

Series 3 – Series V Fuel Tank Installation Tips

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Most experienced Alpine owners know that the Alpine's fuel tanks are inevitable going to need some TLC. Due to debris from rust or liner degradation, the fuel system can not supply the needed amount of gas and rough running occurs. Refurbishing the fuel tanks is almost a rite of passage for Alpine owners at some point. It is not a complicated job; however, it can be quite fiddly and frustrating.

Obviously exercise caution, as spilt gasoline is flammable and dangerous! Please drain the tanks and don't work around flames or other sources of ignition! It would not hurt to have a fire extinguisher handy. It is also a good idea to disconnect the battery first.

Removal

Removal of the Series 3 – Series V split tanks is fairly straight forward, merely unbolt all of the brackets and clamps and pull the tanks out. However, a few comments may help out.

The trunk lid support brackets extend down when the lid is open, making it difficult or impossible to remove the fuel tanks. Some people remove the spring to allow sufficient clearance. Another trick, that I used, is to unbolt one bracket at the lid. This allows the bracket to fold up and provides room to remove the tank. My springs were strong enough to support the trunk with only one side, if yours are not prop the trunk lid open with some type of support, or as suggested by a forum member, use a few zip ties to lock the bracket in the open position. Once one side is done, reconnect, and then unbolt the other side.



Trunk lid bracket disconnected for clearance



Zip ties locking trunk lid open

The vent hose connecting the 2 tanks runs through a channel in the body work in front of the trunk and behind the convertible top. If replacing this hose be sure to use the old hose to pull a string or such when removing it, as it would be very difficult to feed a new hose through this channel.



Vent hose

Most of the bolts and clamps are straight forward and easily noticed, just note there are 2 bolts under the car that hold the center balance pipe in place, and remember to disconnect the fuel line here as well (I assume you drained all of the fuel before now!). Also there are 2 bolts per tank that are accessed from the rear wheel well.



Once the tanks are removed you can clean out the rear wings. All sorts of junk can collect here. I had some old toys and of course the ubiquitous mouse nests.



Nasty!

Refurbishment

I am not going to get into refurbishing the tanks in this article. Jim Ellis provided a good DIY article available elsewhere on the sunbeamalpine.org website. There are also gas tank refurbishment shops around, and some radiator shops offer this service as well. Here in Chicagoland the prices are a little steep; the sole radiator shop still doing this work in my area charged me \$300 to thoroughly clean then coat the interior of the tanks and pipes with a type of supposedly fuel safe coating called Red-Kote. I then spray bombed the outside satin black.



Installation

Here's where we start addressing the point of this article. Installing the pipe hoses is a royal pain. As you can see from the photo below, the pipes fit closely, seemingly necessitating sliding the hoses all the way on one pipe, then sliding it halfway back once installed.



Pipe clearance

I purchased new hoses from Sunbeam Specialties. These new hoses fit very snug and don't slide on the pipe very well. I tried using soap & water, and even WD-40, but nothing really allowed the hoses to slide. This seemed like an impossible task. After running this issue by the forum, I found some great suggestion to make this task easier. The basic idea is using a specific assembly order to ease the installation. With this method only the final hose needs to be slid all the way on and back.

Step 1: Install the tanks and brackets (again I unbolted one trunk support at a time for clearance). Leave the bolts loose to allow for some wiggle room. The hoses are approximately 3” long, thus 1-1/2” should slide onto each pipe. Before installing the tanks mark the outlets with some painter’s tape as a guide to the depth of the hoses. (I forgot to do this before hand, so the picture shows me doing it after the tanks were installed.) The shop that cleaned my tanks left the ends of the elbows unpainted so I was able to use that line as a reference on the elbows.



Hose length



Marking where the hose should sit

Step 2: Install the elbows. Here's where the assembly order starts making things easier. Slide each tank to elbow hose halfway onto the elbows.



Hoses installed half way onto the elbows.

Then connect the elbows to the tank, by sliding the overhanging half of the hose onto the tank outlet. The painter's tape provides a reference indicating how far the hose should slide onto the tank outlet. Remember to feed the clamps required onto the hose before making the connection. As a side note, I reused some of my old clamps and noticed that there were 2 lengths for the screw that tightens the clamp. I used the longer set on the elbow to tank connection as it allowed me to open the clamps larger. This helped with the cramped area at that junction. It is easier to get at the elbow to crossover pipe junction so I used the "smaller" clamps there.



Notice the different clamp sizes



Feeding the elbow on to the tank outlet



Elbow installed on tank outlet

Step 3: Install the cross over pipe. Here things start to get more interesting. As you can see from the picture, there is little clearance between the cross over pipe and the elbows.



Crossover pipe clearance

We can use the same trick on one of the joints, but the final joint will need the hose slid all of the way onto the pipe, then slid back to complete the installation. Here you can see I slid one hose onto an elbow, using the tape or measurement again to insure it is on halfway. I managed to remove and install the center pipe without removing the trunk latch, putting the hose on the elbow gives more room to maneuver the crossover pipe into position when feeding it in behind the trunk latch.



Elbow to crossover hose fitted

I then slid the other hose all the way onto the cross over pipe.



Elbow to crossover hose installed flush with the end of the crossover pipe

The cross over pipe now goes onto the elbow with the hose pipe, while simultaneously feeding the fuel outlet through the grommet underneath. I didn't replace my grommet, but the forum mentions this grommet should be installed from inside, so make sure to change it before installing the crossover pipe. Also, as before remember to slide the clamps on before putting the pipe in.



Installing the crossover pipe into the elbow hose

With the crossover pipe in place the last hose can be positioned. This can be a real pain, as it just won't slide easily. I used a large screwdriver, placing the shaft along side the pipe and then hammered on the screwdriver to move the hose into position. Again a piece of tape on the elbow will help determine how far the hose needs to be moved.

Step 4: Install the filler neck. The filler neck is pretty straightforward if not fiddly. Make sure to locate the clamps first. I installed the vent nipple before fitting.



Filler neck with balance vent fitting in place

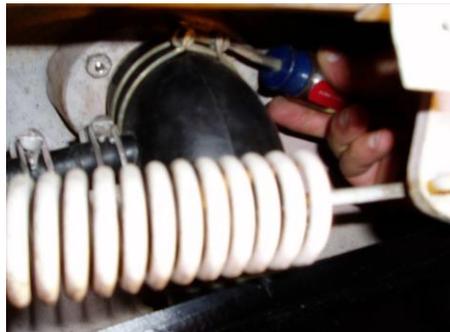
With the gas cap out it is pretty easy to fit the filler neck to the tank. Once the tank side is on, the gas cap can be installed (again, remember to place the clamp in position first). I used a new gas cap to body gasket from Sunbeam Specialties, but I trimmed it fit the filler better. The outside was quite a bit larger than the cap, so I trimmed to match the cap. I also used some new cap head screws.



Gas cap and trimmed gasket



Gas cap installed



Tightening the gas cap clamp

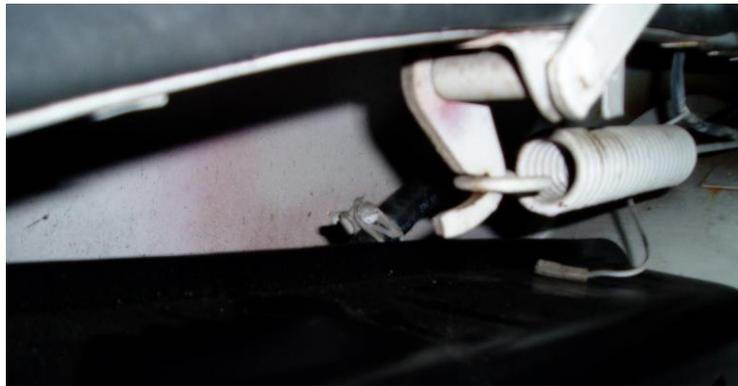
Step 5: Install the vent balance hose. I installed the vent hose last, but you may want to feed it through the channel as the first step. I used the old hose to pull a string through; I then used the string to pull the new hose through the body bulkhead channel. On my car (Series V) I used a plain 3/8" i.d. fuel hose. However, some have mentioned that a normal hose may not fit through the channel, especially if you have an earlier series car, and a thin wall version may need to be obtained. That is something to watch for. Once the hose was in place it is just a matter of fitting to the tank vent and the filler neck. Again this is fiddly as the areas are pretty tight, but it is straightforward. Don't forget the clamps first again!



Pulling the hose through



Hose pulled through



Hose installed on driver's side tank

Step 6: Finish up. I actually waited until everything was in place to return and tighten all of the bolts and clamps. Then reconnect the fuel line underneath, fill with a little gas and check for leaks.

I would like to thank Allan Ballard, Rich Vose and all of the other Sunbeam Alpine forum members for providing most of the original info for this article.