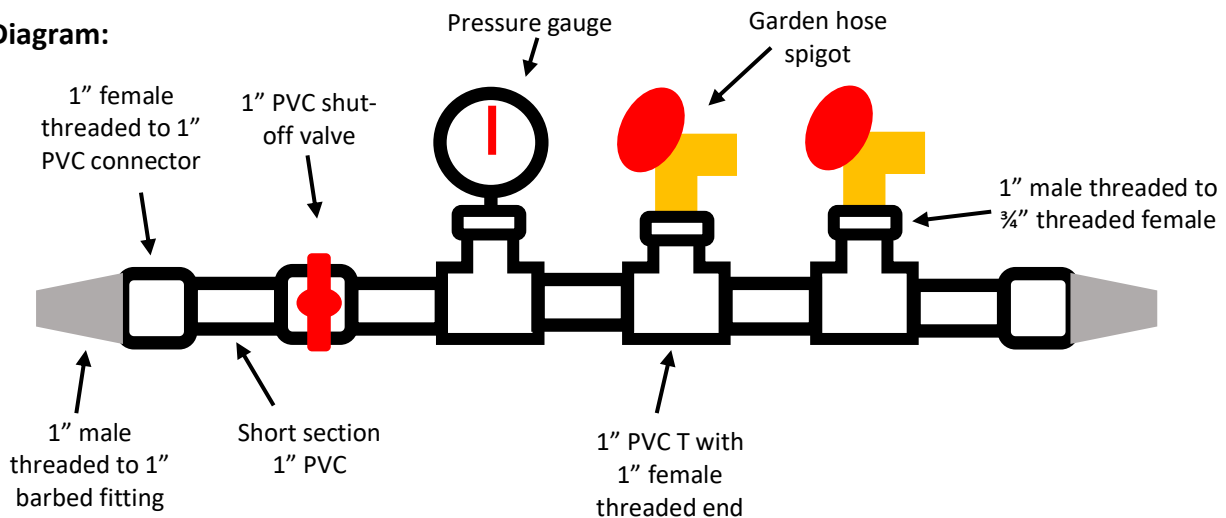


## Large Manifold:

The FGU pump, a 1 in. 79cc Gasoline Engine Clear Water Pump – 35 GPM, requires a 1 in hose input. At each end is a 1-inch male threaded to 1-inch barbed fitting to attach the inflow and outflow hoses. The male 1-inch threaded are screwed into 1-inch female threaded to 1-inch PVC connectors on either end. From the PVC connector, there is a short (6-inch) section of 1-inch PVC connected to a 1-inch PVC T. Repeat this pattern two more times. There are three T's in total. After the third T, add a 6-inch piece of 1-inch PVC, attach a shut off valve, and then attach another short section of PVC to connect to the second 1-inch PVC to 1-inch threaded converter. In each T, add a 1-inch threaded to 3/4-inch threaded reducer. Three in total. Into the first T, screw in a pressure gauge. Into the second two T's, add a hose spigot. This completes the manifold. You can attach the manifold to a mainline via a garden hose.

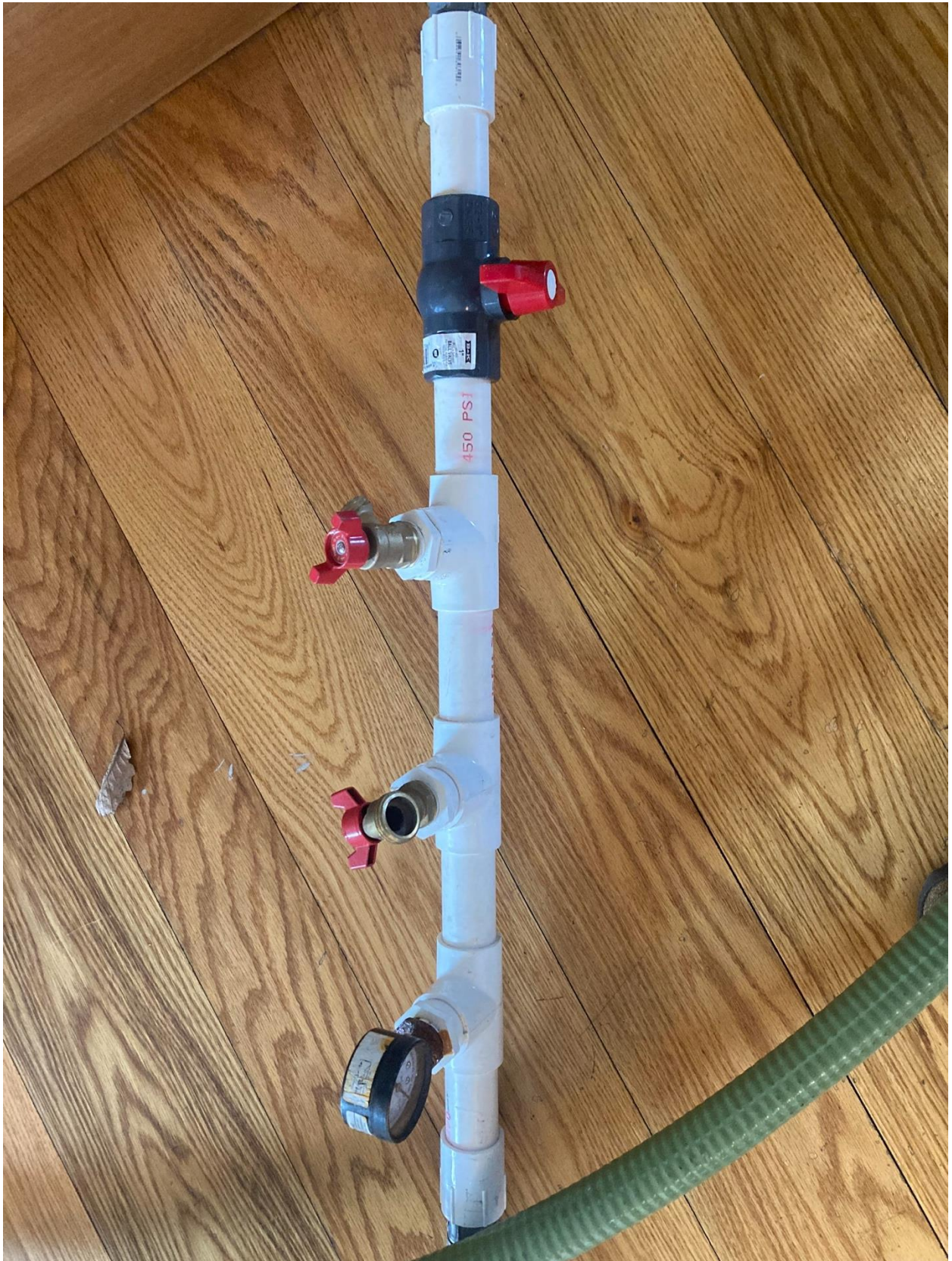
This manifold works well for filling mainlines and pushing water up the laterals. We found that the pump could push water approximately 100 feet up through lateral tubing. You may need further converters to attach the pressure gauge, depending on the size of the attachment on the gauge.

### Diagram:



**Parts List:** All links are to examples of the parts used. None are recommended specifically. Use what works for you.

- 1 - [Water Pump](#)
- 2 - [1" male threaded to 1" barbed fitting](#)
- 2 - [1" female threaded to 1" PVC connector](#)
- 3' - [1" PVC](#)
- 1 - [1" PVC shut-off valve](#)
- 3 - [1" PVC T with 1" female threaded end](#)
- 3 - [1" threaded to 3/4" threaded reducer](#)
- 1 - [Pressure Gauge](#)
- 2 - [Garden Hose Spigots](#)

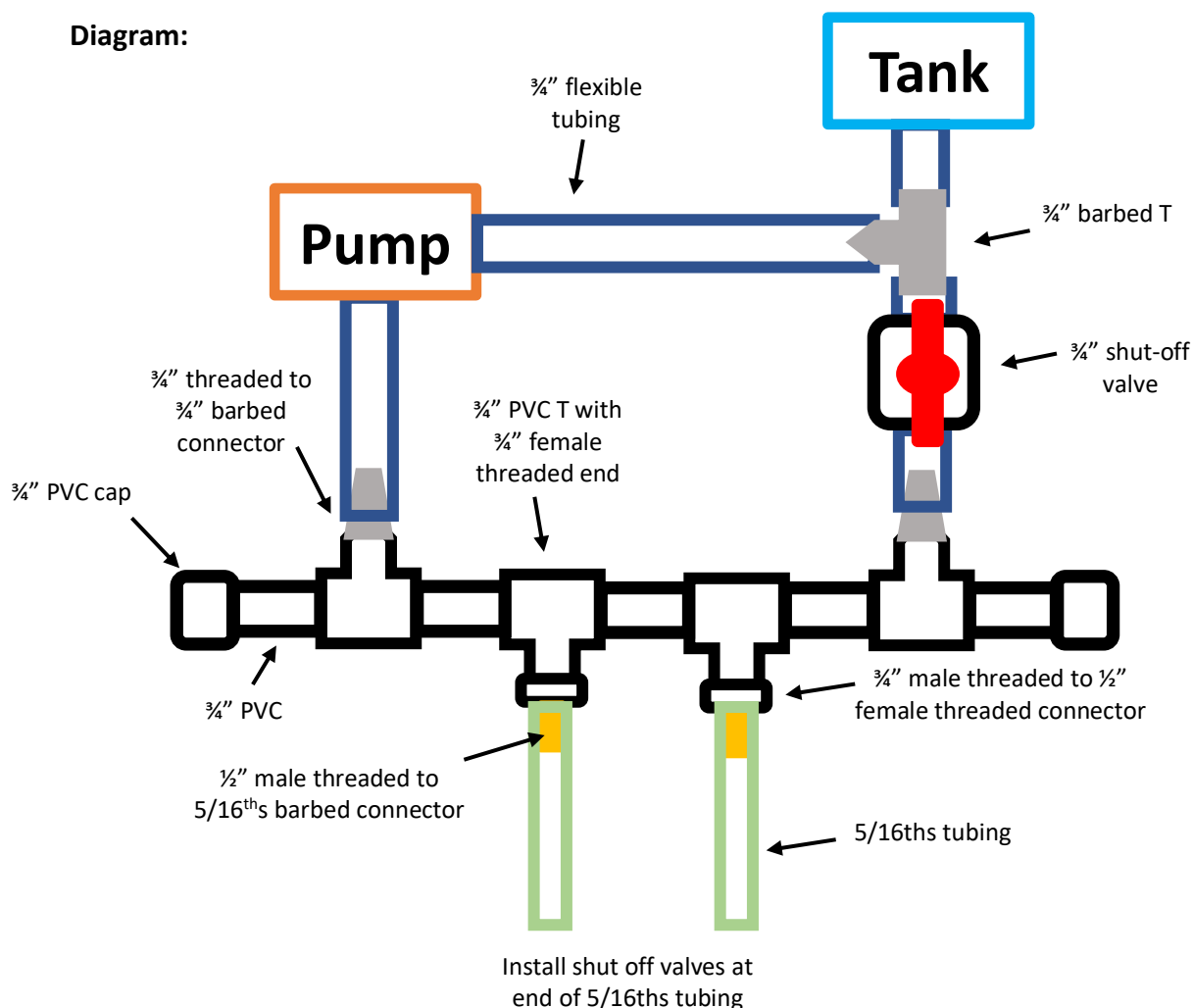


## Small Manifold:

The FGU pump, a SHURflo diaphragm pump, has  $\frac{3}{4}$ -inch threaded connection for the inflow and outflow. This system has a  $\frac{3}{4}$ -inch PVC pipe, capped at both ends, with 4 threaded T's spliced in. Have the outer two T's facing one direction, with the inner two T's facing the other direction. In the outer two T's, screw in a  $\frac{3}{4}$ -inch threaded to  $\frac{3}{4}$ -inch barbed converter, and in the inner two T's screw in a  $\frac{3}{4}$ -inch to  $\frac{1}{2}$ -inch threaded reducers, and then insert a  $\frac{1}{2}$ -inch threaded to 5/16th-inched barbed fitting to attach a section of 5/16ths tubing. At the end of the two 5/16ths sections we added a shut-off valve, though a clamp would work. We installed a 5/16ths quick connect on the 5/16ths tubing to allow for easy disconnect. This tubing fits snugly over a tap. The  $\frac{3}{4}$ -inch connectors are connected to tubing, that on one side can have the SHURflo pump attached, while the other tubing has a shut off valve, joined by a  $\frac{3}{4}$ -inch T before the tank. The reason for the two possible inflows for the manifold is if you choose to gravity feed the system over pumping and maintaining a pressure relief point for the pump to avoid any kind of blow out.

This set up works well for lateral lines you want to fill from the top. It takes a while to fill a mainline through this method, but works well with a small tank and an ATV for remote laterals.

## Diagram:





# Future Generations University

**Parts:** All links are to examples of the parts used. None are recommended specifically. Use what works for you.

- 1 - [SHURflo Pump](#)
- 2 -  [\$\frac{3}{4}\$ " PVC Cap](#)
- 2' -  [\$\frac{3}{4}\$ " PVC](#)
- 4 -  [\$\frac{3}{4}\$ " T with  \$\frac{3}{4}\$ " female threaded end](#)
- 2 -  [\$\frac{3}{4}\$ " Threaded to  \$\frac{3}{4}\$ " barbed connector](#)
- 2 -  [\$\frac{3}{4}\$ " threaded to  \$\frac{1}{2}\$ " reducer](#)
- 2 -  [\$\frac{1}{2}\$ " Threaded to 5/16ths barbed connector](#)
- 30' - [5/16ths Tubing](#) (length required varies with the distance to your first drop.)
- 2 - [Quick Connectors](#)
- 2 - [5/16ths Shutoff](#)
- 6' - [Flexible  \$\frac{3}{4}\$ " tubing](#)
- 1 -  [\$\frac{3}{4}\$ " Barbed T](#)
- 1 -  [\$\frac{3}{4}\$ " Shutoff](#)

