Fuel tank filler location change

During travels for the last 35K+ miles I have become increasingly frustrated by the LONG refueling times required to completely fill the fuel tank, It was obvious where the trouble was, the filler was routed to the tank and the entry point was about half way up the side of the rear of the tank. Once the fuel reached the level of the entry point, the filling hose will fill with fuel, foam back and shut off the automatic filler. From that point, it required hand filling with the slowest possible rate to avoid foaming, the tank vent would allow air to escape and the tank could be completely filled but was a VERY slow process and sometimes messy!

Rear tank filling point:

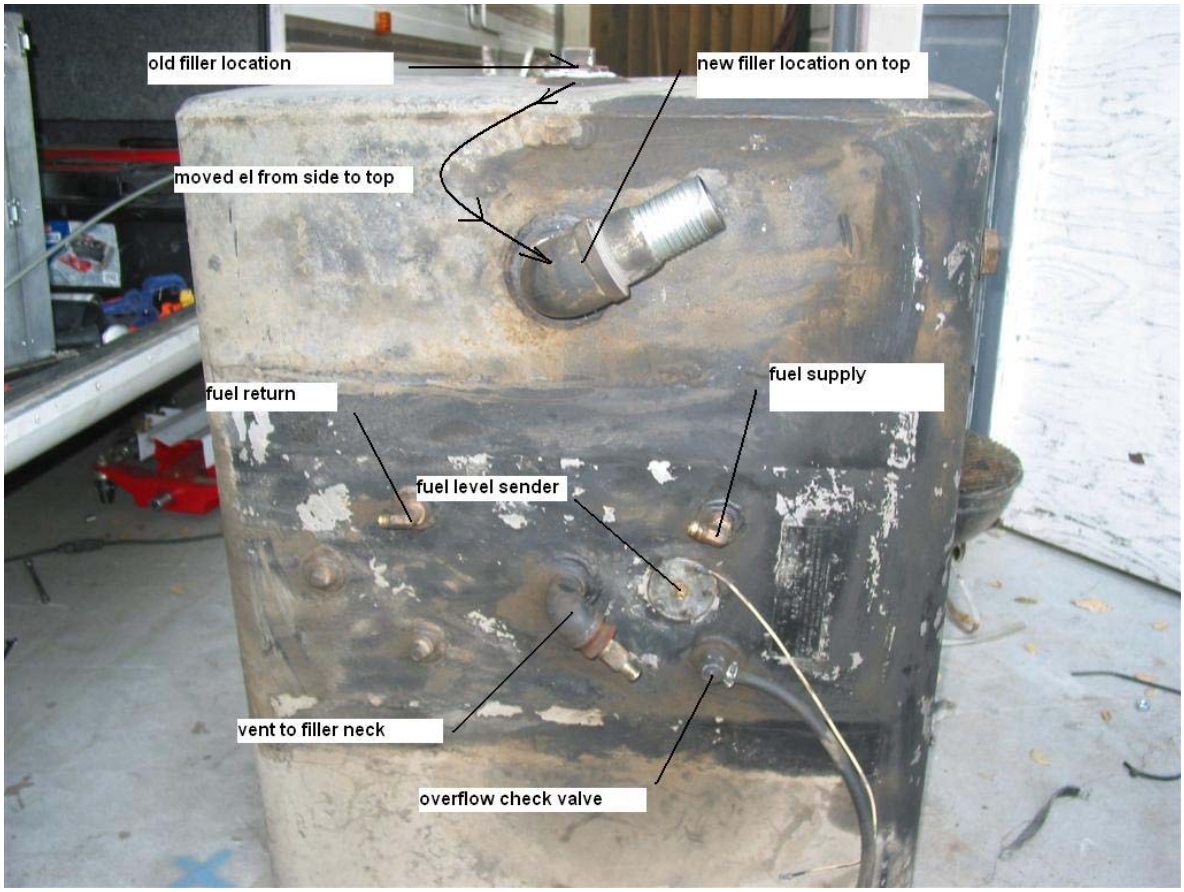
After looking at the tank installation, I decided to remove the tank and have a bung welded into the front of the tank at the very top. This would eliminate the foaming because the filler hose would not fill with fuel and would also shorten the filling route, further eliminating foaming. I had determined there was sufficient room to route the filler hose over the top of the frame, between the frame and floor directly to a front filling location.

The cost was determined to be about $300 to have a new bung welded in. I have all the required welding equipment BUT, I do not weld on fuel tanks of any sort, I leave that to the professional that know the correct and safe process.

Returning from the last trip, I did not refuel and got as much fuel burned off as I could without danger of running out. The gauge indicated less then 1/8 tank when I got home, should have been about 5-8 gallons, but when I drained the tank, much to my surprise, there was 15 gallons left. Probably a good thing, the tank is a flat bottom tank so going up grades or around corners could have caused fuel starvation at low levels.

Being a steel tank, it was quite heavy so I used a transmission jack to lower the tank once the bolts thru the retaining bars were removed. I quickly found that the vent hose was VERY short and I had to reach way up over the top of the tank to disconnect it before lowering it very far. Once that was done, all other hoses and connections were easy to take off.

Much to my surprise and delight, there was a bung on the top of the tank, at the rear but still on the top!!! The filler hose was long enough and would go between the frame rail and the bottom of the floor to reach the top location found if I removed the 90 degree el at the back side of the tank and moved it to the top bung. I just swapped the cap and filler el.



I measured the space required for the 90 degree el located at the top of the tank and compared that to the installed tank clearance to the floor, I had 1 inch to spare.

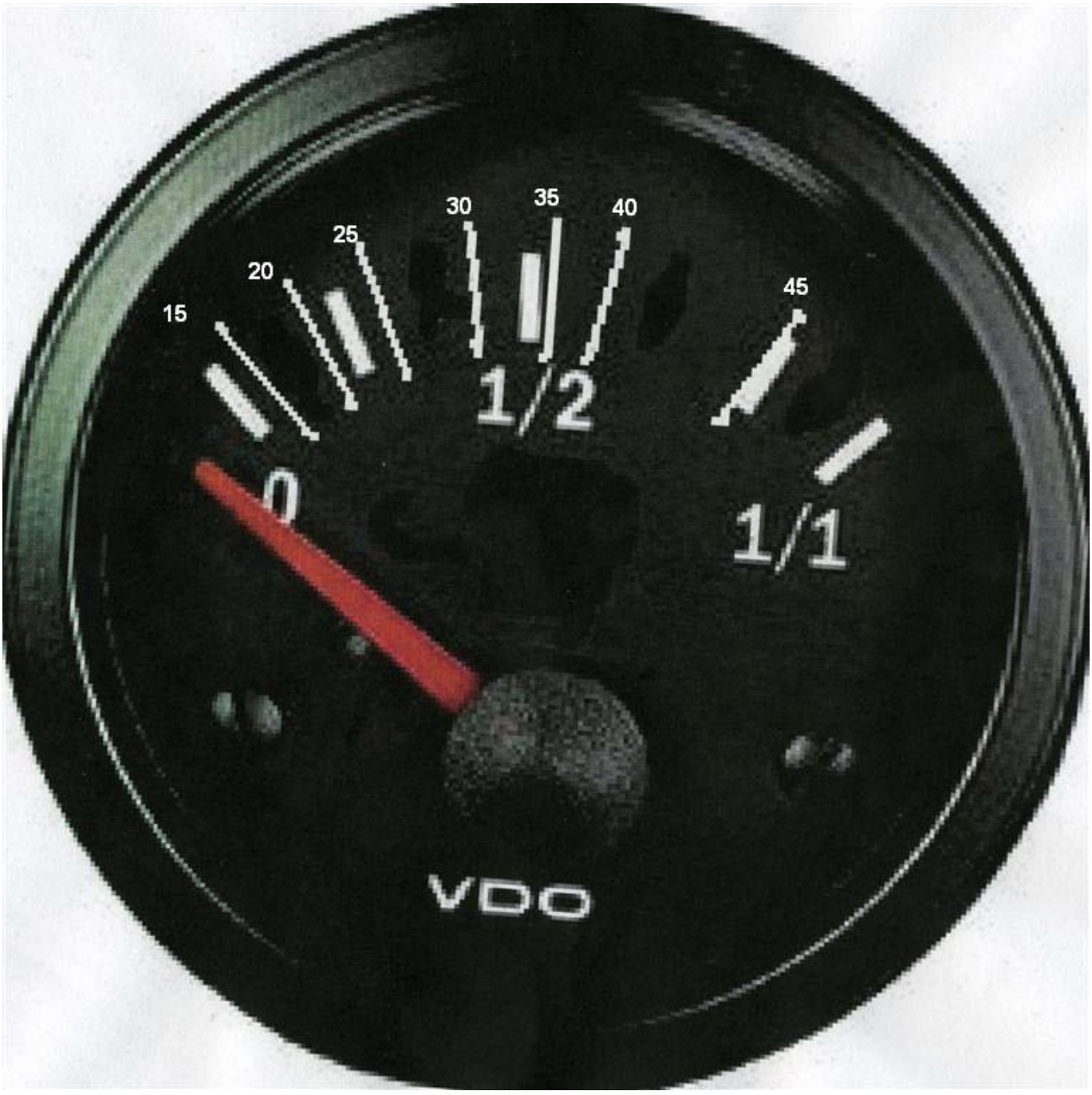
I contemplated turning the tank 180 degrees so that the rear would now be toward the front but that would require reworking the supply hoses to the engine and at this point I thought if the filler would work at the rear, no need to completely re-invent the wheel. I would re-install the tank (lengthen the breather hose) and try it first, if it still gave filling problems then I would remove and rotate the tank with the required hose changes to the engine.

I had to re-route the heater hoses to the right side going over the fresh water tank and fuel tank so that they would not be crushed by the filler hose to the floor. I lengthened the breather hose and reinstalled the tank. I had to raise the driver's side of the tank as high as possible with the passengers side as low as possible to connect the filler hose (that bugger is stiff!!) and breather hose, all connections made the tank went into place without issues.

After the tanks was secured, I put the 15 gallons back in, fuel gauge was registering so all was good to go.

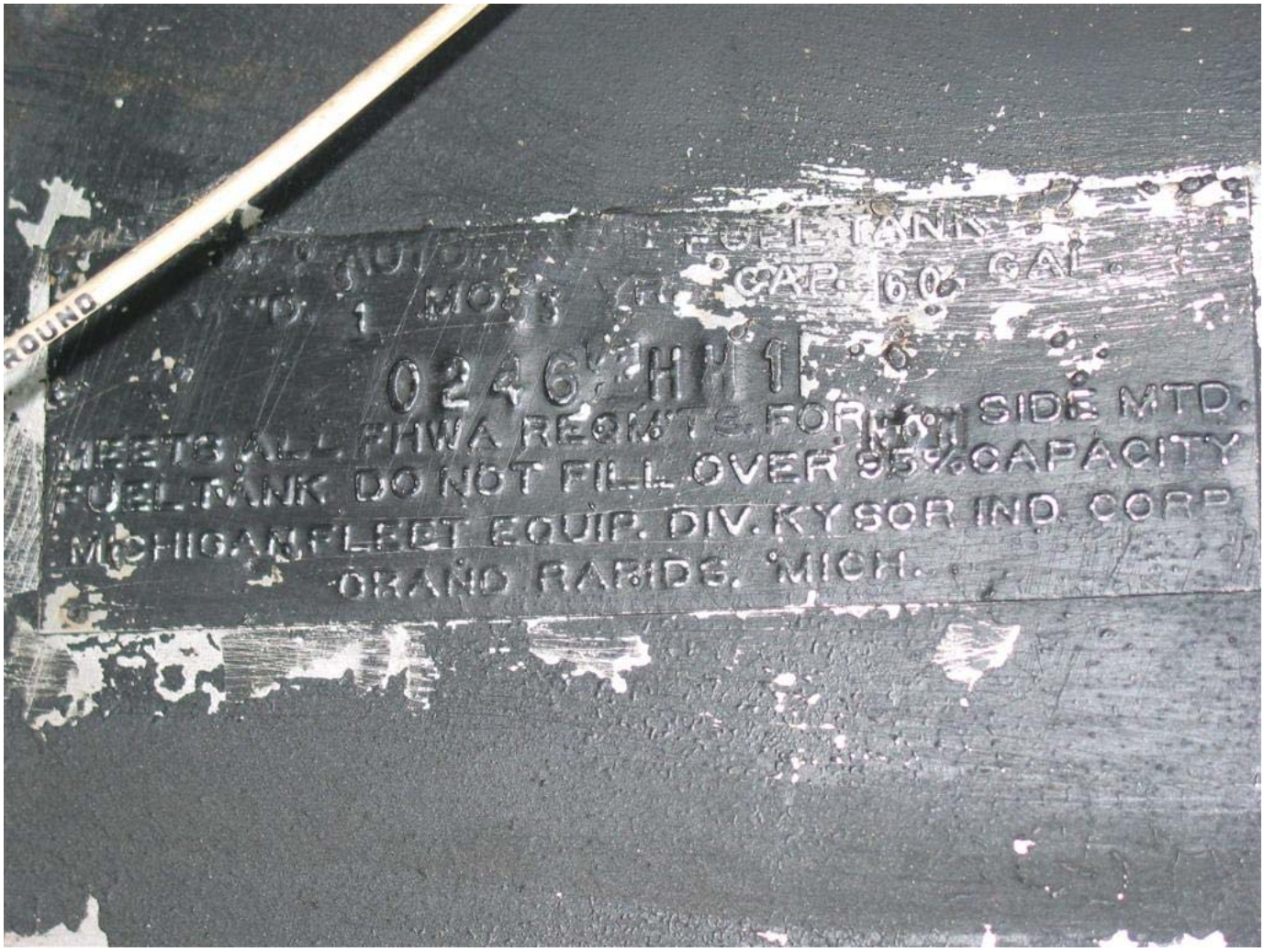
I decided to fill the tank in 5 gallon increments and log where the fuel gauge registered for each 5 gallons put in. I only went to 45 gallons because I wanted to verify that when filling completely from the fuel pump that the foam back issue was resolved.

I also started work on the steering problems that I have been having and the Barth was not drivable. I will do another write-up when I finish with the steering debug and repair.



Made a copy of a VDO gauge and photo shopped in the lines where each 5 gallon increment showed on the fuel gauge.

Here is a picture of the tank label. Clearly says it is 60 gallons and also a notation to NOT fill over 95% which would be 57 gallons.



When I fill from now on, I will insure that I will only fill completely when traveling and will be putting at least 30 miles after complete re-fill before shutting down.

Total cost:
~$20.00 new length of 5/8 fuel line for the breather extension, new hose clamps, pipe thread sealer.

Total time:
One full day, including parts run

Tank is heavy and requires some thought as to use of jack and tools to minimize effort.

Ed Raether
07/19/08