(3) Operational Overview of 2-Stroke Engines

Engines include 2-stroke engines and 4-stroke engines, and their operating states are significantly different. In other words, in a 2-stroke engine, the operations of compression and expansion are repeated, and fuel explosion and expansion occur every time the piston makes one reciprocation. The power is transmitted as the crankshaft rotates once per working stroke. As shown in Figure 2-5, the structure does not have intake or exhaust valves. Instead, it has intake and exhaust ports in the lower part of the cylinder (near the bottom dead center of the piston stroke). The piston also serves as a valve, performing intake and exhaust actions. The operational overview is as follows:

(A) When cylinder compression (piston upward stroke) is complete, fuel is injected and ignited simultaneously, causing combustion and pushing the piston down (combustion stroke or working stroke).

(B) As the piston descends, the exhaust port on the lower side of the cylinder opens, and combustion gas escapes.

(C) As the piston descends further due to the rotation of the crank, it opens the intake port, and air sent by a separate pump enters the cylinder, completely scavenging the remaining exhaust gas, and the compression of air begins in the next upward stroke. In this way, the 2-stroke engine has an explosion stroke twice as often as the 4-stroke engine, so theoretically it should have twice the output, but in reality, it is about 1.5 times.

Exhaust Port Intake Port

(D) Exhaust Open Expansion Compression Intake Open

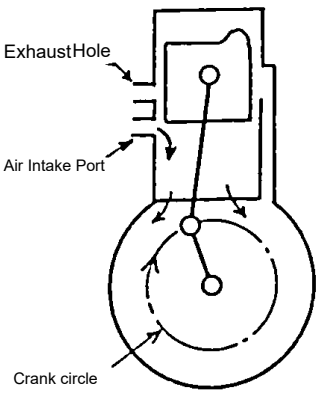
Pressure Diagram Crank Circle α (Exhaust/Intake)

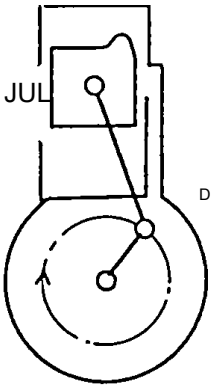
[Figure 2-5 Operation of a 2-Stroke Engine]

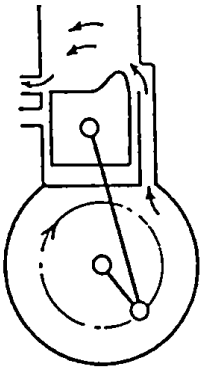
4. Terminology of Internal Combustion Engines

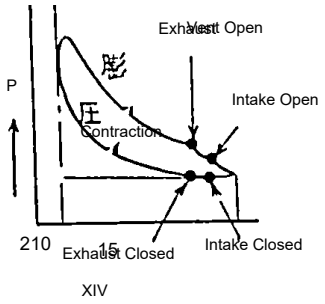
(1) Compression Ratio

The compression ratio indicates how much the air or air-fuel mixture drawn into the cylinder has been compressed. The swept volume when the piston moves from bottom dead center to top dead center is represented by A, and the volume of the piston head when the piston reaches top dead center









ANTO Acupressure Line Figure

Intake)

圧縮比とは、シリンダ内に吸入された空気

(No content to translate) Shows Material Piston N/A Do Point from Move to the point.

Process Volume A Representation Piston N/A Reached. Piston Head