

全国高等农业院校教材

英 语

(第二版)

快 速 阅 读

(下册)

北京农业机械化学院主编

农机类专业用

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北京农业机械学院主编

责任编辑 王济培

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## 说 明

“快速阅读”是供训练和检查学生的阅读能力和速度之用。

本册共有10篇短文，与课文的10个单元（set）相配合，每篇短文后均有供检查理解程度的练习题。

使用本“快速阅读”时应注意以下几点：

1. 本册应由教师统一保管，每次使用时才发给学生；
2. 快速阅读在课堂上由教师指导，于限定时间（一般为阅读5分钟，作练习5分钟）内完成；
3. 阅读前不作预习；
4. 要求不查阅词典，文中少量生词已有注释；
5. 每次练习后要作阅读时间、速度和理解程度的记录；
6. 阅读时应尽量记住文章主要情节，作练习题时不能再翻阅所读短文。

编 者

1984年10月

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Class

Name

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## 1. Advantages and Disadvantages of Two-stroke Cycle over Four-stroke Cycle Engines

### Advantages

1. The two-stroke cycle engine gives one working stroke for each revolution of the crankshaft. Hence, theoretically the power developed for the same engine speed and cylinder volume is twice that of the four-stroke cycle engine which gives only one working stroke for every two revolutions of the crankshaft.
2. Due to one working stroke for each revolution of the crankshaft, the turning moment (扭矩) on the crankshaft is more uniform. Therefore, a two-stroke engine requires a lighter flywheel.
3. The two-stroke engine is simpler in construction. The design of its parts is much simpler and their maintenance easier than that of the valve mechanism.
4. The power required to overcome frictional resistance of the suction (吸气) and exhaust strokes is saved, resulting in some economy of fuel.
5. Owing to the absence of the cam, camshaft, rockers (摇杆), etc. of the valve mechanism, the mechanical

efficiency is higher.

6. The two-stroke engine gives less oscillations.
7. For the same power, a two-stroke engine is more compact and requires less space than a four-stroke cycle engine.
8. A two-stroke engine is lighter in weight for the same power and speed especially when the crankcase compression is used.
9. Due to its simpler design, it requires fewer spare parts.
10. A two-stroke cycle engine can be easily reversed if it is of the valveless type.

#### **Disadvantages**

1. The scavenging (换气, 扫气) being not very efficient in a two-stroke engine, the dilution (稀释) of the charges takes place which results in poor thermal efficiency.
2. The two-stroke spark ignition engine does not have a separate lubrication system and normally, lubricating oil is mixed with the fuel. This is not as effective as the lubrication of a four-stroke engine. Therefore, the parts of the two-stroke engine are subjected to greater wear and tear.
3. In a spark ignition two-stroke engine, some of the fuel passes directly to the exhaust. Hence, the fuel consumption per horsepower is comparatively higher.
4. With heavy loads a two-stroke engine gets heated up

due to the excessive heat produced. At the same time the running of the engine is not very smooth at light loads.

5. It consumes more lubricating oil because of the greater amount of heat generated.
6. Since the ports remain open during the upward stroke, the actual compression starts only after both the inlet and exhaust ports have been closed. Hence, the compression ratio of this engine is lower than that of a four-stroke engine of the same dimensions. As the efficiency of an engine is directly proportional to its compression ratio, the efficiency of a two-stroke cycle engine is lower than that of a four-stroke cycle engine of the same size.

Reading time: Minutes \_\_\_\_\_

### Comprehension

#### I True or false

1. Theoretically the developed power of the two-stroke cycle engine for the same engine speed and cylinder volume is twice that of the four-stroke cycle engine.
2. A two-stroke engine requires a lighter flywheel because the turning moment on the crankshaft is more uniform.
3. For the same power, a four-stroke cycle engine



requires more space than a two-stroke engine.

4. A two-stroke engine is heavier in weight for the same power and speed especially when the crank-case compression is used.
5. If a two-stroke engine is of the valveless type, it can not be easily reversed.

II. Multiple choice

1. The thermal efficiency of a two-stroke engine is poor because of \_\_\_\_\_.
  - A its efficient scavenging
  - B its poor scavenging resulting in the dilution of the charges
  - C its less oscillations
2. The parts of the two-stroke engine are subjected to greater wear and tear because \_\_\_\_\_.
  - A. the two-stroke spark ignition engine has only one lubrication system
  - B. the two-stroke spark ignition engine has a special lubrication system
  - C. the lubricating oil is mixed with the fuel
3. In a spark ignition two-stroke engine, the fuel consumption per horsepower is \_\_\_\_\_.
  - A. relatively higher
  - B. a little higher
  - C. as high as that in a four-stroke cycle engine
4. Due to the excessive heat produced, a two-stroke engine gets heated up \_\_\_\_\_.

- A with heavy loads
  - B at light loads
  - C. at low speeds
5. The efficiency of a two-stroke cycle engine is
- A. lower than that of a four-stroke cycle engine of any size
  - B. lower than that of a four-stroke cycle engine of the same size
  - C. higher than that of a four-stroke cycle engine of the same size

Words per minute	Total number right	Percent
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Class

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Date

## 2. Small 4-wheel Riding Tractor

The small 4 wheel riding tractor has the following main components: engine, clutch assembly, I transmission, II transmission, differential, final reduction boxes, and a power-take-off assembly. The engine, clutch and the first transmission are bolted (用螺栓固定) together to form a single unit and this assembly is mounted on the automotive-type chassis by rubber mounts to isolate (使隔绝) engine vibration from the rest of the tractor. The second transmission, differential assembly, final gear reduction boxes, steering mechanism, and operator seat are all mounted directly on the chassis. This arrangement transmits very little engine vibration to the operator, thereby minimizing operator fatigue.

The first and second transmissions were joined by a double universal joint to compensate (补偿) for misalignment between the two major assemblies due to production tolerances and dynamic distortion of the chassis during operation.

The output shaft of the first transmission transfer case drives a power-take-off shaft at the rear which con-

forms to basic American Society of Agricultural Engineers PTO shaft standards. The main drive clutch is also used to engage and disengage the PTO shaft by levers provided on the transfer case of the first transmission. Placing the second transmission in neutral (空档) permits the use of PTO shaft for operating stationary machines. Since the first transmission has a high and low range, a wide range of PTO shaft speeds, including the standard 540 rpm, are available to drive field and stationary equipment.

The basic prototype (样机) tractor weighs 545 kg (1200 lb) without the three-point implement hitch and hydraulic lift mechanism. The 3-point hitch and a set of implements are being developed. Tests are planned for the near future.

Reading time: Minutes \_\_\_\_\_

### Comprehension

#### I. True or false

1. Rubber mounts make it possible to isolate engine vibration from the rest of the tractor.
2. The first and the second transmissions are all mounted directly on the chassis.
3. A single universal joint joined the first and the second transmissions.
4. The levers on the main drive clutch can not only engage the PTO shaft, but also disengage it.

5. The basic prototype tractor weighing 545 kg doesn't have the three-point implement hitch nor hydraulic lift mechanism.

**II. Multiple choice**

1. The second transmission, differential, and some other components are all mounted directly on the chassis, which \_\_\_\_\_ engine vibration to the operator.
- A. transmits a little
  - B. transmits much
  - C. doesn't transmit much
2. \_\_\_\_\_ can cause misalignment between the two major assemblies.
- A. Only production tolerances
  - B. Only dynamic distortion of the chassis during operation
  - C. Both production tolerances and dynamic distortion of the chassis during operation
3. The power-take-off shaft at the rear which conforms to basic American Society of Agricultural Engineers PTO shaft standards is driven by the output shaft of \_\_\_\_\_.
- A. I transmission transfer case
  - B. II transmission transfer case
  - C. I and II transmissions transfer cases
4. Placing the second transmission \_\_\_\_\_ permits

the use of PTO shaft for operating stationary machines.

- A. in top gear
  - B. in neutral gear
  - C. in bottom gear
5. 540 rpm is. . . . . PTO shaft speed.
- A. the high
  - B. the standard
  - C. the low

<u>Words per minute</u>	<u>Total number right</u>	<u>Percent</u>
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Class

Name

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### 3. Disc Ploughs

The disc plough is a type of plough generally used where conditions are very hard and rough and totally unsuitable for use of the conventional mouldboard plough.

This plough is unlike the mouldboard plough in that it does not have a share, mouldboard, or coulter to cut and invert a furrow slice, but instead it has a heavy steel concave disc which carries out a similar but not by any means identical function to the mouldboard and share. As a disc plough is pulled along, the discs rotate cutting into the soil and the so-called furrow slice is caused to rise up in the concavity of the disc, to be broken up as it does so, and then thrown sideways.

Disc ploughs may be trailed or mounted as are the mouldboard ploughs. A trailed type may have up to six discs and is thus a very heavy implement utilizing its weight to assist penetration (入土) when working in hard conditions. A mounted type usually has up to five discs and is thus necessarily lighter to enable it to be carried by a tractor. However, to achieve penetration when working in hard conditions it may be necessary to add weight to the plough.



The mounted plough is attached to the tractor on the three point linkage and adjustment to the top link and/or the right-hand lifting rod serves to level the plough. Depth of work is set by alteration of the height of the depth wheel or where a depth wheel is not fitted, by a setting on the hydraulic depth control.

Width of furrow may in some cases be altered by changing the position of the disc in relation to the beam to which it is attached. This can involve, in effect, slight rotation of the disc so that the angle of the disc to the line of pull is greater or less. Whilst this will alter the furrow width it will also make the plough more difficult to pull and cause the furrow to be thrown farther sideways, if the angle is made greater. Alteration of the vertical angle of the disc will affect penetration by the disc. The more vertical the disc, the greater will be the penetration.

Reading time: Minutes \_\_\_\_\_

### Comprehension

#### I. True or false

1. The conditions where the disc plough is generally used are the same as those where the conventional mouldboard plough is used.
2. The disc plough generally has a coulter, a mouldboard, etc., as does the mouldboard plough.