



## Engine Tuning

Carburetion of a 2-cycle engine can become very frustrating and expensive if you try and push the engine to its limit right from the beginning. It is very important to readjust your carburetor back to a base setting after your last day or weekend on the track since atmospheric conditions have almost certainly changed. Many times changes will take place throughout the day as high or low pressures move in or out. To reduce the chances of seizing your engine, one must be vigilant at all times.

Most carburetors have two needles, a high speed and a low speed. Prior to entering the track, set the needles to manufacturers recommended base settings and adjust once the engine warms up, usually 2 -3 laps. If a large cloud of smoke appears and engine is lethargic on exit of corner, reduce the fuel to the low speed jet by turning the low speed needle 1/8 of a turn clockwise. If the opposite occurs, turn the needle 1/8 of a turn counter clockwise. Continue fine tuning until you find the optimum performance. The high speed needle is used to provide extra fuel at high rpms and must be adjusted while driving down the straight. Open the high speed needle while running at full rpms until the engine begins to flutter or 4-cycle and then slowly turn it clockwise until the engine runs smooth. Try these settings for 2-3 laps and if necessary fine tune more.

You may also check your spark plug or look at the piston with a special light. Too much oil and carbon buildup means you are running to rich. Close the needles 1/16 of a turn at a time until your spark plug comes out clean, but not beige or white. Ideally the spark plug should be a light tan or coffee color. During a long session on the track you might find it necessary to open the low speed needle by an 1/8 of a turn as the engine reaches extreme operating temperatures. This was more necessary with the air cooled engines than it is today with the water cooled ones.

### Plug Reading

- ▶ Normal - Insulator nose white to light tan to rust brown. No discoloration of electrodes and no erosion.
- ▶ Too cold - Insulator nose black or oily. Steel rim of plug covered with tar-like deposit. Use hotter plug.
- ▶ Too hot - Insulator nose chalky white or may have satin sheen. Cement boil where center electrode protrudes through insulator nose. Ground electrode could be badly corroded or have a molten appearance. Use a colder plug.
- ▶ Pre-ignition - Insulator nose fused and or blistered. Center plug, electrode and side electrode burned or combustion chamber deposits melted away. Use colder plug.
- ▶ Detonation - Fractured insulator nose. Insulator nose covered in tiny beads of aluminum from the piston. Specks on plug shell end. Excessive cement boil at center electrode.