



新编 实用汽车英语

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编写说明

随着我国经济发展国际化进程的日益加快,各行业对精通专业技术和具备一定外语能力的复合型人才产生了巨大需求。以汽车工业为例,中国汽车产业已进入快速发展时期。2020年,中国本土汽车产量将达到2000万辆左右,其中两成产品将进入国际市场。中国汽车产业的迅速发展,使得汽车行业对专业技术人员的专业英语水平提出了较之以往的更高要求。尤其在外资或合资企业,与外籍管理人员的沟通涉及大量行业英语的运用。而传统通用型大学英语教材无法满足企业员工对日趋专业化的英语技能的需求。

教育部高等教育司在《高职高专英语课程教学基本要求》中明确提出,高等职业教育不同于一般的学历教育,它培养的是技术、生产、管理、服务等领域的高等应用型专门人才,高等职业教育的基础知识应为培养实际应用能力服务。就英语教学而言,不仅需要注意语言基础知识和基本技能的传授,而且必须突出语言实际应用能力的培养。为了适应汽车行业的发展和市场对该行业从业人员英语水平的要求,配合基础英语的教学,我们编写了这本《实用汽车英语》。它是高级英语阶段的专业英语教材,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。

本书注重遵循“实用为主,够用为度”、“边学边用,学用结合”的原则,从高职学生的实际情况出发,一方面兼顾汽车专业英语知识学习的系统性,另一方面兼顾基于汽车专业工作过程的知识体系,以汽车构造为主线,注重技能性、突出实用性,加强实训、实践环节,深入浅出地介绍了汽车各主要系统的构造和工作原理,还介绍了汽车维修保养的常识以及常用工具。全书共分为12个单元,每单元前有课前预习,单元后有词汇表、句子注释、练习题和实训内容设计,便于教师教学和学生自学,突出重点、难点,方便学生复习和巩固汽车专业英语知识。每个单元包括课文、配图、词汇、练习等内容,大致分为五个部分:

第一部分为课前预习部分。由浅显易懂的问题和精美的专业图片引入,提高读者阅读兴趣,并能快速把握阅读方向;

第二部分为专业阅读。着重培养学生汽车专业英语的阅读能力。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动态，并配以最新的汽车零部件图片展示；课后附有单词、短语，长句、难句的详细注释，提供有课文的参考译文；这些既增强了本书的自学性、阅读性，也降低了教学难度。

第三部分为练习。主要包括专业词汇练习，生词与短语练习，翻译练习、实训内容设计等。设计独特，编排形式新颖，可进一步巩固已学知识。

此外，本书还对英语实用应用文写作知识作了一定的介绍，旨在指导学生了解掌握英语常用应用文写作的方法。

本书图文并茂，内容全面系统，配图清晰精致，难点、重点突出；形式上力求创新，注重实用性和通俗性，真实反映了当代汽车领域发展的前沿技术和最新动态，使学生能够比较系统地掌握汽车方面的英语知识，为其以后阅读、翻译汽车英语资料和操作带有英文标识的仪器、设备等打下坚实的基础。

本书可作为汽车专业的专业英语课程教材，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。

《实用汽车英语》主编为张伟副教授，副主编为李君梅副教授和钟永发副教授，负责全书的统稿与审定；参加编写的教师有周莉琨、罗建芳、杨春秀、何玥、邓锋、李赞，分别负责第一单元、十一单元、十二单元，第二、三单元；第四单元，第五、十单元，第六、七单元，第八、九单元的组稿与编写；英语实用应用文写作部分由张伟、李君梅、徐阳平、陈玛莉编写。此外，本书的编写还得到了四川工程职业技术学院机电工程系汽车检测与维修教研室张仁斌老师的大力帮助，在此表示真诚的感谢。

本教材的编写从内容到形式都有一些新的尝试，限于编者经验和水平，不妥之处，敬请批评指正。同时，鉴于全国各地高职高专院校的实际情况不尽相同，恳请各教学单位在积极选用和推广本教材的同时，注重总结经验，及时提出修改意见和建议，以便再版修订时改正。

编者

2011年1月

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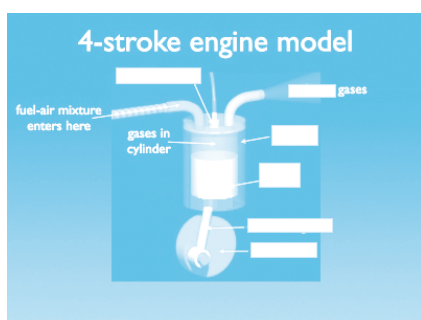
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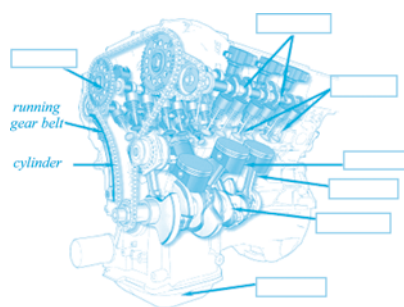
Engine Construction and Operation Principle

Warming-up

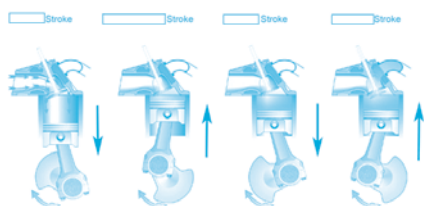
1. Read the following passage independently with the questions provided below to think about.
 - a. Which component is the most important part in an automobile?
 - b. How many different types of engines are mentioned in the text according to the number and layout of cylinders?
 - c. What is the function of the connecting rod?
 - d. On which stroke, the exhaust valve opens and the **piston** moves upward?
2. Write down the relevant terms and expressions in the space provided below.



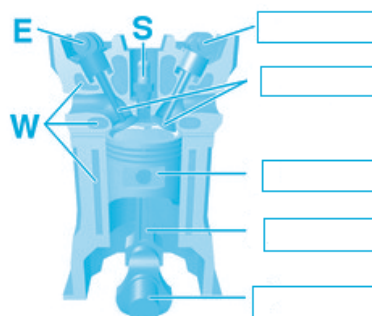
Picture 1



Picture 2



Picture 3



Picture 4

Text

The purpose of a **gasoline** car engine is to **convert** gasoline into **motion** so that your car can move. Currently the easiest way to create motion from gasoline is to burn the gasoline inside an engine. Therefore, a car engine is an internal **combustion** engine—combustion takes place internally. Two things to note:

- There are different kinds of internal combustion engines. **Diesel** engines are one form and gas turbine engines are another. Each has its own advantages and disadvantages.
- There is such a thing as an external combustion engine. However, internal combustion is a lot more efficient (takes less fuel per mile) and a lot smaller than external combustion.

Internal Combustion

Almost all cars currently use what is called a four-stroke combustion cycle to convert gasoline into motion. The four strokes are illustrated in Figure 1. They are:

- Intake stroke
- Compression stroke
- Combustion stroke
- Exhaust stroke

You can see in figure 1 that a **piston** is connected to the crankshaft by a connecting rod. Here's what happens as the engine goes through its cycle:

- The piston starts at the top, the intake **valve** opens, and the piston moves down to let the engine take in a cylinder full of air and gasoline. This is the intake stroke. (Part 1)

- Then the piston moves back up to compress this fuel/air mixture. Compression makes the explosion more powerful. (Part 2)

- When the piston reaches the top of its stroke, the spark plug emits a spark to ignite the gasoline. The gasoline charge in the **cylinder explodes**, driving the piston down. (Part 3)

- Once the piston hits the bottom of its stroke, the exhaust valve opens and the exhaust leaves the cylinder to go out the **tailpipe**. (Part 4)

Now the engine is ready for the next cycle, so it intakes another charge of air and gas.

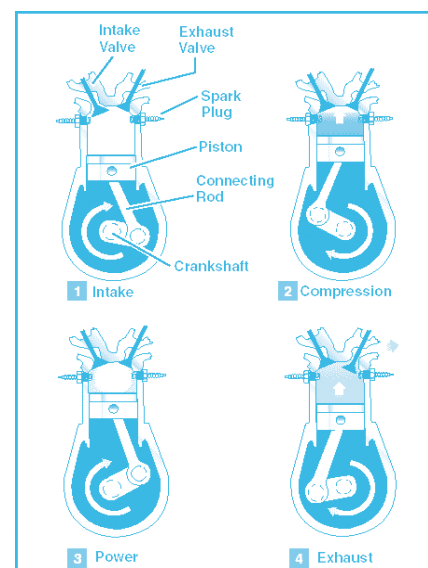


Figure 1

The motion that comes out of an internal combustion engine is **rotational**. In an engine the **linear** motion of the pistons is converted into rotational motion by the crankshaft. The rotational motion is nice because we plan to turn (rotate) the car's wheels with it.

Basic Engine Parts

Cylinder

The core of the engine is the cylinder, with the piston moving up and down inside the cylinder. The engine described above has one cylinder. But most cars have more than one cylinder (four, six and eight cylinders are common). In a multi-cylinder engine, the cylinders usually are arranged in one of three ways: inline, V or flat (also known as horizontally opposed or boxer), as shown in the following figures.

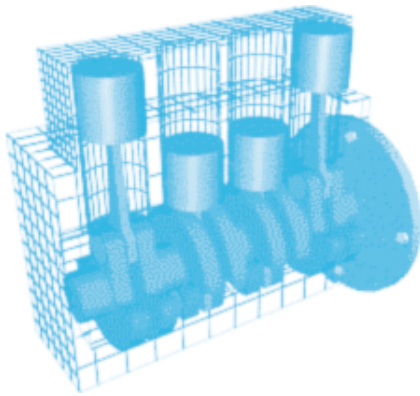


Figure 2 Inline—The cylinders are arranged in a line in a single bank.

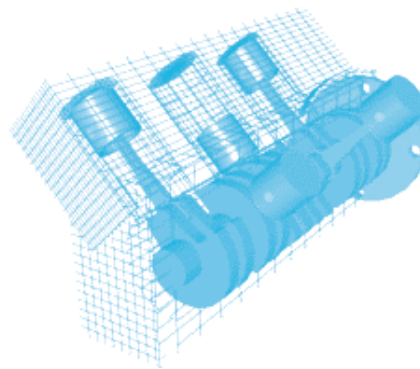


Figure 3 V—The cylinders are arranged at an angle to one another.

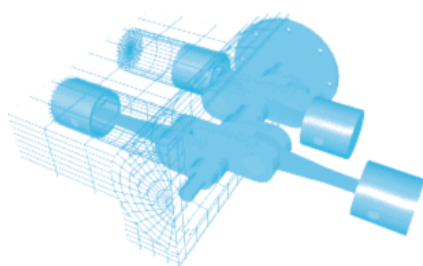


Figure 4 Flat—The cylinders are arranged on opposite sides of the engine.

Spark Plug

The spark plug supplies the spark that ignites the air/fuel mixture so that combustion can occur.

Valves

The intake and exhaust valves open at the proper time to let in air and fuel and to let out exhaust. Both valves are closed during compression and combustion so that the combustion chamber is sealed.

Piston

A piston is a cylindrical piece of metal that moves up and down inside the cylinder.

Connecting Rod

The connecting rod connects the piston to the crankshaft. It can rotate at both ends so that its angle can change as the piston moves and the crankshaft rotates.

Crankshaft

The crankshaft turns the piston's up and down motion into circular motion.

Sump

The **sump** surrounds the crankshaft. It contains some amount of oil, which collects in the bottom of the sump (the oil pan).

New Words

gasoline ['gæsəli:n] *n.* 汽油

convert [kən've:t] *v.* (使) 转化, (使) 转变

motion ['məʊʃən] *n.* (物体) 运动; 动作

combustion [kəm'bʌstʃən] *n.* 燃烧

diesel ['di:z(ə)l] *n.* 柴油

piston ['pɪstən] *n.* 活塞

valve [vælv] *n.* 气门, 阀门

cylinder ['sɪlɪndə] *n.* 汽缸

explode [ɪk'spləʊd] *v.* 爆炸

tailpipe ['teɪlpaɪp] *n.* 尾气管

rotational [rəʊ'teɪʃənəl] *adj.* 旋转的

linear ['lɪniə] *adj.* 直线的

sump (=the oil pan) [sʌmp] *n.* 油底壳

Expressions

1. internal combustion engine 内燃机
2. external and internal engine 外燃机
3. gas turbine engine 燃气涡轮发动机
4. intake stroke 进气冲程
5. compression stroke 压缩冲程
6. combustion stroke 做功冲程
7. exhaust stroke 排气冲程
8. spark plug 火花塞
9. connecting rod 连杆

Notes on the Text

1. The purpose of a gasoline car engine is to convert gasoline into motion so that your car can move.
汽油发动机的目的是将汽油转化成动能来推动汽车移动。
本句中 to convert... 为不定式作表语；so that 引导目的状语从句，意为“以便，以至于”。
2. However, internal combustion is a lot more efficient (takes less fuel per mile) and a lot smaller than external combustion.
但是，内燃机比外燃机更加有效（每公里耗油量更少）且更小。
本句中more...than引导比较状语从句；and连接两个并列成分more efficient和smaller。
3. Almost all cars currently use what is called a four-stroke combustion cycle to convert gasoline into motion.
几乎现在所有汽车都使用所谓的四冲程循环将汽油转化成动能。
what 引导宾语从句，to convert ... 为不定式短语作目的状语。
4. It contains some amount of oil, which collects in the bottom of the sump (the oil pan).
它（油底壳）将油集中在底部。
which引导非限制性定语从句，先行词为oil。

Exercises

1. Fill in the blanks with the suitable terms according to the text.

cylinder	exhaust	intake stroke	piston	internal combustion engine
spark plug	connecting rod	linear	external combustion	combustion

- (1) A car engine is an _____—combustion takes place internally.
- (2) The piston starts at the top, the intake valve opens, and the piston moves down to let the engine take in a cylinder full of air and gasoline. This is _____.
- (3) The _____s usually are arranged in one of three ways: inline, V or flat (also known as horizontally opposed or boxer).
- (4) The _____ supplies the spark that ignites the air/fuel mixture so that combustion can occur.
- (5) The intake and _____ valves open at the proper time to let in air and fuel and to let out exhaust.
- (6) The _____ connects the piston to the crankshaft.

(7) In an engine the _____ motion of the pistons is converted into rotational motion by the crankshaft.

(8) However, internal combustion is a lot more efficient (takes less fuel per mile) and a lot smaller than _____.

(9) Once the _____ hits the bottom of its stroke, the exhaust valve opens and the exhaust leaves the cylinder to go out the tailpipe.

(10) Both valves are closed during compression and _____ stroke so that the combustion chamber is sealed.

2. Complete the following sentences with the words and phrases from the passage.

(1) The purpose of a gasoline car engine is to convert _____ into _____ so that your car can move. Currently the easiest way to create motion from gasoline is to burn the gasoline _____ an engine. Therefore, a car engine is an internal combustion engine—combustion takes place internally.

(2) Almost all cars currently use what is called a _____-stroke combustion cycle to convert gasoline into motion.

(3) Once the piston hits the bottom of its stroke, the exhaust valve opens and the exhaust leaves the _____ to go out the _____.

(4) The core of the engine is the cylinder, with the _____ moving up and down inside the cylinder.

(5) There are different kinds of internal combustion engines. _____ engines are one form and _____ turbine engines are another. Each has its own advantages and disadvantages.

3. Match the following English phrases in column A with their Chinese equivalents in Column B.

A	B
exhaust stroke	进气门
engine piston	火花塞
tailpipe	发动机活塞
air-fuel mixture	尾气管
internal combustion engine	排气冲程
spark plug	内燃机
intake valve	可燃混合气

4. Translate the following passages into Chinese.

(1) The motion that comes out of an internal combustion engine is rotational. In an engine the linear motion of the pistons is converted into rotational motion by the crankshaft. The rotational motion is nice because we plan to turn (rotate) the car's wheels with it.

(2) The intake and exhaust valves open at the proper time to let in air and fuel and to let out exhaust. Both valves are closed during compression and combustion so that the combustion chamber is sealed.

5. Training center practice:

(1) In a training center, in front of a real engine, students are required to identify the main components and tell their corresponding English terms;

(2) Students are required to introduce the operation principle of an automobile engine by means of indicating the relating parts of the engine.

Learn and Write

Applied Writing: Business Letter

英文书信可分为私人信函和商务信函两大类。私人信函所包含的项目比商务信函少，语言更通俗。商务信函可分为六大部分：

1. 信头 (Heading)

(1) 写信的地址、邮政编码、电话、传真号码及电子邮件地址等 (Writer's Address)；公司业务用纸上一一般印有信头，不必另行再写。

(2) 写信日期 (Date)

日期通常有下列两种定法：

(a) 月、日、年：如 August 15, 2011

(b) 日、月、年：如 15th august, 2011

2. 信内地址，即收信人的姓名和地址 (Inside Address)。

3. 称呼 (Salutation)。

称呼指写信人对收信人的称呼，如 Dear Xiaojun，写在信头的下方和信笺的左边。称呼一般用 Dear... 或 My dear... 开头，称呼后一般用逗号。

4. 正文 (Body)。

这是书信的主体部分，即写信人要表达的内容。正文要求文字通顺，层次分明，表意清楚。可以手书，也可以打写。

5. 结束语 (Complimentary Close)。

它是书信结尾的恭维话，相当于文中书信最后的“祝好”、“致礼”之类的话语。

6. 签名 (Signature)。

签名通常签在结束语下方的中间偏右的位置。签名应是亲笔书写，即使是打印出的信件，最后仍需亲笔签名。在签名的上方可根据写信人和收信人的关系写上 Sincerely yours/ Yours sincerely (用于长辈或朋友之间)，或 Respectfully yours/ Yours respectfully (用于对长辈或上级)。

Sample

Business Letter Format

	⇒	Sender's Street Address - Number & Street
Heading	⇒	City State Zip
		Date
Name of Addressee	⇐	Inside Address
Street Address - Number & Street		
City State Zip		
Dear _____:	⇐	Greeting
As you can tell from the inside address just before the greeting, a business letter is much more formal. This is the type of letter you might write to a company to complain about a product, claim repair or replacement under warranty, or to request information. The language—grammar and vocabulary—used for this type of writing is very concise and formal. The audience for such a letter needs to be able to read the letter quickly, and understand the message that the writer is sending, whether it is a complaint, a request for information, or some other communication. The tone of the letter can be as important as its precision. Be sure to communicate your information in a manner appropriate to the situation. For example: register a complaint; don't whine.		
Closing	⇒	Sincerely,
Signature	⇒	<i>A. Writer</i>
Type or print your name here		

课 文 译 文

发动机的主要构造与工作原理

汽车汽油发动机的目的是将汽油转化成动能用来推动汽车。现在将汽油转化成动能的最简单的方法是在发动机中燃烧汽油。因此，汽车发动机是内燃机——燃烧在内部产生。要注意两点：

- 有不同种类的内燃机。柴油发动机是一种形式，燃气轮机是另一种。每一种都有自身的优势和劣势。
- 还有一种是外燃机。然而，内部燃烧比外部燃烧更加有效（每英里耗油量更少）且小得多。

内燃机

几乎现在所有的汽车都使用一种被称为四冲程的内燃机来将汽油转化成动力。四冲程如图1所示。即：

- 进气冲程
- 压缩冲程
- 做功冲程
- 排气冲程

从图1中可看到活塞通过连杆与曲轴相连。下面是发动机的循环过程：

- 活塞从顶部开始运动，进气门打开，活塞向下运动使发动机汽缸充满可燃混合气。这叫进气冲程。

- 然后活塞向上运动压缩可燃混合气体。压缩使爆发更有力。

- 当活塞到达顶部时，火花塞产生出火花点燃汽油。混合气体在汽缸中爆发出能量，推动活塞向下运动。

- 一旦活塞到达这次冲程末端，排气门打开，废气由汽缸排向排气管。

同时发动机已为下一循环做好了准备，又一次吸入可燃混合气体。

出自内燃机的动力是旋转的。发动机中活塞的线性运动通过曲轴转化成了旋转力。这种旋转力适合于推动旋转的车轮。

主要发动机部件

汽缸

发动机的中心部分就是汽缸，活塞在汽缸中上下运动。上面介绍的发动机有一个汽

缸。但是大多数汽车都有不止一个汽缸（四个，六个或八个都很普遍）。在多汽缸发动机中，汽缸通常以三种方式排列：直列，V型或平型（也叫做水平对置式），如下图所示：

火花塞

火花塞提供火花点燃可燃混合气体使燃烧得以发生。

气门

进气门和排气门在适当的时间开合吸入混合气体排出废气。在压缩和做功冲程两处气门都关闭以保证燃烧室的密封状态。

活塞

活塞是在汽缸中上下运动的圆筒状的金属部件。

连杆

连杆连接活塞和曲轴。它两端都能转动，使它的角度能随着活塞的运动和曲轴的转动而改变。

曲轴

曲轴将活塞上下运动转化成旋转的运动。

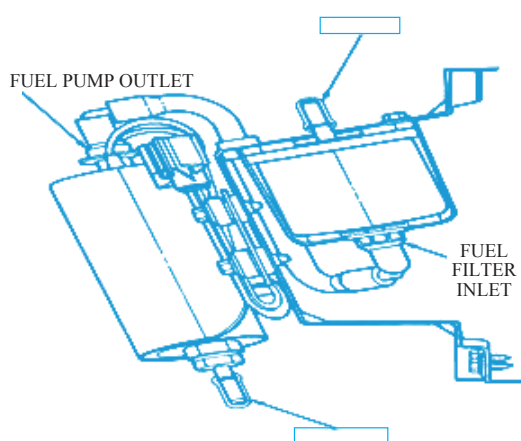
油底壳

油底壳包围着曲轴。它容纳着聚集在底部的润滑油。

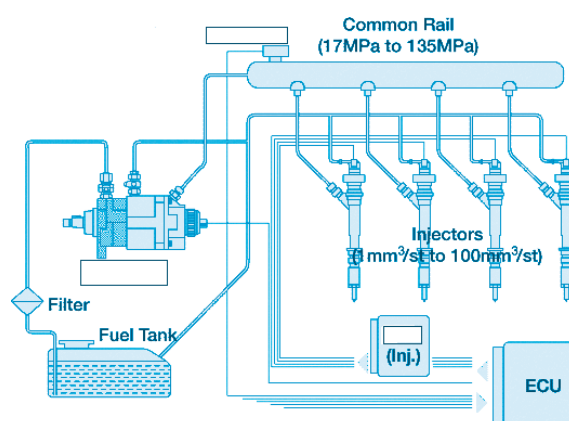
Fuel System of the Electronically-Controlled Engine

Warming-up

1. Read the following passage independently with the questions provided below to think about.
 - a. What does a fuel system compose of?
 - b. How many types of fuel injections are there?
 - c. What is the function of the electronic fuel pump?
 - d. What is electronic fuel injection?
2. Write down the relevant terms and expressions in the space provided below.



Picture 1



Picture 2