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# Engine Design Classifications

Textbook: ***Modern Automotive Technology***, James E. Duffy, The Goodheart-Willcox Company, Inc., Tinley Park, IL, 2000

## Vocabulary (p. 174)

Air jet combustion chamber
Alternative engines
Cam-in-block engine
Compression ignition engine
Cylinder arrangement
Diesel prechamber
Dual overhead cam (DOHC) engine
Firing order
Flat head engine
Four-valve combustion chamber
Gas turbine
Hemispherical combustion chamber
I-head engine
Inline engine
Jet valve
Lean mixture
L-head engine
Liquid cooling system
Miller-cycle engine
Opposed numbers
Over head cam (OHC) engine
Overhead valve (OHV) engine
Pancake combustion chamber
Pre-combustion chamber
Reed valve rotary valve
Rotary engine
Single overhead cam (SOHC) engine
Slant engine
Spark ignition engine
Squish area
Steam engine
Stratified charge combustion chamber
Swirl combustion chamber
Tow-stroke-cycle engine
V-type engine
Wedge combustion chamber

## Summary (p. 172)

1. Although basic engine parts are the same, design differences can change how engines operate and how they are repaired.

2. Cylinder arrangement refers to the position of the cylinders in relation to the crankshaft.

3. firing orders refers to the sequence in which combustion occurs in each engine cylinder.

4. The liquid cooling system surrounds the cylinder with coolant (water and antifreeze solution).

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5. A spark ignition engine uses an electric arc at the spark plug to ignite the fuel.

6. A compression ignition engine squeezes the air in the combustion chamber until it is hot enough to ignite the fuel.

7. A cam-in-block engine uses push rods to transfer motion to the rocker arms and valves.

8. In an overhead cam (OHC) engine, the camshaft is located in the top of the cylinder head.

9. A four-valve combustion chamber uses two exhaust valves and two intake valves per cylinder.

10. A stratified charge combustion chamber uses a small combustion chamber flame to ignite and burn the fuel in the main combustion chamber.

11. A pre-combustion chamber is commonly used in automotive diesel engines.

12. Alternative engines include all engine types that can be used to power a vehicle except four-stroke cycle, reciprocating piston engines.

13. The gas turbine uses burning and expanding fuel vapor to spin fan-type blades.

14. A two-stoke-cycle engine is similar to a four-stroke-cycle engine, but it requires for a complete power-producing cycle.

## How to Access the "Online" Lesson

1. Be sure your computer having the Internet connection
2. Double-click the ***Internet Explorer icon*** on Desktop window
3. Click in the address box (then the text should be highlighted), type the learning website as WWW.CHECLEC.NET and press the ENTER key or click GO button
4. Click the link *Engine Design Classifications* and then you're prompted to enter password: _____ (all letters are typed in lowercase and no space between)
5. Click the PRINT button to print the text, and click the  image to open the audio clip