

## RACING GASOLINE - DEDICATED TO CONTINUAL IMPROVEMENT

### Tuning Tips for Different Gasolines

By Tim Wusz

"Try a different racing gasoline?? Are you kidding, they're all the same." Don't bet on it. You may be missing the easiest and least expensive performance enhancement there is by subscribing to the above policy. There just may be a free lunch.

Many racers will spend big bucks on new heads, manifolds, carburetors, etc. before trying a different liquid in the fuel tank which could significantly increase performance, but just pouring in a different gasoline may not provide an improvement without fine tuning. It's just like putting on a new carburetor without making any adjustments. If it works perfectly right out of the box, you probably got lucky.

I am going to address a few things necessary to get the most out of your "test" gasoline so you will not abandon something that may be a performance improvement.

There are two main variables that must be considered when trying a different gasoline. The first and most obvious is carburetor jetting, and the second is spark timing. We will address the jetting issue first.

How do we know if the carburetor calibration for the old gasoline is okay for the new gasoline? If it is not okay, should it be richer or leaner? To answer these questions, we need to know the specific gravity (SG) of the gasoline. Most racing gasoline suppliers have this information available in their literature. SG is a measure of how heavy the gasoline is compared to water. If a gasoline has a SG of 0.720, this means that it is 72.0% of the weight of water. The higher the SG numbers the higher the float sits in the gasoline. This shuts the fuel flow off earlier at the needle and seat thereby providing a lower liquid level in the float bowl. With a low liquid level, there is not as much pressure from the "head of gasoline" to help get the fuel moving through the jets with a given air flow when compared to a carburetor with a higher liquid level. The height of the liquid level is important and should be maintained the same for each fuel used. That is what the sight hole in the float bowl is for. Use it.

The general rule of thumb is that if we are moving from a higher SG gasoline to a lower SG gasoline, we need to richen the mixture by going to larger jets. On the other hand, if we are moving from a lower SG gasoline to a higher SG gasoline, we need to lean the mixture by going to smaller jets.

How much leaner, or how much richer?? Here is some ballpark information to get you started. If the new fuel is lighter (lower SG) than the old fuel, richen the mixture by one jet size for every 0.010 difference in SG. If the new fuel is heavier (higher SG) than the old fuel, lean the mixture by one jet size for every 0.010 change in SG. This will only work if the carburetor was correctly jetted for the old gas. If we are out to lunch with the old gasoline, we may still be out to lunch with the new gasoline.