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# Unit Standard 30574

## Demonstrate knowledge of ignition systems

Level 3 Credit 3 v1

| | |
|---|---|
| **Student Name:** | |
| **School:** | |
| **Date:** | |

**Marked By:** _____ **Mark** _____%

**Feedback:**

**Excellent work** ☐ **Please attempt all questions** ☐

**Good work** ☐ **Please resubmit** ☐

# USEFUL WEBLINKS

**Ignition**
http://youtu.be/W94iksaQwUo
http://youtu.be/QYx8J_5l5wY
http://youtu.be/dIQ4IWSpMO0
http://youtu.be/7zeazoPCyQU

**Electromagnetic Induction**
http://youtu.be/KGTZPTnZBFE
http://youtu.be/VPxdl1zpcC8

**Contact Breaker Ignition**
http://youtu.be/eTwxI4EQkro

**Dwell Angle**
http://youtu.be/Dv8ACcjcEbw

**Ignition Advance**
http://youtu.be/cFfnenMFQ3U

**Transistor Assisted Ignition**
http://youtu.be/H2J0lSTYVhQ

**Coil on Plug**
http://youtu.be/5X9RgErnKGE?list=PLYnZOSHPb3FqEalTwEQkVGyqR8kNIHPWW

**Distributorless Ignition**
http://youtu.be/FpGGpgSEU94
http://youtu.be/l1Qn89AN73Y

# REVIEW QUESTIONS ONE

Q1 All ignition systems have two circuits, these are:

Q2 The value of the induced voltage in coil secondary circuit is dependent on three factors. These are:

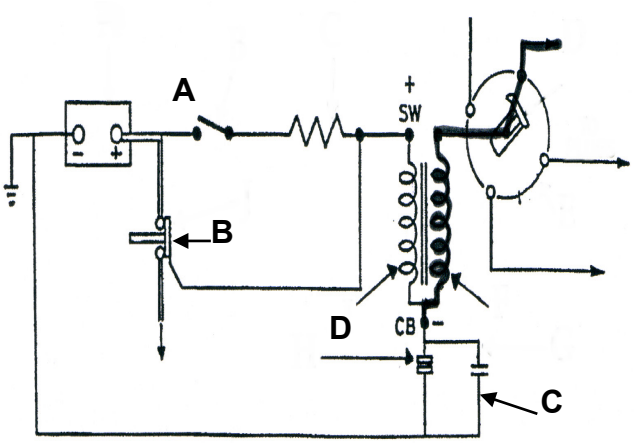
Q3 Name the components labelled a – d.

A

B

C

D




Q4 The ignition distributor has four functions, these are:

Q5 Complete the following statements.

The distributor cam rotates at _____ engine RPM. Dwell angle is the _____ the distributor contacts are _____ for. If the dwell is correct the _____ will also be correct, if the dwell is too large the _____ will be _____, and if too small the _____ will be _____.

The ignition capacitor prevents _____ across the distributor _____ and also assists in the rapid collapse of the _____ _____.

Q6 Identify the components labelled A-H in the diagram below.

A _____

B _____

C _____

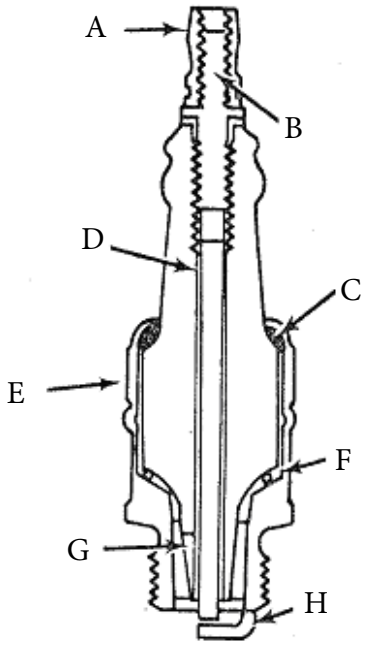
D _____

E _____

F _____

G _____

H _____



# REVIEW QUESTIONS TWO

Q6 Identify the components labelled A-H in the diagram below.

A

B

C

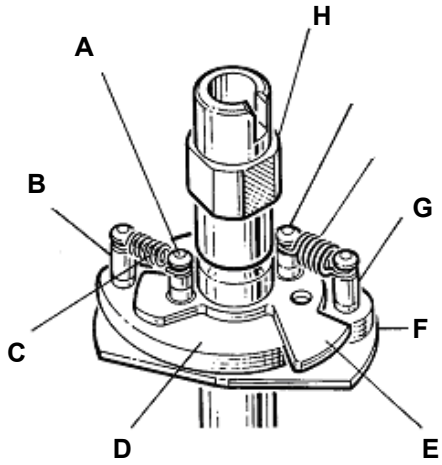
D

E

F

G

H




Q8 Complete the following statement.

The ignition spark occurs in the cylinder just before the piston reaches _____ _____ _____ on the _____ stroke.

Q9 Complete the following statements

Centrifugal advance changes the ignition timing with respect to engine _____ ,

whereas _____ advance changes the timing with respect to engine _____ . In centrifugal advance mechanisms the distributor _____ is advanced on the shaft by the action of two _____ which are forced _____ by centrifugal action. The rate of advance is determined by _____ .

# REVIEW QUESTIONS THREE

Q10 Give three advantages of TAC ignition systems:

Q11 Complete the following statement.

_____ component such as _____ and transistors are made of layers of _____ and negative _____ material. Join the positive and _____ material together and what is known as a positive-negative or _____ junction is created.

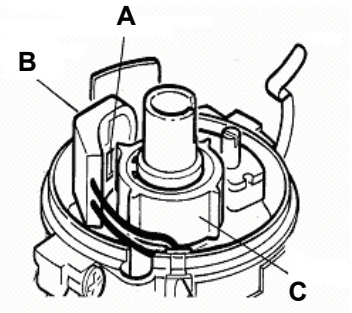
An unusual and useful feature of such a _____ is that _____ can only flow through it in _____ direction.

Q12 Identify the components labelled A-H in the diagram below.

A _____

B _____

C _____

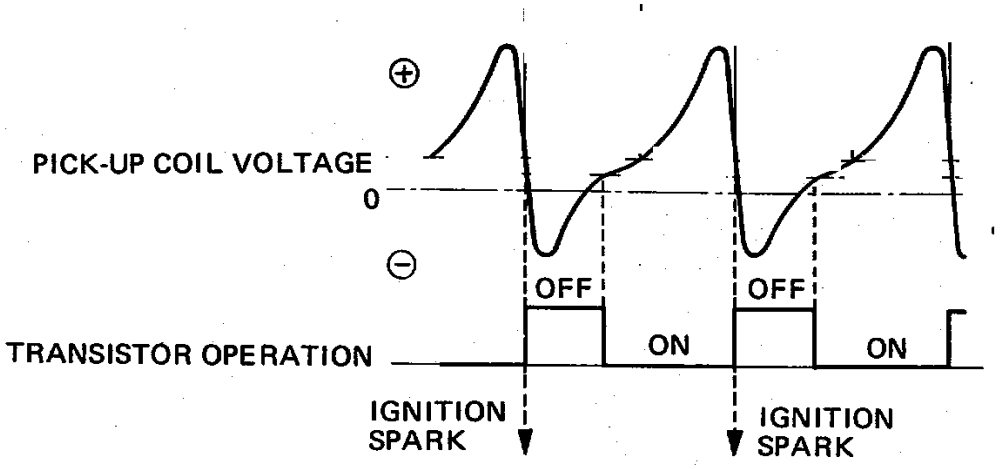


Q13 Complete the following statements:

The Hall effect sensor is similar to the magnetic reluctor sensor except that the _____ field is not passing through a coil but through a _____ switch. The sensor switch has a vane on the _____ for each _____. The width of the _____ determines the _____ angle.

When the magnetic field is _____ from the hall element, there is _____ output. When the window is between the _____ and the _____ element, the element generates an _____.

Q14 Describe what is taking place in the diagram below.



Q15 A rotating disc in an optical trigger sensor has two sets of slots in it. State what each set is for and how they achieve their task?

Q16 List Four safety precautions to be observed when working with electronic ignition systems.

Q17 List three rules that always apply to magnetic inductive pickup.

# REVIEW QUESTIONS FOUR

Q18 Describe the function of the following components in a capacitor discharge ignition system.

Capacitor

Exciter circuit

Ignition coil

Silicon controlled rectifier

Q19 Give three advantages of using a capacitor discharge ignition system.

Q20 Complete the following statement.

A rotating magnet magneto has a soft _____ armature containing the coil _____. A cam on the rotating flywheel opens and closes a _____ _____ which interrupts the _____ _____ current.