

LP Grill and Gas Hose

This seems to be a reoccurring theme on the forum and Internet about propane grills, quick disconnects, hoses, and what to do. First of all let me say that if you are the least bit unsure what to do, DON'T. Get a professional to do the work for you. Second, do this at your own risk. Common sense and good judgment are better than anything else to keep out of trouble and out of a hospital. Again, if you are the least bit concerned about the connections, sealing, assembly, or use of the suggestions in this document, then either contact a professional or don't do it. You are working with propane and it has no sense of its own. Propane is flammable and invisible. Testing of the sealing of a connection is a must at all steps and periodically thereafter.

The system on the trailer uses a device called a regulator to lower the pressure from the propane cylinder to about 11 inches of water column pressure (about ½ psi). The gas then flows through piping to the various devices such as the stove, refrigerator, furnace, water heater, and other devices. There is a main line that all of the other devices branch off of. In my 2007 Arctic Fox 29-5T there is connection to allow the use of an external (not built into the trailer) propane device such as a BBQ grill. The connection consists of a valve and a female quick connection. No male connection was provided with the trailer.

A quick word about propane gas and terms associated with it. The amount of gas used by a propane device, be it a generator, grill, water heater, or whatever, is expressed in BTU's. BTU is a measure of heat (also called a British Thermo Unit). So, if a grill is a 12,000 BTU grill, it will use 12,000 BTU's of gas. If a furnace is rated at 35,000 BTU's it will use that much gas. Now, as you can see, the higher the BTU rating the more gas it will use. You are wondering why I am telling you this, well you have to have a larger diameter hose to flow enough gas at the low pressure the trailer provides. So, if you have a small 5,000 BTU grill the connection supplied with your trailer may work just fine. But if you have plans to use a larger grill then you are going to have to make some changes.

The pipe that supplies the gas from the regulator in our trailer is 3 / 4 of inch in diameter. This flows a lot of gas. Since I used a Weber Q grill, I knew that I was going to need larger fitting to flow enough gas to allow the grill to cook with maximum heat. I spoke to a friend of mine who does pool work including installation of pool heaters that are gas fired. He said that I needed a larger valve on the trailer, larger quick connections, and a larger diameter hose to connect the trailer to the grill.

I went to this site to obtain the quick connectors that I used in this project:

http://www.propane-generators.com/quick_disconnect.htm

I have no connection with them, are not paid by them, and so on. I purchased the 3/8 inch connectors. I purchased a set for the connection between the trailer and the hose, and a set for the connection between the hose and the grill. The connectors come with a yellow safety cover for each male and female connector.

These are propane quick disconnection devices. This is a close up of the connector showing the little safety bar which allows gas to flow only when the connection is complete. I do not recommend the use of compressed air fittings, or other connections that are not rated for propane use. Again, propane is flammable and air isn't.



Connectors



The safety device in the connector

I listened to my friend and read online and purchased the hose that I use to connect the trailer to the grill at this location:

http://www.propane-generators.com/hook-up_hoses.htm

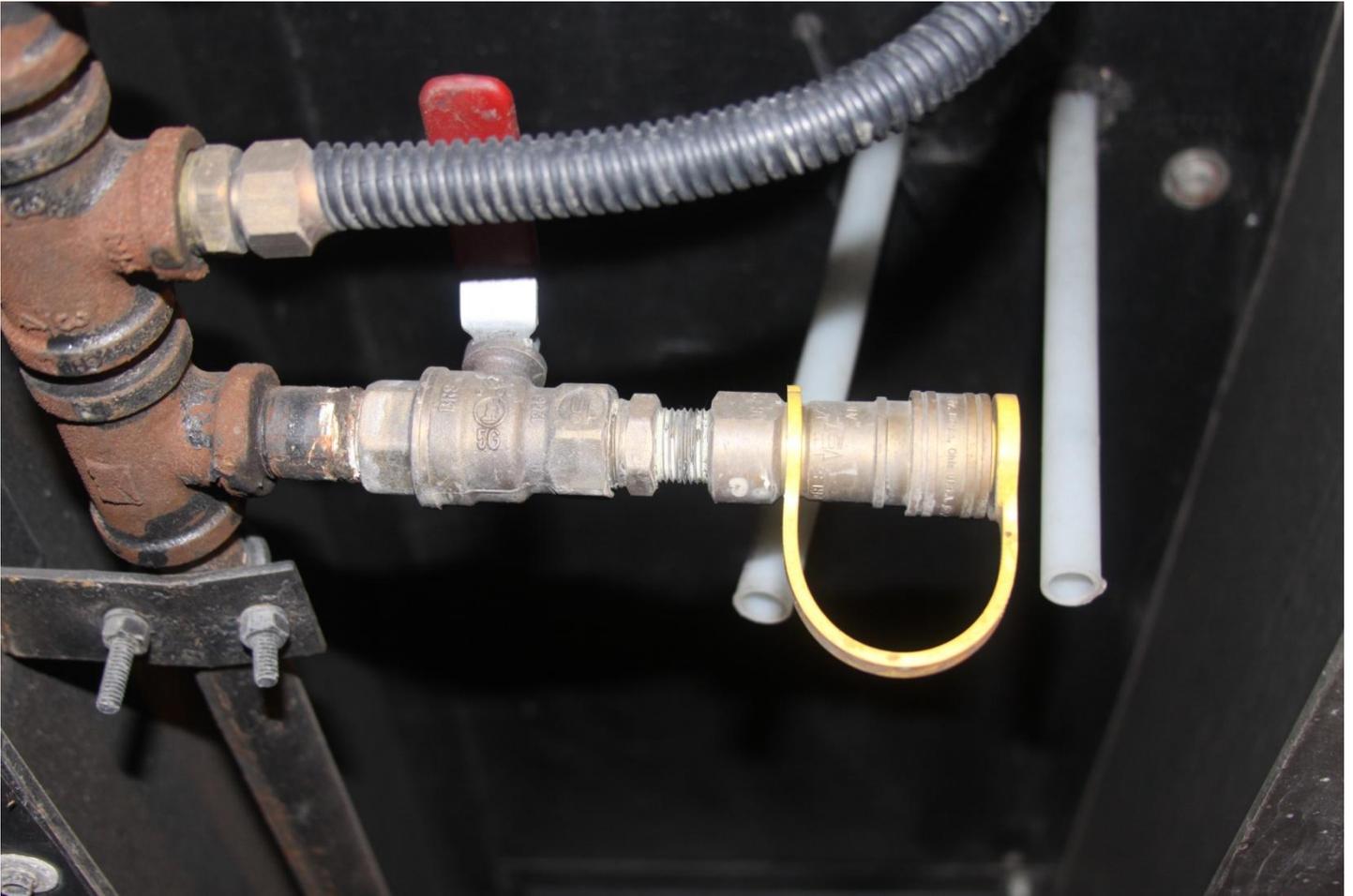
Again, I have no connection with them, are not paid by them, and so on. I used a 12 foot hose which seems to be just the right length for me. It flows all of the gas that the grill needs.

Another consideration is the size of the regulator at the propane tanks. You may have to change it. The one that came on our trailer is fine as we ordered the factory installed propane generator. Talk to your propane or rv professional if you are not sure about this. If you plan on using the stove, water heater, and furnace plus the grill you will have to flow a lot of gas. Add in the generator, and you can see a lot of gas is going to be used!

The Modifications

Turn off the gas at the propane tanks, light the stove and burn up the gas in the lines. Be aware that there will be some gas left in the line. What I did was to take a compressed air blower and blow air into the line (not pressurize the line but just hold it near to blow air into the line) once I had removed the factory installed valve and quick connection. I removed the factory installed bushing that was installed on the 3 / 4 inch gas line so that I had a 3 / 4 inch connection. I purchased a 3 / 4 inch gas valve (has to be gas rated, not an air one).

Now we are going to assemble the quick connection and valve together then mount it on the gas line. Where the valve and the quick connection are joined, I used pipe tape rated for gas. Ask your supplier for the kind used for gas appliances. Wrap the thread so that when the parts are screwed together, the motion tends to wrap the tape into the threads rather than peel it off the threads. **WARNING:** This connection has to be gas tight and not leak. Use the correct size wrenches when tightening this connection rather than a pipe wrench. At the connection where the valve screws onto the trailer gas line, I used a liquid pipe dope rated for gas. Coat the threads liberally but don't get any in the pipe or valve itself. Next, screw the valve onto the pipe making sure the connection is tight. **WARNING:** This has to be a gas tight connection and not leak. Let the dope dry completely before doing anything else with this connection.



Valve and Quick Connector Installed

Once the pipe dope has set up, time to test the connections. Make sure the valve is off at the connection. Turn on the propane at the tanks. Allow some time for the pressure to equalize, then test the connections. Using a commercial test spray or a spray bottle with liquid soap and water, spray each connection several times. Look for bubbles, a single bubble, or any type of indication that bubbles want to form. There should be none. Again, I cannot stress it enough, spray the connections several times and watch what happens. There should be no bubbles. **WARNING:** Check this connection regularly as vibration can loosen any connection on the trailer.

Ok, it is time to assemble the hose and connections. A quick word about the safety devices on the quick connectors, they are safety devices only and not a shut off valve. Shut the gas off and on with the valve at the trailer only after you have connected the grill or other appliance to the end of the hose. When I use my grill, I shut the gas flow off at the trailer and allow the grill to burn until it goes out. **DO NOT** depend on the safety devices to control the flow of gas. The valve is for that.

Using the pipe tape again, wrap the end of the hose connection where it will be joined with the male connection to the trailer. Wrap the tape in a direction that will tend to wrap the tape into the threads rather than peel it off the threads. Tighten the connection using the proper sized wrenches. Then move to the other end of the hose and attach a female connection. **WARNING:** These connections have to be gas tight. We will test them when we finish.

Now let's look at the grill. If you are not sure what to do, again, take the grill to a propane professional and ask them what you should do or have them do it. I will cover only what I did to the Weber, and be aware the factory does not

authorize this so if you have a Weber, you are doing this at your own risk. Again, common sense is your guide and if you are not sure, ask a propane or rv professional for help.

The Weber Q grill came with a hose to attach the grill to a small one pound propane disposable tank. It has an adapter you can purchase to allow you to use the standard five gallon and larger tanks. I remove the regulator installed by the factory and wrapped the pipe threads with gas pipe tape. I attached a bushing to allow me to attach a short hose to the grill. All connections were sealed with pipe tape. **WARNING:** This has to be a gas tight connection. Once the hose was attached to the grill, I attached a male quick connector to the other end of the hose using pipe tape. **WARNING:** This has to be a gas tight connection.

Time to test our work. Move the trailer to an outdoors area, so there is plenty of air. Connect the hose to the trailer, leaving the trailer gas valve you installed in the off position. Connect the other end of the hose to the grill. Turn on the gas at the propane tanks if they have been turned off and allow the pressure to stabilize. Now open the gas valve on the trailer. Begin testing each of the connections, starting at the trailer and moving out along the gas hose ending at the grill. Spray each connection several times. **WARNING:** All connections have to be gas tight. There should not be any bubbles, bubbles attempting to form, or anything at each connection. Test them several times. Leave the gas on but wait about twenty to thirty minutes then test again. I know this testing is getting old, and you think well it did not leak the first time, why do I have to keep testing it. Answer: **BECAUSE YOU AND YOUR FAMILY'S SAFETY DEPEND ON IT.**

Time has gone by and you have tested the connections until you think I have lost my mind. Time for the acid test. Light the grill and turn it all the way up. Maximum heat. Spray each of the connections again. They might have been tight under pressure but might loosen enough to leak when the pressure drops off. **WARNING:** Test all connections until you are sure that they do not leak.

Final Thoughts

I added a right angle connector between the hose and the male connection at the trailer end to make it easier to plug the hose into the trailer. I have a bag that I keep the hose in with the yellow plastic protectors on each connection. At the grill, I use a piece of string to keep the male quick connector from being banged around and keep the plastic protector on it when not in use.



Again, if you are not sure about how to do anything, hire someone who is a professional and listen to what they tell you. I have used this setup for several years now and have enjoyed the convenience of not having to carry the small one pound cylinders. I kept all of the parts just in case something happens and I want to go back to the old system used on the grill.

Finally, none of this suggests that you do anything you do not feel comfortable doing; do not have the knowledge or skills to do; or the correct materials or tools. In that case, contact a professional propane tech or RV propane tech.

So long from the Fox's Den deep in the swamplands of Louisiana....Laissez les bons temps rouler!!!!