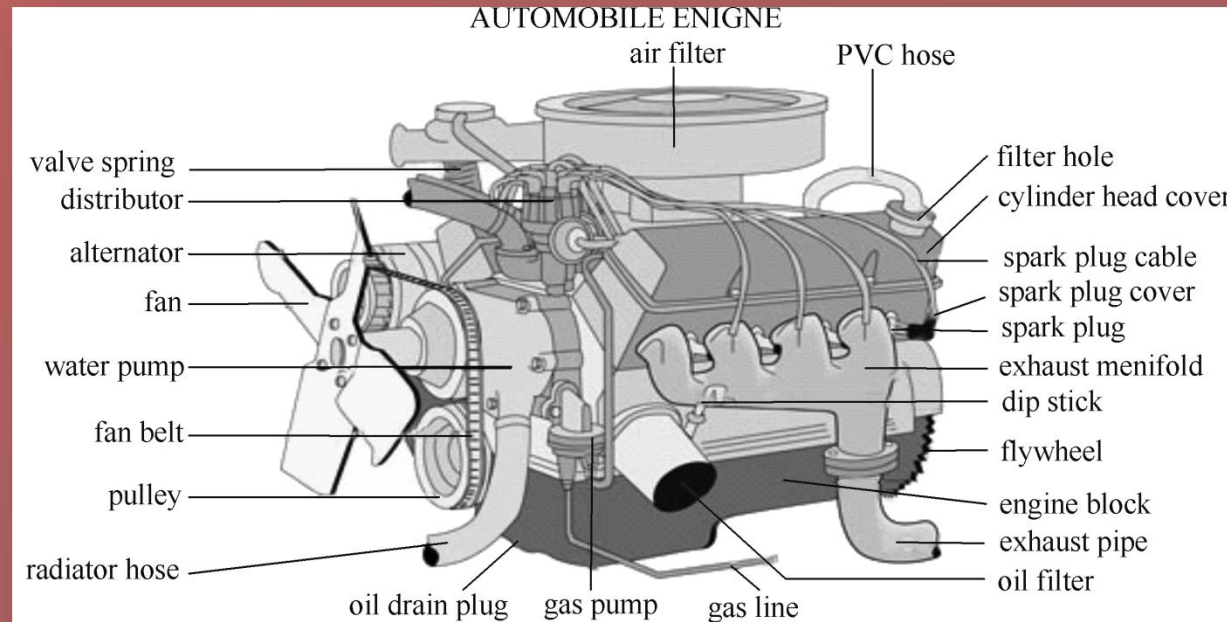


Unit 2 Introduction to Automobile Engine

*The following is the automobile engine.
Sample*



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English Terms	Explanations	Chinese
1. Valve spring	Mechanism that keeps the valve closed	气门弹簧
2. Distributor	Case that enables engine's ignition	分电器
3. Alternator	Generator that enables current in both directions	交流发电机
4. Fan	Apparatus that feed oxygen into the engine's combustion	风扇
5. Water pump	Device that circulates water through the radiator	水泵
6. Fan belt	Piece of rubber that wraps around the pulleys and turns the cooling fan	风扇皮带
7. Pulley	Small wheel with a grooved rim, bitted with a belt, which turns the cooling fan	带轮
8. Radiator hose	Treated rubber tube that connects the lines of a combustion engine	散热器软管
9. fuel pump	Device that moves gas from the gas tank to the engine	燃油泵

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10. fuel line	Network of hoses that transport the gas	燃油管路
11. Air filter	Device that removes impurities from air passing through it	空气滤清器
12. Dip stick	Instrument that measures the level of oil in a motor	机油量尺
13. Engine block	Set consisting the motor, the clutch and the gearbox	发动机气缸体
14. Cylinder head cover	Removable cover on the upper part of the motor	汽缸盖罩盖
15. Spark plug cable	Cable connecting the spark plug to the distributor cap	火花塞高压线
16. Spark plug	Ignition device of an internal combustion engine	火花塞
17. Exhaust manifold	System that collects spent gases	排气歧管
18. Flywheel	Wheel that regulates the speed of the engine while turning	飞轮
19. Exhaust pipe	Pipe through which spent gas is expelled	排气管
20. Oil filter	Device that removes impurities from oil passing through it	机油滤清器

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EXERCISE 5

Write down the name of the parts in English according to the figure below.

Crankshaft

Exhaust valve

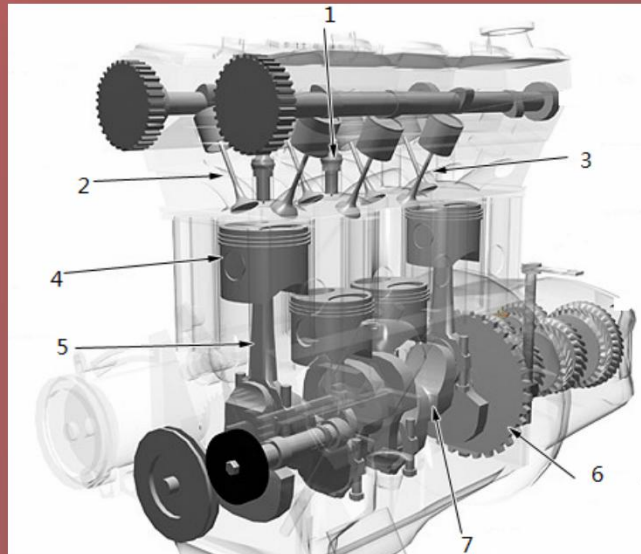
Connecting rod

Intake valve

Spark plug

Flywheel

Piston



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EXERCISE 5

Write down the name of the parts in English according to the figure below.

1. **Spark plug**火花塞

3. **Exhaust valve**

5. **Connecting rod**连杆

7. **Crankshaft**曲轴

2. **Intake valve**进气门

4. **Piston**活塞

6. **Flywheel**

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EXERCISE 6

There are 10 incomplete statements here. You are required to complete each statement by choosing the appropriate answer from the 4 choices marked A, B, C, and D.

1. In the first stroke, the camshaft opens C.
A. either intake valve or exhaust valve B. neither intake nor exhaust valve
C. the intake valve D. the exhaust valve
2. The camshaft is driven by the A, via a belt, chain or gears, at one half the crankshaft speed.
A. crankshaft B. connecting rod C. piston D. power
3. A C changes the up-and-down motion of the pistons into spinning motion.
A. camshaft B. valve C. crankshaft D. engine

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EXERCISE 6

4. What is the core of a car's engine? **A**
A. the cylinder B. the spark plug C. windshield-washer fluid D. exhaust
5. What does a connecting rod connect? **B**
A. the steering wheel to the dashboard B. the piston to the crankshaft
C. hubcaps to wheels D. the piston to the cylinder
6. The **D** is not the component of an engine.
A. cylinder block B. camshaft C. connecting rod D. radiator
7. Most automotive pistons have three rings: **B**.
A. 2 oil rings and one compression ring B. two compression rings and one oil ring
C. 3 compression rings D. 3 oil rings

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EXERCISE 6

8. The **B** is the heart of an automobile.
A. piston B. engine C. crankshaft D. valve
9. **D** is not the purpose of a flywheel.
A. It reduces vibration by smoothing out the power stroke as each cylinder fires
B. It is mounting surface used to bolt the engine up to its load
C. Some diesel flywheel has gear teeth around its perimeter that allow the starting motors to engage and crank the engine
D. It converts the up and down motion of the piston into a rotary motion
10. The four strokes in the engine are, in order of occurrence: **C** .
A. intake, power, exhaust, and compress B. intake, exhaust, power, and compression
C. intake, compression, power, and exhaust D. intake, power, compression, and exhaust

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Troubleshooting Guide

Engine doesn't have its normal amount of power:

When you step on the gas, the engine doesn't seem to have the power or pick up as it did before. It seems to run okay and there are no unusual noises or vibrations, but the engine just isn't performing well. The problem seems to be getting worse and worse as time goes by although you did not notice when it first started.

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Troubleshooting Guide

Possible causes:

1. You may have a dirty air filter: Replace the air filter.
2. The spark plugs may be dirty or worn: Clean and re-gap spark plugs. Replace spark plugs.
3. There may be some type of ignition problem: Check and replace distributor cap, rotor, ignition wires and spark plugs.
4. The ignition wires may be bad: Replace ignition wires.
5. The fuel filter may be clogged: Replace fuel filter.
6. The engine may have mechanical problems: Check compression to determine engine condition.
7. Your catalytic converter may be clogged: Replace catalytic converter.
8. The exhaust system may be clogged: Replace exhaust system.

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Exercise 7

The engine will not idle smoothly, or it stalls during idle when the engine is cold:

When the engine is cold and you take your foot off the gas pedal, the engine runs very rough and may even stall. When you run the engine at higher speeds, it seems to run fine.

Possible causes:

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Exercise 7

A

1. If you have a carburetor, you may have a bad accelerator pump or power circuit:
2. There may be a vacuum leak:
3. There may be some type of ignition problem:
4. The ignition timing may be set wrong:
5. There may be a fault in the computerized engine control system:
6. The EGR valve may be bad:
7. The engine may have mechanical problems:
8. Idle speed set incorrectly:
9. The fuel injectors may be dirty:

B

- a. Check and replace vacuum lines as required.
- b. Check engine control systems with a scan tool. Test circuits and repair or replace components as required. (Generally not a DIY job)
- c. Set idle speed to specs.
- d. Replace accelerator pump or replace carburetor.
- e. Clean or replace fuel injectors.
- f. Check and replace distributor cap, rotor, ignition wires and spark plugs.
- g. Check compression to determine engine condition.
- h. Adjust ignition timing.

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Asking for Opinions

Sample Dialogue 1

A: Welcome to our company, Mr. Johnson. We've been looking forward to your constructive direction.

B: Thank you. I'm coming to learn.

A: Now come with me please. Here is the engine shop.

B: Fine. Would you please briefly explain the detail about your engine?

A: OK. That's our latest development.

B: Oh, it looks so greatly.

A: We put it on the market just one week ago.

B: How long was the engine developed by you?

A: For five years.

B: Thank you for giving me such a detailed account about the engine.

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Asking for Opinions

Sample Dialogue 2

A: Mr. Johnson, have you come up with any ideas about our latest engine?

B: Yes, as a matter of fact, I have a few ideas to tell you.

A: OK, Mr. Johnson, please.

B: I think you should have a news conference for your new engine.

A: You are right, Mr. Johnson.

B: As I know, there are still many people who are strangers to your latest engine.

A: What next step shall we take?

B: You can introduce your new product and invite your customers to visit the engine shop.

A: Very well. That's a good idea.

