



## DO IT YOURSELF # 16 – Easy step for carb settings (Tuning)

The Carburetor is a device for intermixing the fuel with sufficient Air for combustion within the cylinder. In other words liquid fuel must be transformed into the gaseous state prior to combustion. Tuning your carburetor precisely is one of the requirements to get the optimal performance from your Scooter Engine.

ENGINE OPERATING CONDITION	AIR-FUEL RATIO (AIR : FUEL)
Starting (Air temperature approx. 20°C)	Approx. 5 : 1
Idling	Approx. 11 : 1
Running slowly	12 - 13 : 1
Accelerating	Approx. 8 : 1
Max. output (full load)	12 - 13 : 1
Running at medium (economical) speed	16 - 18 : 1

Eg: The theoretical Mixing Ratio (Chart) Demonstrated by a Manufacturer.

Prior to getting the things in action you should identify the ( a ) Idle Screw ( b ) Air Screw ( c ) Fuel Screw .



(a) Idle Screw



(b) Air Screw



(c) Fuel Screw

Idle Screw sets the idle speed of the engine. It's not responsible for Air Fuel Ratio and just set the Engine RPM at the idle run linking with throttle cable [see the picture ( a ) ].

First of all you should identify the differences between the other two screws of ( b ) & ( c ) . Mostly Two stroke Engines possess an Air Screw which is located away from the Inlet manifold [see the picture ( b ) ]. Normally four stroke engines possess fuel screw which is located close to the inlet manifold [ see the picture ( c ) ]. The major difference is that if you turn Airscrew in (clockwise) it gives a rich mixture. If it is turned out (anti-clockwise) it gives a lean mixture. The fuel screw works in opposite way such as if it is being turned in ( clockwise ) it gives a lean mixture whereas if you turn it out ( anti-clockwise) it gives a rich mixture. Lean means more air with less fuel & rich means more fuel with less air.

Prior to set the mixture the Bike should be run to warm the engine at least 10 – 15 minutes. Once the engine warms up nicely you could get a better result (good tune). Then turn the idle screw to get a reasonable high rpm (about 2500 – 3000) and tune the air or fuel screw as describe above clockwise or anti-clockwise to get the mixture leaner. At this time the engine RPM will start decreasing & not steady. Now very slowly turn it in the opposite way and it could be noticed that the engine RPM increase slowly



and steadily. At one point it becomes constant. This point may be the optimal setting of the engine. Better if you could count the total no of turns you made to reach this optimal point.

After setting the air or fuel screw the idling screw to be set about 800 RPM. Now twist the throttle and the response would be crisp & quick. Stop the engine and re-start. Then it should be started in a single kick without giving throttle.

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