

MOTORCAR SPEEDER FUEL SYSTEMS

BY: STUART A. EDMONDSON

Motorcar and speeders use gasoline, gasoline mixed with oil, and a few diesel fuel. This article is about the gasoline fueled motorcars. In my time as a NARCOA member I have learned that fuel systems problems are the #1 reason a car goes on a tow bar. I want to help all NARCOA members to NOT to have a bad day on the tracks due to some simple fuel system component.

FUEL TANK

Let's talk about fuel tanks, some are in great shape on the inside and some are not. A brand new stainless steel unit would be nice but we all don't have one or need one. Many times a steel tank can be cleaned on the inside and run for many years.

What is the best way to keep a steel tank in great shape? When storing our motorcars, fill the tank as full as possible, right to top, and don't drain it! Air and the moisture in the air are not the tank's friend. When the temperature changes in the spring the moisture condenses inside, and presto you have rust. Some use fuel stabilizers, but I don't like the way it makes fuel line and anything else the fuel comes in contact with get soft and gummy.

I fill my tanks brim full, then drain the fuel the in spring. I put this 5-6 month old motorcar fuel in our pickup truck when it is down to ¼ tank, then top off the pickup's tank with premium fuel. This mixing works great with no wasted old fuel. For the 2 cycle poppers the old fuel can be recycled or given to your farmer friend for burning brush. A locking vented fuel cap on a motorcars is a great investment, stops fuel thefts, and also keep unwanted anything out of tank.

FUEL GLASS BOWL-STRAINERS

Most motorcars fuel tanks have the fuel port on the bottom of the tank, connected to a sediment bowl-strainer. If you have a separate fitting between the tank and the fuel bowl, it should be steel or preferably stainless steel. Don't use brass because brass is for a static installation, not the shaking vibrating connections like motorcars. One sharp knock to a brass fitting and it can crack and fail.

Check your fuel sediment bowl unit to make sure it is all there. I have seen many bowls where someone has removed (or lost) the fine screen in the top allowing big dirt, rust flakes, and foreign material to flow right into the fuel system! Let us talk about the fuel bowl



type, and why one type is better for our motorcars than others. We want a style that has a shut-off valve with a back-stop and a large handle/knob. When it is open all the way it stops turning, showing it can't turn any further out and won't vibrate out and get lost. You don't need to strong-man the valve closed or open, two finger should be enough.

For **SAFETY** reasons we need to be able to shut off the fuel fast without pliers or tough fingers!

The barbed fitting coming out of the fuel bowl should be steel not brass, stainless steel is best. The clamp over the hose can be either of 2 styles. The best is the full band style, these will hold/seal the best, but the down side is these really are a one-time use. The very common screw band type clamp won't hold/seal quite as well but can be reused. Don't use the spring type clamps that need pliers for on and off. These have the poorest holding/sealing performance and have sharp points that like to cut and scrape fingers, hands, arms.

Water is heavier than gasoline and will sit in the glass bowl for you to see it and say "hey, I need to remove that water"! When you see water, shut off the fuel valve, remove the glass bowl, empty the water, wipe out any other foreign matter, and then reinstall. Don't drop the fine screen or the gasket that sits between the bowl and the housing. This unit is a water separator and a fuel strainer; 'NOT' a fuel filter. Very small dirt will pass through the screen into your inline fuel filter. Check the glass every morning for water and dirt, and if any is seen remove, clean, and reinstall the bowl.

FUEL LINE

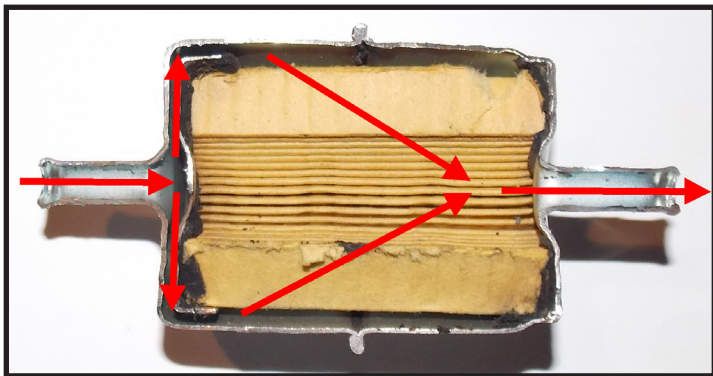
Too many times I have seen old fuel line fail at the worst time. The solution is to change your fuel line every season, your fellow NARCOA members will thank you. Everyday parts store ¼" fuel line is fine 'if' it is changed every season. Today's fuels have an alcohol content that is very hard on neoprene fuel line and components. NAPA has a ¼" fuel hose for fuel injection automobiles that I like, but it's twice the price. This higher PSI (pounds/square/inch) rating is really not needed but the much tougher rating has value for our motorcars. It won't crush, pierce, or fail as easy as the non-fuel injection type hose. Of course there is always wire braid covered hose that can be used with compression fittings, but their on-track serviceability is poor. I carry a 6' foot piece of ¼" standard fuel line with me, just in case I need it, or to keep a fellow motorcar owner moving down the tracks!

Always keep the fuel line routing away from any hot exhaust component, think SAFETY!

Last thought: Put a ¼" screw or bolt into the ends of your spare fuel line as dirt and those orb spiders will get inside and cause flow problems and you won't know why.

FUEL FILTERS

The whole motorcar fuel system reliability is depending heavily on this one item. The mechanical or electrical fuels pumps and the carburetors they feed will NOT work well with water, dirt, or foreign material in the fuel! For our smaller motorcars a metal filter with a ¼" inlet and outlet will work fine. Change the filter every



season weather you think it is bad or not. Reliability is more important than a \$10 (or less) fuel filter. I always carry 2 new units with me, one for me and one for a fellow motorcar operator in need. The paper inside these filters is called 'hydroscopic', meaning it will absorb water until the filter paper becomes swollen and the fuel will all but stop flowing. Those plastic shell fuel filters can't take any heat and get brittle fast and can

crack for no reason, so it's metal for me! NAPA has a nice metal unit (#3031) with a ¼" inlet and outlet. For the bigger A-4 to A-6, I suggest a much bigger, marine type canister unit, mounted to the frame. These have a spin-on disposable cartridge. Some even have bowls on the bottom with drains for the water. Even if you have a lot of crap coming out of tank you can change these types of filter at the lunch stop, or at tie-down for the night, and wait till you get home to drain the tank. Preventing the dirt and foreign material from getting to the fuel pump or carburetor will prevent fuel problems that will put you on the bar!

IMPORTANT ITEM, when you buy a new fuel filter remove it from box and put a pieces of duct tape over the ends. Those 'orb-spiders' will get inside somewhere, somehow, and if your new filter is bad out of box it's like you haven't changed it. In days past the fuel filter manufactures put plastic caps on the ends, but not anymore.

FUEL PUMPS

Most of our motorcars are designed to feed fuel to the engine's fuel pump at zero pressure via gravity. Some of us run an electric fuel pump as the main fuel pump or as a booster pump to the engine mounted OEM unit. Mount this electric pump securely but in a way that if it fails suddenly you can change it quickly and easy. Use steel fittings and keep a spare unit with you as these units usually fail without warning. In your garage, pretend the electric fuel just failed on the tracks, and see if you can change it quickly (and SAFELY). Your excursion coordinator may not give you enough time to changing this unit when it fails, so go on the bar and until the next stopping point. Then while others take a break and visit, you can swap the unit in 15 minutes or less. The engine mounted OEM fuel pumps are more work to change, but having one with you is great insurance.

I hope I have offered some insight, practices, and ways of making your motorcar reliable and safe and your fuel system problem not being the reason you're on the bar. I to those of you who will say "Hey that's not the way my motorcar was shipped from the factory", I say "Yes, ours are better today"! Let's enjoy a wonderful hobby, have fun on the rails, treat each other well, and above all, practice safety, safety, safety!

Stuart A. Edmondson
sae54@sbcglobal.net