



Tech Articles

Tank U

By: Ray Dyreson

Let's discuss something at the center of every Fiero, that is, the gas tank. If you have to get to know your tank up close and personal it will be for one or more of these reasons. The fuel pump doesn't pump; the gas gauge reading doesn't go to empty or the tank leaks. Any of these will require tank removal. I won't give step-by-step procedures here, but just some tips. The day before, soak the support strap T bolt nuts with your favorite penetrating oil. If they still won't turn, cut the straps and bend the two halves down. In my part of the country (Illinois) they are probably too rusty to reuse anyway. The tank will drop out with the cut straps still in place and the straps can be easily removed with the tank out of the way. I highly suggest getting new stainless steel straps, new T bolts, and nuts from the Fiero Store. The '84-'86 style straps go further up the sides of the tank while the '87-'88 style is shorter and only goes up a couple inches up on each side of the tank.

Reaching in from the rear of the tank, unplug the wiring connector and pull the car harness end back out of the way. Early cars have a two wire and a one-wire plug. Late cars have a single three-wire plug. If, after removing the hose clamps, the fill hose and fuel hoses don't pull off easily, slice them lengthwise with a razor blade to loosen their grip. You should be installing new ones anyway. Get a new "twin hose" filler and vent elbow from the Fiero Store. This has the smaller vent hose glued in position to the larger fill hose as did the original, however, I have found that it may not be glued well enough to withstand the wiggling needed to install the hoses onto the tank. I beef up the joint with black rubber RTV sealant and maybe even a pull tie. The smaller gas line hoses should be replaced because of age and because new hoses are much easier to push back onto the metal lines. Use "fuel injection" hose, especially if you have a V6 or V8 with its higher pressure pump.

If a gas leak is the problem, it will most likely be due to rust. Most likely the tank itself, but it also could be the steel piping on the sender or the sender seal leaking caused by a rusted cam ring. If the tank is rusted through you will need to buy a used one. I don't recommend the glue on patches or exterior sealants advertised for this type of repair. There are currently no new tanks available. Someday someone will have to reproduce these, but until then, save all the old ones you find. I even save the rusted ones because they could be professionally repaired someday, but at a higher cost than used ones so far. Of course, I save everything; just look in my barn!

There are two distinct types of tanks. Both are made of an upper and lower stamping welded together. The '84-'86 style has approximately equal height halves putting the weld seam half way up. The GM parts book shows a different number for a 1984 tank but they look the same. The '87-'88 style has a top half much taller than the lower putting the weld seam only about an inch from the bottom (Image 1). Don't just put in a used one without treating it though, it may have to last a long time. Inspect the inside of the tank for rust, critters and crud. Check that the plastic baffle is not loose. They have locator tabs that break and let the baffle slide forward on the filler pipe and maybe interfere with the sender. If it is loose, shake out the broken tab and push the baffle back onto the fill pipe. Using small pliers, slightly flare the end of the fill pipe out in a few spots to keep the baffle from sliding forward off the pipe. I do this even with good baffles, just to be safe. Coat the inside with a gas tank sealer. Follow the instructions on the can and flip the tank around to distribute the sealant throughout. Clean any rust on the outside, being as gentle as possible. Avoid sandblasting and coarse sandpaper. Then apply a rust stabilizing paint such as POR-15 (Image 2).

When removing the sender from the tank you can rotate the cam lock ring with a hammer and punch or dull screwdriver. However, the proper Kent Moore tool, part number J-28147, makes the job easier with less potential for damaging the ring and tank (Image 3). Always install a new seal, AC Delco #G10. Replace the ring if damaged, AC Delco #TR11. The locking ring and seal are also sold as a set by Dorman as part #579-001.

Inspect the sender's three steel pipes for rust. Also check for looseness where they are soldered to the lid of the sender. If the sender needs to be replaced, your choices are few. The GM parts book shows eight different part numbers were used depending on year and engine. This can be separated to those with the two plugs and those with one. Further separate by 4 or 6-cylinder before 1987. The 4-cylinder has lines that angle to the left while the 6-cylinder's angle to the right. The '87-'88 4-cylinder pipes angle right and has its own part number. The '87 and '88 6-cylinder show different part numbers but look the same as each other and the '87-'88 4-cylinder unit. The Fiero Store sells what looks like this '87-'88 style and is all that is available new. It gets confusing! What does all this mean? Use your original sender if you can but you can make any unit work by switching wires, bending pipes, extending

hoses, changing pumps, etc. All of the parts are all interchangeable inside the tank with only the fuel pump being 4 or 6-cylinder specific.

You may have taken the tank out to fix the famous “never going to empty” gauge. This subject could fill a whole article but I’ll be brief here. The sender resistance should test 0 ohms at empty and 90 ohms at full. Usually the problem is resistance buildup in the crimped connections and across the wire windings. Even 10-15 ohms could cause you to run out of gas at ¼ tank. Clean and even solder the crimped wire connections to and from the windings; don’t forget to include even the ground wire on top of the outside of the sender unit. Bend the metal tabs gently open to expose the wire winding board. Clean the contact area with a coarse sponge or rubber eraser and electronic contact cleaner. I have seen two types of sender unit wire boards. One has two adjuster screws and the other doesn’t, but the adjustable ones don’t have enough effect to correct most senders. To get a true empty reading, move the float to the bottom of its travel and note the position of the sweeper contact on the windings. Usually this will be before the actual end of the windings and will still not show 0 ohms. Clean the section of windings between the sweeper and the end then solder across them. The sender should display 0 ohms with the float at the bottom, and “Empty” will mean empty.

The only other item is the fuel pump. There were originally six different pump numbers, now reduced to three. For an ‘84-‘88 2.5L use AC Delco #EP386, ‘85-‘87 2.8L use EP240, ‘88 2.8L use EP378. Some new pumps have two screws sticking up that interfere with the rubber pump mounting insulator. If so, use a new insulator GM #25004553. Always install a new strainer on the pump, AC Delco #TS1, except on the ‘88 2.8L using pump #EP378, which is a TS32. Install a new fuel filter. The original AC Delco number was GF481, which is now GF652. With the 2.8L pumps, it is best to install a new pulsator too, part #FP27. The 2.5L does not have a pulsator, but instead uses a short piece of hose connecting the pump to the pipe (Image 4). This is special submersible hose. Do not use “regular” hose. Reinstall the tank and you should have fuel pressure, no leaks and a gas gauge you can believe in.

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