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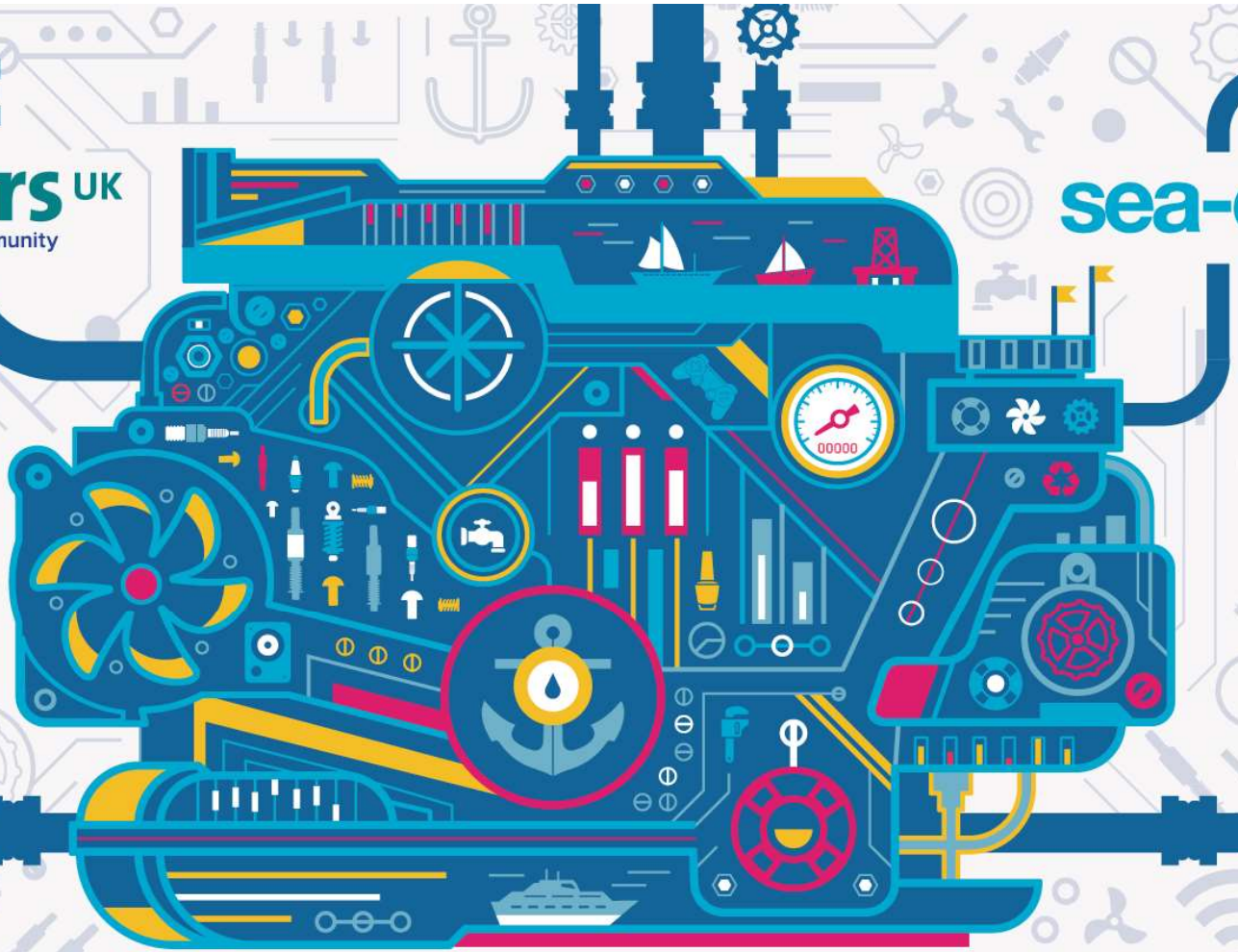
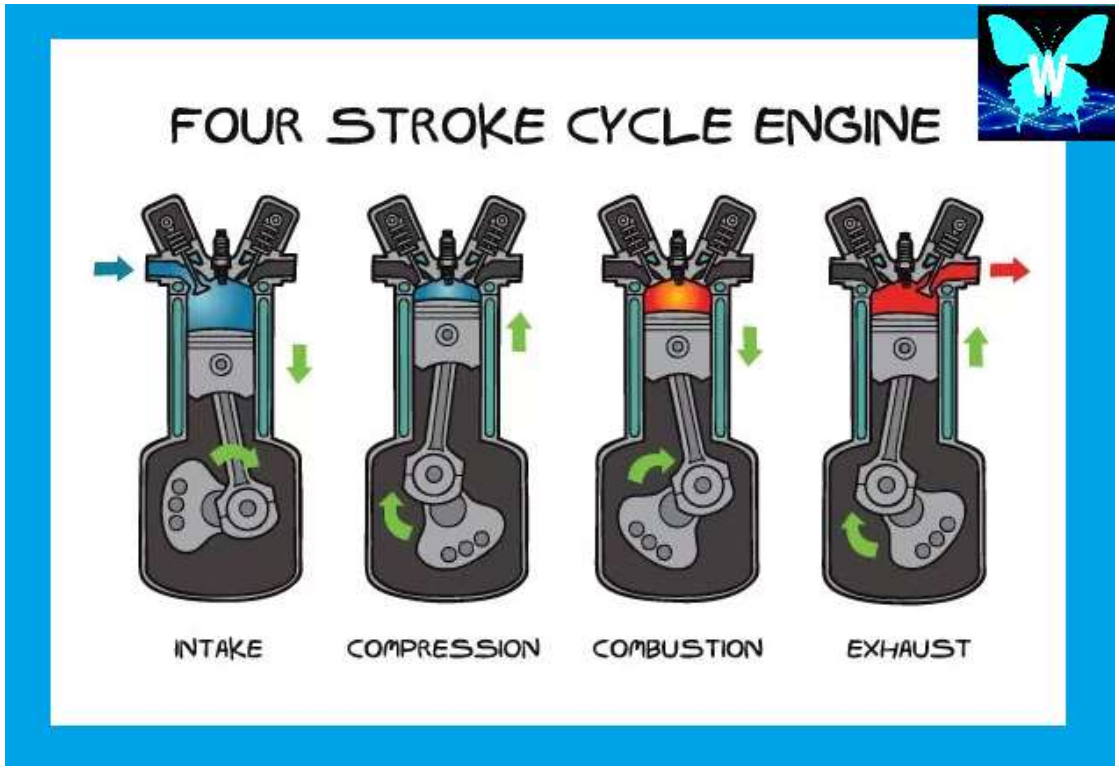


Know Your Engines Questions



Heat Engines

The Internal Combustion Engine or Heat Engine is a system that converts heat or thermal energy into mechanical energy, which can then be used to do mechanical work. There are two kinds of internal combustion engines currently in production, the spark ignition (petrol) engine and the compression ignition (diesel) engine.

To discover the difference between the spark and compression ignition engines, click on the link below.

https://www.youtube.com/watch?v=rlK7JlAz9WY

Now that you understand their differences, lets look at each type more closely. To see the 4 Stroke Spark Ignition cycle (petrol), click on the link below.

https://www.youtube.com/watch?v=DKF5dKo_r_Y

https://www.youtube.com/watch?v=Pu7g3uIG6Zo

To see the 4 Stroke Compression Ignition cycle (diesel), click on the link below.

https://www.youtube.com/watch?v=DZt5xU44lfQ

To see the 2 Stroke Spark Ignition cycle (petrol), click on the link below.

https://www.youtube.com/watch?v=Agrl3hRQzOA

To see the 2 Stroke Compression Ignition cycle (diesel), click on the link below

https://www.youtube.com/watch?v=mA7l3dpx6t0

After watching all of the above animations it's time to test your understanding of the different types of engine.

QUIZ

Read each of the following questions and write your answer A, B, C or D on a separate sheet.

1/ In a 4 Stroke petrol engine, how is the fuel ignited?

A. By compression ignition.
B. By spontaneous combustion
C. By spark ignition.
D. By red hot carbon deposits in the compression chamber.

2/ What type of fuel is used in a compression ignition engine?

A. Petrol.
B. Ethanol.
C. Methane.
D. Diesel.

3/ What is meant by the term TDC?

A. Thermo diesel comparison.
B. Top dead centre.
C. Titanium dipped camshaft.
D. Trade discount code.

4/ What is the main purpose of the crankshaft?

A. To hold the big end of the conrod
B. To provide a counter balance to prevent engine vibration.
C. To turn the reciprocating motion of the piston into rotary motion.
D. To splash the oil in the sump onto the cylinder for lubrication.

Q U I Z

5/ In a 4-stroke engine what is the name of the part which allows air to enter the cylinder?

A. The camshaft
B. The inlet manifold.
C. The inlet valve.
D. The exhaust valve.

6/ What is the sequence of the 4 stroke cycle?

A. Induction, compression, exhaust, power.
B. Induction, power, compression, exhaust.
C. Induction, compression, power, exhaust.
D. Induction, exhaust, power, compression.

7/ Which of the following would be a typical compression ratio for a diesel engine?

A. Between 8:1 and 12:1
B. Between 15:1 and 23:1
C. Between 25:1 and 30:1
D. Between 4:1 and 6:1

8/ Which of the following would be a typical compression ratio for a petrol engine?

A. Between 8:1 and 12:1
B. Between 15:1 and 23:1
C. Between 25:1 and 30:1
D. Between 4:1 and 6:1

QUIZ

9/ In the 4-stroke cycle how many times does the piston move up and down the cylinder?

A. Once.
B. Twice.
C. Three times.
D. Four times.

10/ How many revolutions does the crankshaft rotate during the 4-stroke cycle?

A. Once.
B. Twice.
C. Three times.
D. Four times.

11/ In the diesel engine where is the piston when is fuel injected into the compression chamber?

A. Just before BDC.
B. Just after TDC.
C. Just after BDC.
D. Just before TDC.

12/ In the 4-stroke cycle where are the valves during the compression stroke.

A. The exhaust valve is open and the inlet valve is closed.
B. Both valves are open.
C. Both valves are closed.
D. The inlet valve is open and the exhaust valve is closed.

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13/ How many revolutions does the crankshaft rotate during the 2-stroke cycle?

A. One.
B. Two.
C. Three.
D. Four.

14/ In the 2-stroke petrol engine how is the fuel/air mixture introduced into the cylinder?

A. Through an inlet port located at the top of the cylinder.
B. Through an inlet valve positioned at the bottom of the cylinder.
C. Through a fuel injector in the exhaust port.
D. Through an inlet port connected to the crankcase.

15/ How is fuel introduced into a 2 stroke diesel engine?

A. Through an injector.
B. Through a carburettor.
C. Through the inlet valve.
D. Through a hole in the cylinder head.

16/ What is meant by the term BDC?

A. Broken down car
B. Bottom door connection
C. Bottom dead centre.
D. Broken diesel cylinder.

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17/ In a 4-stroke engine how many times will the camshaft rotate during one cycle?

A. Once.
B. Twice.
C. Three times.
D. Four times.

18/ At what temperature does diesel fuel burn inside the combustion chamber?

A. 1500˚C
B. 2500˚C
C. 3500˚C
D. 4500˚C

19/ Why do the pistons in diesel engines have a bowl in the top?

A. To help clear the exhaust gasses during the exhaust stroke.
B. To increase thermal efficiency.
C. To assist with the mixing of fuel and air.
D. To prevent the engine overheating.

20/ How does a diesel engine ignite the atomised fuel in the combustion chamber?

A. With a spark.
B. By compressing air to a temperature above self ignition of the fuel.
C. By using a diesel injector.
D. By using an anti chamber.

How did you do? Lets check your answers.

Answers

1/ C 2/ D 3/ B 4/ C 5/ C 6/ C 7/ B 8/ A 9/ D 10/ B 11/ D 12/ C 13/ A 14/ D 15/ A 16/ C 17/ A 18/ B 19/ C 20/ B

If you scored 15 or above out of 20 well done.

If you scored below 15 why not go back to the videos to see if you can find the answers to the questions you weren't sure about.

Have you ever wanted to know how a jet engine works, to discover how click on the link below

https://www.youtube.com/watch?v=L24Wf0VITE0