



普通高等教育“十三五”汽车类规划教材

第③版

# 新编 汽车专业英语

English for Automobile Specialty

黄汽驰 © 主编



 **机械工业出版社**  
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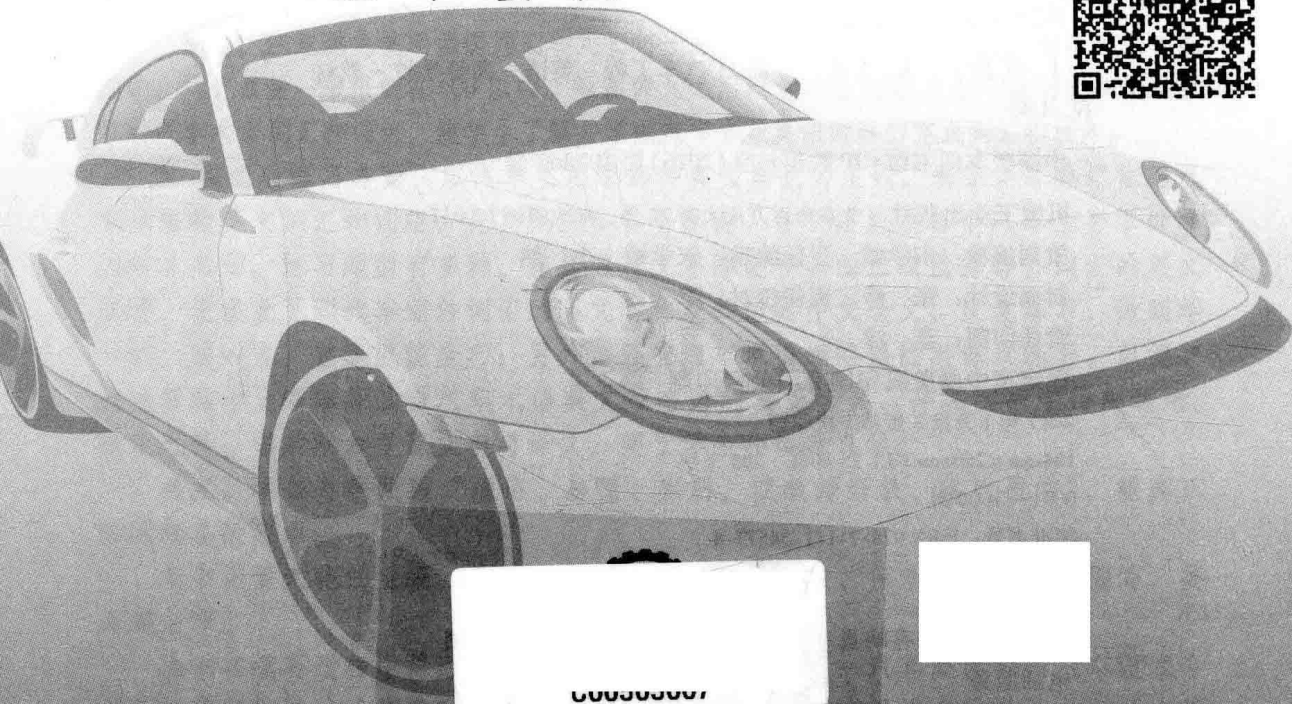


普通高等教育“十三五”汽车类规划教材

# 新编汽车专业英语

第3版

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本书为普通高等教育“十三五”汽车类规划教材，是汽车类专业英语教材，旨在不断提高汽车类专业学生和汽车行业相关人员的专业英语水平。

本书是根据教育部《大学英语教学基本要求》组织编写的。全书共分为10个单元，每个单元包括课文、词汇、练习和阅读材料等内容，书后附有参考译文。本书注重遵循“边学边用、学用结合”的原则，内容系统、全面，难点、重点突出；形式上力求创新，但仍注重实用性和通俗易懂，真正反映当代汽车领域发展的前沿技术和最新动态。

本书既可作为高等学校汽车类专业的专业英语教材，也可用作高职高专、成人高校汽车类专业的专业英语教材，还可用作相关企业人员的培训教材或相关技术人员的自学参考书。

本书配有课件和习题参考答案，免费赠送给采用本书作为教材的教师，可登录 [www.cmpedu.com](http://www.cmpedu.com) 下载。为方便移动学习，本书同时提供译文、彩色图片（含习题中图）和习题参考答案的二维码，可扫码观看。

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## 第3版前言

《新编汽车专业英语》再次修订之时，恰逢国家进行“十三五”规划。本书旨在紧密结合汽车技术的最新发展，使内容更好地配合本课程的教学改革，更好地为精品课程建设服务，更好地为企业培养所需的人才。

本书遵从“理论浅、内容新、应用多和学得活”的理念重新编写，包括五章，十个单元，三十篇课文。其编写特点如下：

1. 在内容方面，教材内容改动较大，不仅更新了原有课文内容，还重新进行了编排，使结构更有条理；教材内容涉猎范围广，不仅涵盖了汽车构造全部总成，还增加了汽车试验内容，使其更加系统；教材内容还反映了当今汽车技术的发展，介绍了新能源汽车种类，使其内容知识新；在每个单元还新添了汽车文化的文章，主要介绍世界著名汽车公司的历史，使其内容更加丰富。

2. 在图文方面，尽量选用简单而常用的词汇，浅显描述汽车各个系统的功能和工作原理等，并采用大量图片展示各个零部件和总成，做到图文并茂，帮助理解文章所述内容。同时，注意避免使用偏僻词汇和冗长句子陈述汽车专业理论。尽量压缩每篇课文的篇幅，词汇数量一般限制在600以内。每篇课文之后附加的生词表分为一般词汇和词组及常用汽车术语词汇和词组，使学生了解并掌握汽车专业英语课程的重点词汇和词组。

3. 在课后练习方面，以汽车主要零部件英文词汇为主线，着重训练熟记常用汽车术语的英文词汇和词组，尤其是汽车各个系统、各个总成及每个汽车主要零部件的英文名称。练习题型有多种，包括通过文字陈述和读图正确选择部件词汇的英文名称，使学生见到汽车部件词汇的英文名称就知道其中文含义，反复练习，做到学一点、用一点，直至熟能生巧；另外，还有汽车术语缩略语的英译汉练习，以便更好地帮助学生理解并读懂汽车术语英文缩略语的真正含义，并在实践中得到运用。除此之外，书后附加了课文参考译文，便于学生和读者自学。

总之，本书力争做到“通俗、易懂、实用，使教师好教、学生易学”，能真正体现精品的要求。

本书由黄汽驰任主编，魏巍、王黎任副主编，宋敏、何欢及曹杨参加编写，姜玉英主审。

本书在编写过程中得到了许多汽车专业课教师和第一汽车集团公司汽车技术专家及工程师们的技术指导和支持，也得到了一些同行的宝贵意见和建议，对此，编者一并深表谢意。

由于水平有限，书中难免会出现不妥之处，恳请广大同行和读者批评指正。

## 第2版前言

本书是面向21世纪普通高等教育系列规划教材之一，是根据教育部《大学英语教学基本要求》组织编写的。

本书旨在使学生了解当今汽车领域发展的前沿技术和最新动态，以提高学生运用专业知识的职业能力和职业素质。本书突出了汽车专业的词语和用法，参考了最新的汽车资料。其目的是要培养学生的英文阅读理解、翻译和资料查询等能力，使学生通过阅读和翻译能直接从教材中获取大量有关汽车方面的信息。

本书分为10个单元，供一个学期使用。每个单元包括三个部分：

第一部分为专业阅读。着重培养学生汽车专业英语的阅读能力。本部分包括两篇文章，一篇为精读，另一篇为泛读。所收入的文章反映了当今汽车专业方面的最新高科技以及最新汽车发展，同时还配以一些最新的汽车零部件图片。

第二部分为练习。主要包括词汇练习，短语练习，短句翻译，常用缩略语，国内、外车标等。其设计独特，练习的编排形式新颖。这部分的编写意图是使学生根据所学汽车专业知识，能直接参照范例进行套写、拟写和翻译汽车说明书、系统操作手册及相关信息等。

第三部分为汽车常见故障诊断。本部分列出汽车中常见的故障并加以说明，最后附上解决的方法。其目的是使学生通过本课程的学习，具备处理国外进口汽车一般常见故障的能力。

本书的“练习答案”位于机械工业出版社教材服务网（[www.cmpedu.com](http://www.cmpedu.com)）上，向本书授课教师免费提供，请需要者根据书末的“信息反馈表”进行索取。

本书实用性强，选材新颖，贴近企业，紧密结合专业，重点突出，针对性强；尤其在练习的编排上，突出了专业英语的特色，设计独特，学生通过练习既能学到英语，又能学到汽车方面的知识，如“识别汽车车标”“汽车故障诊断”等，可谓一举两得。

本书由黄汽驰编写第1、2、5、6、8单元，由黄星编写第3、4、7、9、10单元；全书由李新大审阅。

本书在编写过程中得到了编者学校汽车专业教师和第一汽车集团公司的许多科技工作者的大力支持，他们提出了许多汽车技术方面的宝贵意见和建议，编者在此深表谢意。

由于本书需突出汽车专业英语方面的一些特色，因而在编写过程中采用了许多与众不同的编写方式。但由于水平所限，书中难免出现一些缺点和错误，恳请广大读者批评指正，编者在此表示衷心的感谢。

编者

2006年5月

# 第1版前言

本书旨在使学生熟悉汽车专业的英语词汇及用法，了解汽车领域文章结构及体裁，辅助学生对汽车专业课程的学习，培养学生的英语阅读能力和翻译能力，以便更好地直接从国外资料中获取新的知识和信息。

本书内容主要选自国外有关汽车方面的书刊和著作。在个别地方做了适当改动，基本上保持原文的风格。课文内容主要以汽车构造为主线，介绍近年来一些新的汽车技术，如电子喷射、安全气囊、空调等，还介绍了汽车发展史、汽车维修技术及汽车零部件检测法规。书中还选编了中国汽车工业到 20 世纪末和 21 世纪初的展望，使学生了解汽车领域更广泛的知识。

本书共 12 个单元。每单元包括课文、词汇、注释、练习和阅读材料，有的课文和阅读材料配有附图，长句、难句都有注释和翻译。书后附有常用汽车零件词汇表 (Main Constant Automobile Parts) 和世界名牌汽车标志，供学生阅读时参考。本书可作为汽车专业的专业英语课程的教材，也可作为汽车专业及相关专业工程技术人员提高本专业英语水平的自学读本。

本书由黄汽驰副教授任主编 (第二单元、第五单元、第十一单元、第十二单元)，参编的有崔淑梅 (第四单元、第六单元、第七单元、第八单元)、韦超旺 (第一单元、第三单元、第九单元、第十单元)，沈永年任主审。

在编写中参阅了国内、外有关资料，得到了长春一汽大众公司周永江和一汽汽车研究所范存东同志的帮助以及参编学校有关专家和领导的支持，在此一并表示衷心的感谢。

由于编者水平有限，书中不妥及疏漏之处在所难免，恳请读者不吝赐教。

编者

1997 年 10 月

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## Unit One Classification of Engines and Their Operating Principles

### Passage A

#### Classification of Engines



扫一扫，看参考译文

All automotive engines are internal combustion engines (ICE), which burn fuel within the cylinders and convert the expanding force of the combustion into rotary force used to drive the automobile. So an engine is the source of power and it is considered as the heart of an automobile.

Automotive engines are classified as the reciprocating engine and rotary engine according to the way they work; as the gasoline engine and diesel engine according to fuel they burn; and as the inline engine, V-type engine, boxer engine and W-type engine according to the number and the arrangement of cylinders.

#### **Reciprocating Engine and Rotary Engine**

Reciprocating engines are also called piston engines. The engines use one or more pistons that move up and down or back and forth in the cylinders and convert the pressure into rotational kinetic energy transmitted to drive wheels (see Fig. 1-1.). The reciprocating engines are often found in almost all modern automobiles.

A rotary engine was developed in 1954. In this engine a three-sided rotor revolves within a combustion chamber as shown in Fig. 1-2. The expanding gas turns the rotor, producing power and the exhausted gas is expelled. The rotary engine has no reciprocating parts such as pistons and valves. It develops a high horsepower, and produces no vibration, but its fuel consumption is higher than that of the reciprocating engine.



扫一扫，看彩色图片

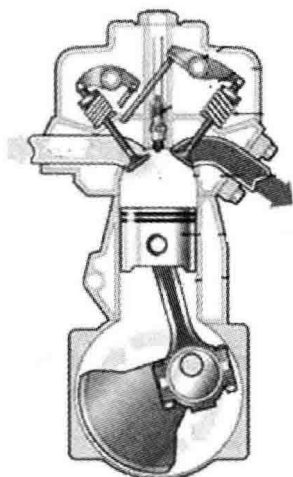


Fig. 1-1 Reciprocating Engine

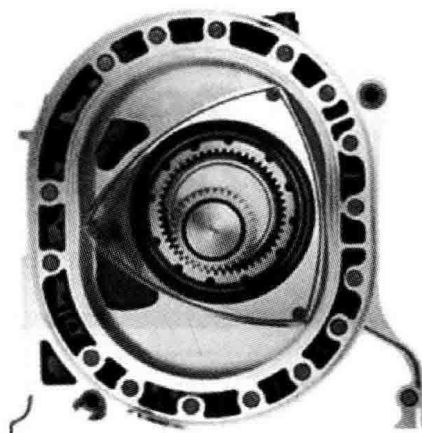


Fig. 1-2 Rotary Engine

### Gasoline Engine and Diesel Engine

Gasoline engines use gasoline as fuel. Spark plugs are used to ignite the mixture of fuel and air inside the cylinder, creating power to make a car run as shown in Fig. 1-3a. It is also called the spark ignition engine. The features of the engine are high in speed, smooth in operation, simple in the structure, light in weight and low in cost. Almost all cars use gasoline engines.

Diesel engines use diesel as fuel. It works by compressing the air inside the cylinder to make diesel coming in from the injector burn, producing the power to drive a car (see Fig. 1-3b). So it is called the compression ignition engine. A diesel engine is more powerful and delivers better fuel economy than a gasoline engine. Diesel engines are often found on large trucks, buses and some of cars.

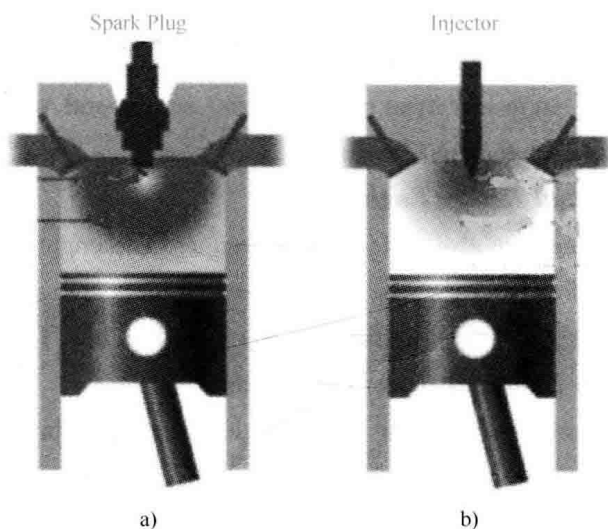


Fig. 1-3 Gasoline Engine and Diesel Engine

a) Gasoline Engine b) Diesel Engine



**Inline engine, V-type engine, boxer engine and W-type engine**

Engine structures are identified by the number of cylinders and the ways the cylinders are laid out.

Nowadays, all compact cars are equipped with 4-cylinder engine, some intermediate cars with 6-cylinder engine, and full-size cars with 8- or 12-cylinder engine.

In a multi-cylinder engine, the cylinders are usually arranged in one of four ways: inline engine, V-type engine, boxer engine and W-type engine.

**Inline engine** has the cylinders arranged in a straight line with a single cylinder head. Almost all 4-cylinder engines use this arrangement (see Fig. 1-4). There are also some 5- and 6-cylinder-inline engines.

**V-type engine** has two rows of cylinders side-by-side with two cylinder heads, and it is commonly used in V-6, V-8, and V-12 configurations at a 90 or 60 degree angle to each other (see Fig. 1-5).



Fig. 1-4 Inline Engines

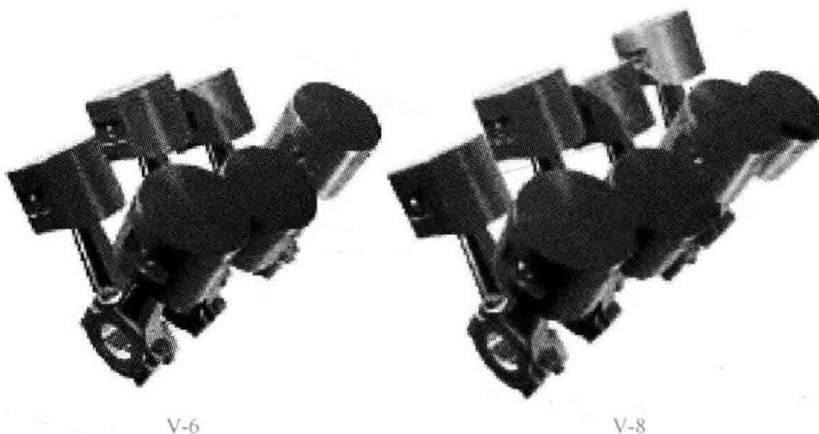


Fig. 1-5 V-type Engines

**Boxer engine** uses two opposing rows of cylinders with two cylinder heads at a 180 degree angle to each other, and it is less common than the above two designs. Boxer engines are usually either 4-or 6-cylinders (see Fig. 1-6).

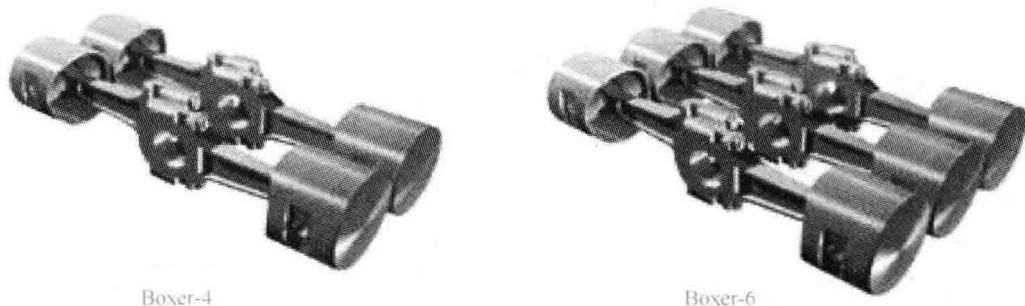


Fig. 1-6 Boxer engines

**W-type engine** is a newly developed engine. Some Audi A8 is equipped with a W12 engine. W-type engine has a shorter crankshaft, but it is complicated in structure and expensive in cost, compared to a V-type engine.

Different configurations of engine types have different advantages and disadvantages in terms of smoothness, manufacturing cost and shape characteristics. These advantages and disadvantages make them more suitable for certain vehicles.

### New Words and Expressions

- classification [ˌklæsɪfɪˈkeɪʃən] *n.* 分类
- convert [kənˈvɜ:t] *vt.* 使转变; 转换
- pressure [ˈpreʃə] *n.* 压力
- rotary [ˈrəʊtəri] *adj.* 旋转的
- classify [ˈklæsɪfaɪ] *vt.* 分类
- reciprocating [rɪˈsɪprəkeɪtɪŋ] *adj.* 往复的
- energy [ˈenədʒi] *n.* 能, 能量
- transmit [trænzˈmɪt] *vt.* 传输, 转送
- revolve [rɪˈvɒlv] *v.* 旋转
- chamber [ˈtʃeɪmbə] *n.* 腔室
- exhaust [ɪgˈzɔ:st] *n.* 废气, 排气
- expel [ɪkˈspel] *vt.* 排出
- horsepower [ˈhɔ:spauə] *n.* 马力
- vibration [vaɪˈbreɪʃn] *n.* 振动
- consumption [kənˈsʌmpʃn] *n.* 消费, 消耗
- consume [kənˈsjʊ:m] *vt.* 消耗, 消费
- spark [spɑ:k] *n.* 火花



create [kri'eit] *vt.* 创造  
 ignite [ig'nait] *vt.* 点燃, 使燃烧  
 ignition [ig'nifən] *n.* 点火, 点燃  
 compress [kəm'pres] *vt.* 压缩  
 compression [kəm'presən] *n.* 压缩  
 configuration [kən'figə'reiʃn] *n.* 配置; 结构  
 complicated ['kɒmplikeitid] *adj.* 复杂的  
 advantage [əd'vɑ:ntidʒ] *n.* 优点, 优势  
 disadvantage [ˌdisəd'vɑ:ntidʒ] *n.* 缺点  
 smoothness ['smuðnis] *n.* 平顺性  
 characteristic [ˌkærəktə'ristik] *n.* 特点  
 in terms of 依据; 根据  
 manufacturing cost 制造成本  
 fuel consumption 燃料消耗  
 fuel economy 燃油经济性  
 emission [i'miʃn] *n.* 排放

### Common Automobile Terms

crankshaft ['kræŋkʃɑ:ft] *n.* 曲轴  
 internal combustion engine 内燃机  
 reciprocating engine 往复式发动机  
 rotary engine 转子发动机  
 gasoline engine 汽油发动机  
 diesel engine 柴油发动机  
 spark plug 火花塞  
 spark ignition engine 火花点火式发动机  
 compression ignition engine 压燃式发动机  
 inline engine 直列式发动机  
 V-type engine V型发动机  
 boxer engine 水平对置式发动机  
 W-type engine W型发动机  
 combustion chamber 燃烧室  
 compact car 紧凑型轿车  
 intermediate car 中型轿车  
 full-size car 大型轿车  
 cylinder head 气缸盖  
 ignition system 点火系统



## EXERCISE 1



Choose the best answer from the 4 choices according to the passage.

- All automobile engines are \_\_\_\_\_.
  - internal combustion engines
  - rotary engines
  - reciprocating engines
  - steam engines
- The engines with pistons are often called \_\_\_\_\_.
  - rotary engines
  - reciprocating engines
  - gasoline engines
  - internal combustion engines
- In gasoline engines \_\_\_\_\_ are used to ignite the fuel-air mixture, producing the power.
  - three-sided rotor
  - gasoline
  - spark plugs
  - diesel
- Almost all compact cars are equipped with \_\_\_\_\_ engines.
  - 4-cylinder
  - 6-cylinder
  - 8-cylinder
  - 12-cylinder
- Engines with cylinders arranged in a straight line are called \_\_\_\_\_.
  - V-type engines
  - boxer engines
  - W-type engines
  - inline engines
- Each of the following engines has two cylinder heads, except \_\_\_\_\_.
  - inline engine
  - V-type engine
  - W-type engine
  - boxer engine

## EXERCISE 2



According to the classification of engines in Column A, put the list of various engines below correctly into Column B.

Inline engine; Gasoline engine; Boxer engine; Diesel engine; Air cooling engine; Reciprocating engine; V-type engine; Water cooling engine; Rotary engine

**A**

**B**

The ways an engine works	1. _____ 2. _____
The fuel an engine burns	1. _____ 2. _____
The arrangement of cylinders	1. _____ 2. _____ 3. _____
The ways of engine cooling	1. _____ 2. _____



### EXERCISE 3



Match the following English phrases in Column A with equivalent Chinese translation in Column B.

#### A

1. internal combustion engine
2. boxer engine
3. intermediate car
4. reciprocating engine
5. rotary engine
6. gasoline engine
7. V-type engine
8. compact car
9. diesel engine
10. inline engine

#### B

- A) 转子发动机
- B) 内燃机
- C) 直列式发动机
- D) 柴油机
- E) 紧凑型汽车
- F) V型发动机
- G) 水平对置式发动机
- H) 往复式发动机
- I) 汽油机
- J) 中型汽车

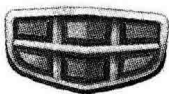
### EXERCISE 4



The following are some logos of cars and automobile companies from China. Match the following logos in number with their Chinese equivalents in letter.



1 ( )



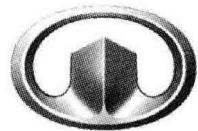
2 ( )



3 ( )



4 ( )



5 ( )



6 ( )



7 ( )



8 ( )



9 ( )



10 ( )

- A. (中国一汽) FAW
- B. (长城) Great Wall
- C. (东南) Soueast
- D. (众泰) Zotye
- E. (海马) Haima

- F. (纳智捷) Luxgen
- G. (上海汽车) SAIC
- H. (比亚迪) BYD
- I. (东风) Dongfeng
- J. (吉利) Geely



扫一扫，看参考答案



## Passage B



扫一扫, 看参考译文

## Engine Operating Principles

The piston goes up and down inside the cylinder, causing the crankshaft to turn through the connecting rod. Each movement of the piston is called a stroke. Four strokes—intake stroke, compression stroke, power stroke and exhaust stroke—complete one working cycle. When the fourth stroke is completed, the cycle begins again. Currently, almost all cars use the four-stroke working cycle to make the engine run. However, the four-stroke working cycle varies slightly from the gasoline engine and the diesel engine.

*How the gasoline engine works*

The first stroke is the intake stroke. The piston starts down, when the intake valve opens up, letting the fuel-air mixture into the cylinder. When the piston reaches the bottom of the cylinder, the intake valve closes, trapping the fuel-air mixture in the cylinder. During this stroke, the exhaust valve stays closed.

The second stroke is the compression stroke. At the bottom dead center (BDC), the piston moves back up, compressing the trapped fuel-air mixture in the cylinder with both intake and exhaust valves closed. When the piston reaches the top of the cylinder, the pressure rises.

The third stroke is the power stroke. Near the end of the compression stroke or at the top dead center (TDC), the spark plug fires, igniting the compressed fuel-air mixture that produces a powerful pressure. The combustion process pushes the piston down again with great force, turning the crankshaft to transmit the power to the drive wheels.

The fourth stroke is the exhaust stroke. With the piston at BDC, the exhaust valve opens up, and the piston moves up again and forces the burned gases out of the cylinder into the exhaust manifold. From there, the burned gases travel through the exhaust system into the environment. The piston goes up to TDC, exiting all the exhaust gases in preparation for starting the four-stroke cycle over again (see Fig. 1-7).

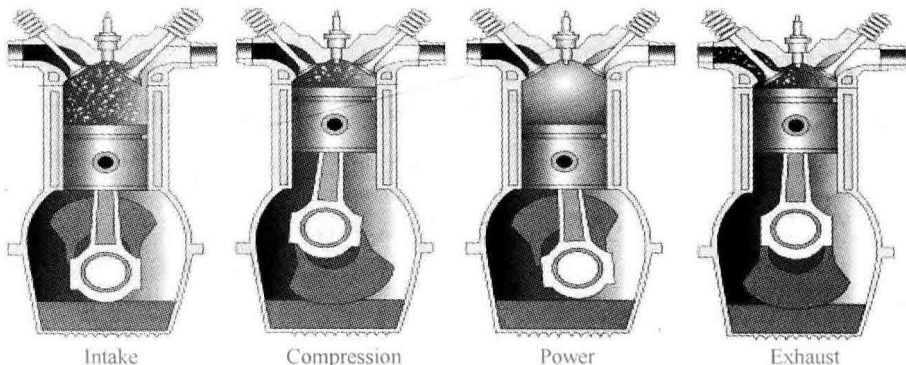


Fig. 1-7 Four-stroke Working Cycle



扫一扫, 看彩色图片