

- inlet stroke open only at one time
- outlet stroke ^{valve} open two times

a) at HR

b) at Exhaust stroke

Date: / /

Page No. 89

Volumetric eff:-

- The Ratio of actual vol^m of gas taken in to the stroke vol^m is defined as the volumetric eff. of the engine & is given by.

$$\eta_v = \frac{V_a}{V_s} \quad ***$$

*# WORKING OF TWO STROKE PETROL ENGINE:

- Scooty : 2 Stroke
- Otto Rickshaw : 2 stroke (about 40% otto)

→ counter wt. is available in both 2- & 4-stroke.

FIG: 1

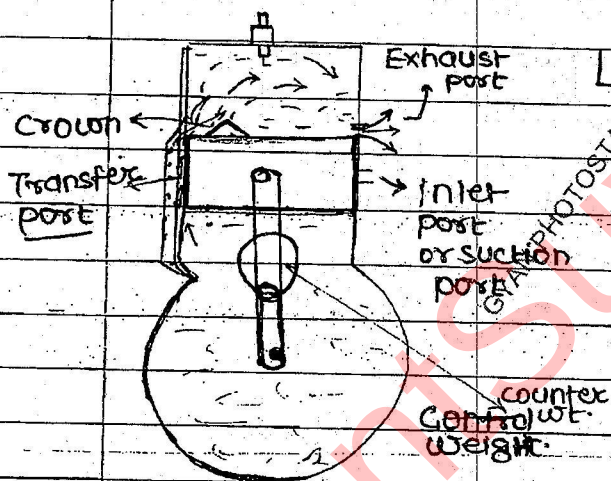


Fig: 1

-(piston at BDC)

The piston is at BDC, the fresh AFM (Air Fuel mixture) below the piston flow through the transfer port to the space above the piston. It may be same that the transfer port & exhaust port both open at the same time. Hence some AFM directed towards exhaust port is escape out the space about the piston.

- To prevent it, a projection is introduced at the top of the piston known as the crown. The fresh AFM flowing towards the exhaust port will collide with the crown & rise to the top. In the mean time the fresh AFM above the piston pushes out the left over exhaust gases of the previous cycle through the exhaust port. this motion is known as

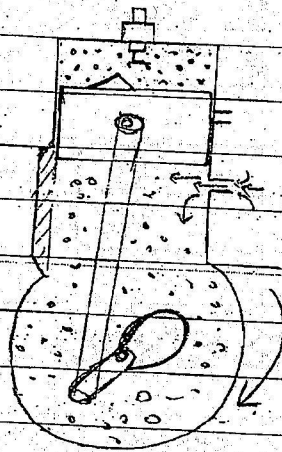
Scavenging.

→ When the piston is point or moving up the space above the piston will be F24 by Fresh AFM.

Date: / /

Page No.

Fig 2



Compression takes place of the Fresh AFM from the above the piston. During the upward motion of the piston when the piston is completed about 30% of upward motion,

the inlet port is open

to the space below the piston. For further upward motion of the piston, the fresh AFM of the next cycle will enter through the inlet port from the carburetor to the space below the piston. This operation continuous (compression above

the piston & suction below the piston until the piston reaches TDC

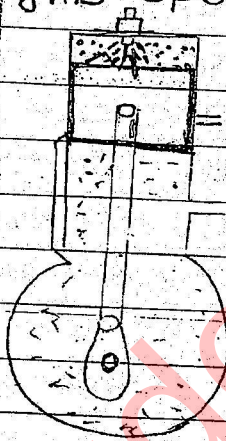


FIG 3:

→ When the piston is at TDC, current is supplied to the spark plug & HA takes place at const. volm. The voltage across the spark plug is about 10,000 volts

Fig 4

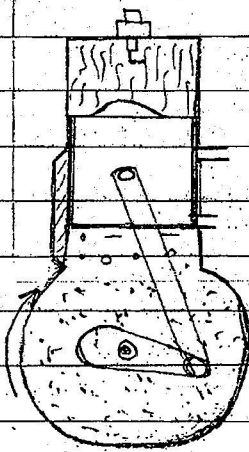


Fig 4

→ After H.A., the hot gases expands & pushes the piston ~~to~~ down, Useful power is obtained. When the piston has completed about 70% of downward power stroke, the inlet ports get closed. For further downward motion, the fresh AFM of the next cycle below the piston gets sparkling compressed partly.

Fig 5

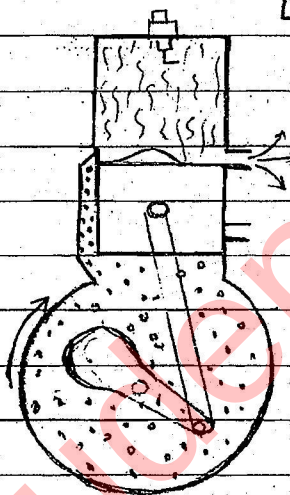


Fig 5

→ when the piston completed about 90% of power stroke the outlet port is open above the piston. For further downward motion of the piston the expanded gases leave the space above the piston through the outlet port. When piston ~~at~~ reaches at BDC, the operations are repeated in the same manner as explained.

→ Crown is used to safe AFM to go out by exhaust port

Date : / /

Page No. 92

- In 2-stroke, from Fig. (i) when fuel (AFM) is goes up at that time exhaust port is also open and some (AFM) is goes outside so to avoid this crown is used which safe AFM to go out (but some amount even goes)

- cleaning is scavenging (occure in both 2 & 4 stroke)
- when AFM goes into the cylinder then mix with burnt gases so to avoid this cleaning is done which is called scavenging (To carry out burnt gases)

- In Fig(2) when piston goes about 30% up then inlet port open. & due to press diff^{nc} AFM comes in cylinder ($P < P_{atm}$)

- Fig: (5) when piston is goes 90% down then Exhaust port is open. (C

- Fig: 4 when piston goes 70% down then at that time inlet port is closed. (Exhaust port also closed)