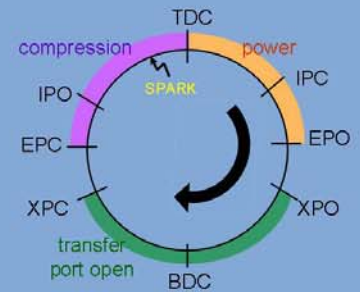
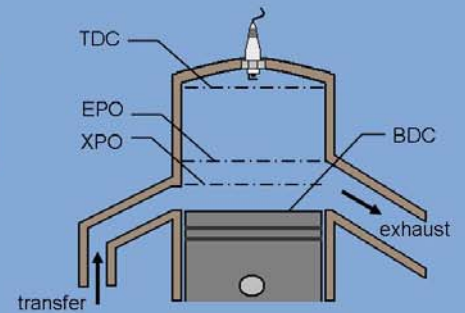
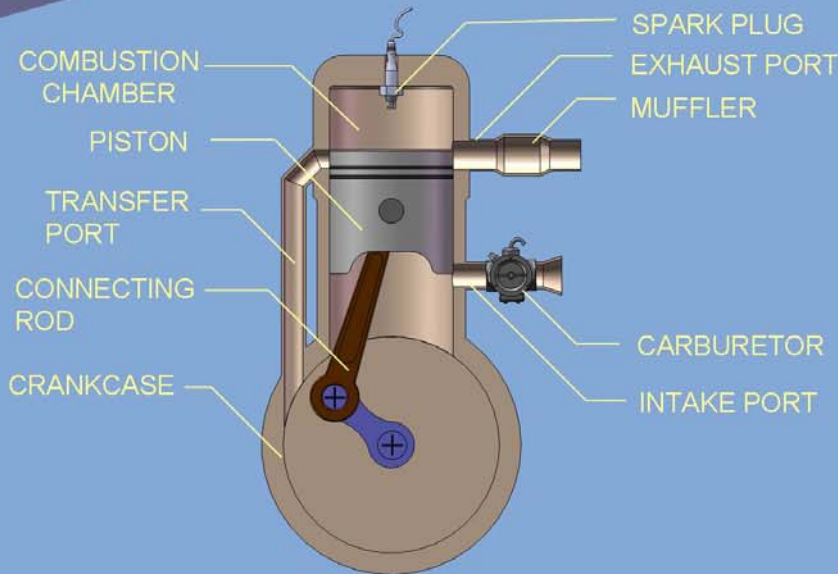


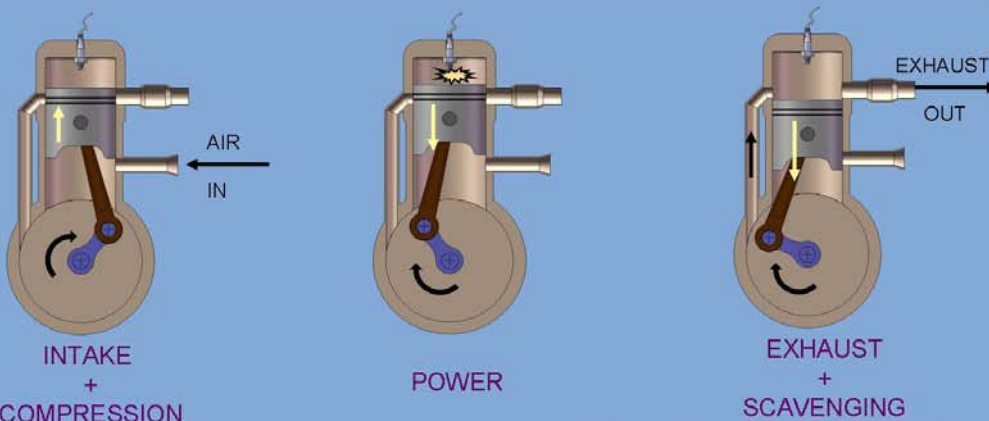
USM ENGINES LAB

TWO STROKE CYCLE ENGINES



2T Timing Diagram

TWO STROKE ENGINES



As piston rises air/fuel in combustion chamber is compressed. Fresh air/fuel is drawn into crankcase.

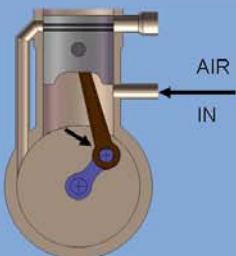
Combustion pushes piston down, and compresses air/fuel in the Crankcase.

Exhaust exits as fresh air/fuel is pushed into the Combustion chamber, scavenging exhaust out.

FUEL SHORT CIRCUITING

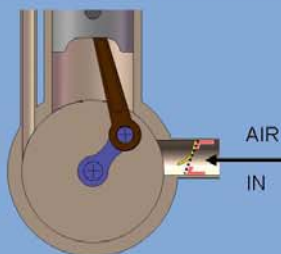
Air & fuel push out the exhaust from the combustion chamber. Some of the fuel is lost out the exhaust unburnt. This fuel "short circuiting" is why two stroke engines smoke and have high fuel consumption.

INTAKE VALVE DESIGNS



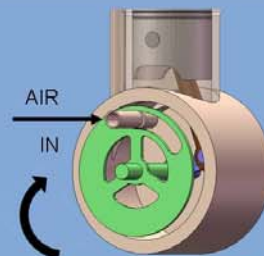
PISTON PORT

Intake port is opened as bottom of piston skirt passes intake port. As piston rises air/fuel are sucked into the crankcase.



REED VALVE

Flexible reed is opened by suction when piston rises, allowing air/fuel to enter crankcase. The reed valve closes as piston begins decent.



DISK VALVE

Disk valve is opened during piston ascent when the hole in the disk aligns with the Intake manifold. Air/fuel enter the crank case as the piston continues to TDC. After TDC the disk valve closes.

Inexpensive small two strokes engines are typically light weight & have higher power output than four stroke engines of the same size. Carbureted two stroke engines have very high emission & fuel consumption. Although carbureted two stroke engines are less efficient than four stroke engines, they continue to be a popular option because of their low cost and high power to weight ratio.