃料  
 lubrication[ ,lu:bri'keiʃən] *n.* 润滑油  
 ignition[ ig'niʃən] *n.* 点火, 点燃  
 chassis[ 'ʃæsi] *n.* 底盘  
 assemble[ ə'sembl] *vt.* 集合, 聚集, 装配  
 power train 传动系  
 steering[ 'stiəriŋ] *n.* 操纵, 转向  
 suspension[ sə'spenʃən] *n.* 悬架  
 brake[ breik] *n.* 闸, 刹车  
 hood[ hud] *n.* 引擎罩  
 fender[ 'fendə] *n.* 挡泥板  
 instrument panel 仪表板  
 bumper[ 'bʌmpə] *n.* 保险杠  
 luggage compartment 行李箱  
 generator[ 'dʒenəreɪtə] *n.* 发电机, 发生器  
 circuit *n.* 电路, 一圈

### Exercises

#### I Fill in the blanks with the suitable words or phrases given below.

combustion chassis exhaust intake generator

- \_\_\_\_\_ The process of burning.
- \_\_\_\_\_ A machine that converts mechanical energy into electrical energy.
- \_\_\_\_\_ An opening by which a fluid is admitted into a container or conduit.
- \_\_\_\_\_ To draw out the contents.
- \_\_\_\_\_ The rectangular steel frame, supported on springs and attached to the axles, that holds the body and motor of an automotive vehicle.

#### II Translate the following phrases into Chinese or English.

power train

suspension

four-stroke

仪表板

保险杠

点火

柴油机