

THE EXTRA MILE

Engine Building and Power Techniques

BY SCOTT SEHR



Absolutely, The Most Motor For Your Money! Guaranteed

TO E OR NOT TO E

When we build an engine for a customer, one of the questions that we ask is, "What type of fuel do you have available." The next question we ask is, "What type of fuel do you want to run?" With the cost of gasoline being what it is, more people are considering Ethanol as an alternative to high priced gas or race fuel. We are going to try to shed some light on the subject.

E-85 is advertised as 85% ethanol and 15% pump gas. At 85%, Ethanol has an octane rating of 105 and can be a low cost alternative to 110 race fuel for high compression engines. The down side of the equation is that fuel consumption goes up 30-40% because a gallon of ethanol can't do the same amount of work as a gallon of gasoline. Ethanol needs high compression in order to properly burn so an attempt to use it in a lower compression engine will lead to disappointment. Ethanol from the pump varies from less than 70% to above 90%. Blenders do this because Ethanol is hard to ignite in cold weather (less than 70 degrees), so they cut down on the Ethanol for the cool seasons. With a computer controlled engine that is set up as a flex fuel vehicle, the computer changes the engine tune to compensate for fuel variations. On a carbureted engine it is imperative that the fuel be consistent to avoid possible engine damage from pre-ignition and or detonation so the fuel must be tested each time fuel is added to make sure the octane rating is where it needs to be. If it is less than 70 degrees outside, a considerable amount of time is needed for the engine to get to operating temperature because Ethanol burns so much cooler than gasoline.

Because it is so corrosive, the entire fuel system needs to be built to accommodate Ethanol fuel. These modifications require fuel tank

and fuel line modifications for flow rate and Ethanol compatible hoses, fuel pump, regulator, and carburetor. If these criteria are not met, problems will ensue.

E-85 is a fine, renewable fuel alternative to gasoline and offers a cooling effect to the intake charge that can offer 105 octane rating but needs to be monitored. Ethanol is resistant to detonation but on the other hand, is highly susceptible to pre-ignition so care must be taken to keep your tune exactly where it needs to be.

There are several people that claim that they can alter a gasoline carburetor to function on E85 but we are yet to see one that can match one that was designed as an Ethanol carb from the factory. Why take a chance on damaging your new engine? Here at Sehr Performance, we will go the Extra Mile to make sure that what you have will function as you want it to.

