

# Ethanol Fuel

By Lynn Sondenaa

I will start this article with my own quote, "Stubbornness creates Stupidity". Why do I believe in this quote? Hopefully this article will shed light on the quote. I work on a lot of different Model A's to get them to run for their owners. I find that most of the time the problem is self-inflicted by the owner's stubbornness.

Gasoline or ethanol gasoline is the one problem that I encounter the most often as to why the Model A will not run. First, one must understand what ethanol fuel is and not to be afraid of using ethanol fuel. It is also known as ethyl alcohol and it is the same type of alcohol found in alcoholic beverages. It is a biofuel additive for gasoline added from 10% to 85%. Ethanol is made from plant materials containing starches and sugar. Corn is the most common plant used, but sugar cane, sugar beets, and potatoes are used in production of ethanol.

Production of ethanol is a four step milling process.

1. Plant mass ground up
2. Cooking process to create sugar
3. Microbes such as yeast or bacteria added to feed on the sugar (Fermentation)
4. Distilled to obtain a high concentration of ethyl alcohol

Part of understanding ethanol fuel is to understand its history. A lot of individuals think it is a new government idea. In 1826 the first United States patent for an internal-combustion engine was granted to Samuel Morey. Well, guess what the engine used for fuel. Yes, it was ethyl alcohol. It should be noted that in the 1860's farm equipment in Europe was routinely driven by ethyl alcohol engines. In the 1890's in the USA most automobiles were designed to operate on ethyl alcohol.

Now let's fast forward to today. I will discuss all of the negative facts about ethanol fuels and then end with how to combat these negative effects. It is known to corrode soft metals such as pot metal, zinc, brass, lead, aluminum, and terne plate. This is a reactive process that results in a white chalky corrosion. Ethanol is a very good solvent that cleans, and it is a hygroscopic. It can absorb water from its surroundings. Ethanol is incompatible with non-metallic materials such as natural rubber, polyurethane, cork and leather. It can swell up gaskets causing them to expand. It can also make them gooey.

There are ways to avoid the negative effects of ethanol fuel. Some people purchase non-ethanol fuel, but this is a short term fix as this fuel is being phased out of production. In a few years it will not exist. It is easy to avoid the negative effects of ethanol, but stubbornness must be removed. I recommend that 4 ounces of Marvel Mystery Oil be added to each 10 gallons of

fuel. In the days prior to 1976 lead was added to fuel for lubrication. The Model A needs the gas tank shut off valve, carburetor float valve and valve train lubricated internally. The Marvel Mystery Oil will now aid in that lubrication. It will also help to keep the spark plugs free of carbon deposits.

Most Model A owners do not use their vehicles for daily drivers so the A's sit and the fuel will lose its volatility. Also Model A gas tanks are plated with a terne coating (steel covered with an alloy of tin and lead). Metal creates condensation moisture which is bad. New vehicles and small gas power tools have plastic fuel tanks to help eliminate condensation problems.

Sta-Bil fuel additive will keep ethanol fuel from losing its volatility and help with the solvent tendencies. I add 4 ounces to 10 gallons of fuel. It will protect the ethanol fuel and help protect the gaskets for twelve months. The Stihl gas power tool company got tired of owners bringing back chain saws, weed eaters, and blowers that would not start or had small pin holes in their gaskets. They solved this problem by placing fuel stabilizers directly into their 2-cycle motor oil. A fuel stabilizer is only need if the Model A is not going to be used for a three week period or more.

Other considerations to follow are to coat the inside of the Model A gas tank with a good grade of gas tank sealer (USA made). This will prevent the ethanol from attacking the terne plating. It also helps to seal pin holes and rust areas. Replace the gas gauge gaskets and float with neoprene, remembering that ethanol will eat away cork gaskets. Do not use the cheap foreign neoprene gaskets, use gaskets made in the USA. Neoprene is a synthetic rubber produced in six grades. The foreign gaskets will expand or become gooey because they use a low grade of neoprene, whereas the USA gaskets are made with a higher grade of neoprene. Replace the carburetor float valve with a viton tipped needle valve, or even better yet, use the ball bearing float valve (Grose jet style).

Do not drain the fuel tank as this will allow for condensation to form inside the tank and it will also dry up the gas gauge gaskets and float. The fuel tank should be kept 95% full with a fuel stabilizer added. Also, do not shut off the fuel valve and let the engine run until it uses the fuel out of the carburetor bowl. This practice will dry out the carburetor gaskets. Do turn off the engine and close the fuel shutoff valve. A general note to remember is that if you see small clear curds in the sediment bowl that is ethanol fuel going bad. At this stage the fuel tank must be drained and flushed.

In conclusion, use 4 ounces of Marvel Mystery Oil to 10 gallons of gasoline, don't drain the fuel tank or carburetor bowl, and use 4 ounces of Sta-Bil fuel stabilizer for each 10 gallons of gasoline. Note if you are using your Model A weekly or touring you do not need fuel stabilizer. If you follow my advice you will enjoy not having fuel and gasket problems!

