

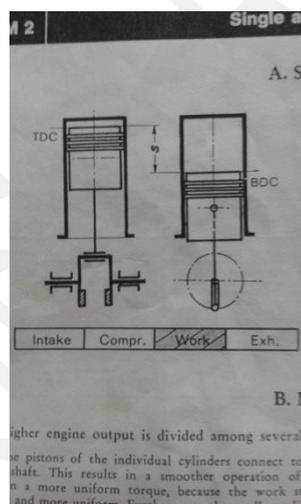
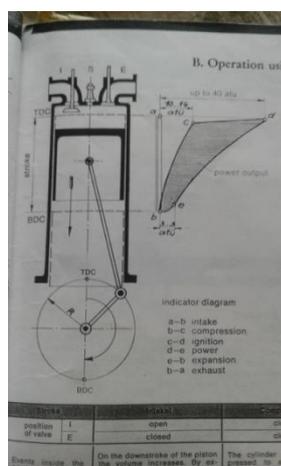


DO IT YOUR-SELF # 12

Lubrication of the Two-stroke power unit of your Scooter (Petrol/Oil System).

The term Petrol / Oil means that the lubricating oil is mixed with the petrol. Therefore, as new combustible charge is drawn first of all into the crank case and then to the cylinder barrel above the piston, sufficient of the oil in the fuel is deposited on the working faces and bearings to provide adequate lubrications. To have an better idea of this lubrication system we will try to understand the difference between four- stroke and two-stroke power unites by comparing their characteristics.

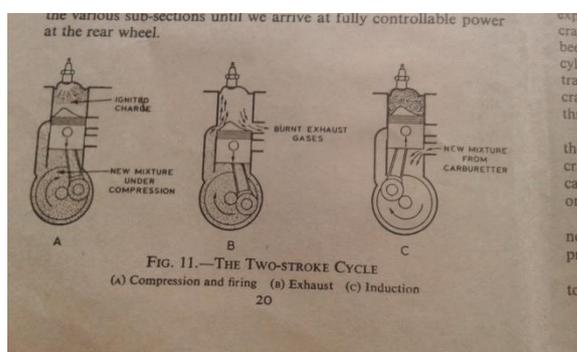
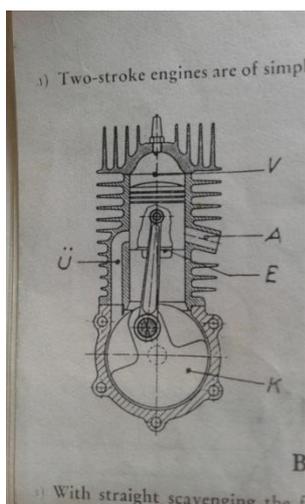
What is the stroke of an Engine? It is the distance travelled by the piston from its lowest to highest position in the cylinder barrel. The picture below shows operation using 4-stroke principle.



A complete work-cycle is composed of four events such as (a) Intake (b) Compression (c) Work & (d) Exhaust. These four piston strokes equal two revolution of the crankshaft. On the other hand with the four-stroke engines there is only one work stroke in four piston strokes. The other three idle strokes prepare the work stroke. A picture above shows it clearly.

The two –stroke power units.

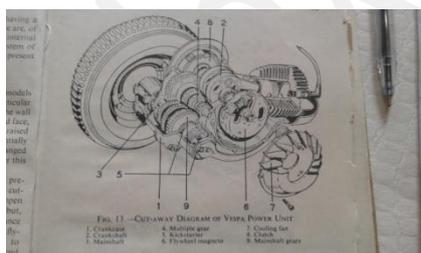
The two-stroke engines are of simple designs. The Intake and the Exhaust of the Gases (exchange of gases) is accomplished by openings located in the cylinder wall being controlled by the piston. Thus, valves and their actuating accessories are eliminated. The picture below shows a simple design of a two-stroke engine.



We could say that there are only three moving parts of above shown simple two-stroke engine. Piston, Connecting rod and Crank shaft. The work cycle is completed within one revolution of the crank shaft. Therefore, it will be seen that for every complete revolution of the crank shaft two strokes of the piston are completed. At the commencement of every downward movement of the piston a power impulse occurs. Consequently, the expression “two-stroke” can be fully explained as being one power impulse for every two strokes of the piston or one revolution of the crank.

The Engine lubrication system of the two-stroke scooter engine.

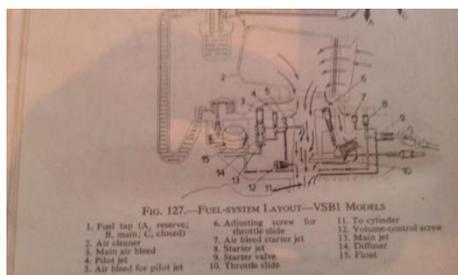
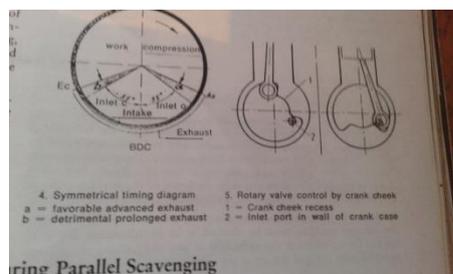
The lubrication is accomplished by use of fresh oil. It is added to the fuel in the prescribe ratio by the manufacturer. Oil pumps, strainer and lines are not needed. The grades of oil and in what percentage they should be used to a given quantity of petrol is mostly recommended by the manufacturer. These two factors, grade and quantity are very important. The grade of oil is specified as SAE . The figure such as SAE 30 determines the viscosity (the thickness or stickiness) of oil. Eg a 20 SAE is thinner and a 40 SAE is thicker.



The quantity of oil is expressed in terms of percentage. Therefore, if for a given model 5 per cent is called for , then this means 5 parts of oil to 95 parts of petrol. It will be realized that if more oil or a thicker oil is used , then the overall viscosity of the fuel will be raised and this is a vital factor that could and will ultimately lead to serious engine failure. Because fuel is drawn through a jet in the carburetor and intermixed with air to form a combustible mixture. The size of this jet is very vital in relation to the viscosity of the fuel as it will be quite obvious that if more or a heavier oil is used than the prescribed one , then the overall viscosity of the fuel will be raised and, this being the case , the overall quantity that can be drawn through the jet will be reduced resulting bad effect to the engine.



The size of the jet also carefully determined. Otherwise, it would certainly mean that less petrol had passed through the jet and therefore, the combustible mixture would be weaker. The burning of a weak mixture will result in excessive engine temperature, and ultimate result of raising the overall viscosity of the fuel by using too much or heavier than specified grade of oil would be that insufficient or inadequate lubrication is made available resulting worse engine condition. And also less percentage of oil mixing to petrol would lead to ultimate result for a much worse engine condition.



Therefore it is very important to have an idea or educate of the lubrication system of your lovely designed of two stroke scooter engine.

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