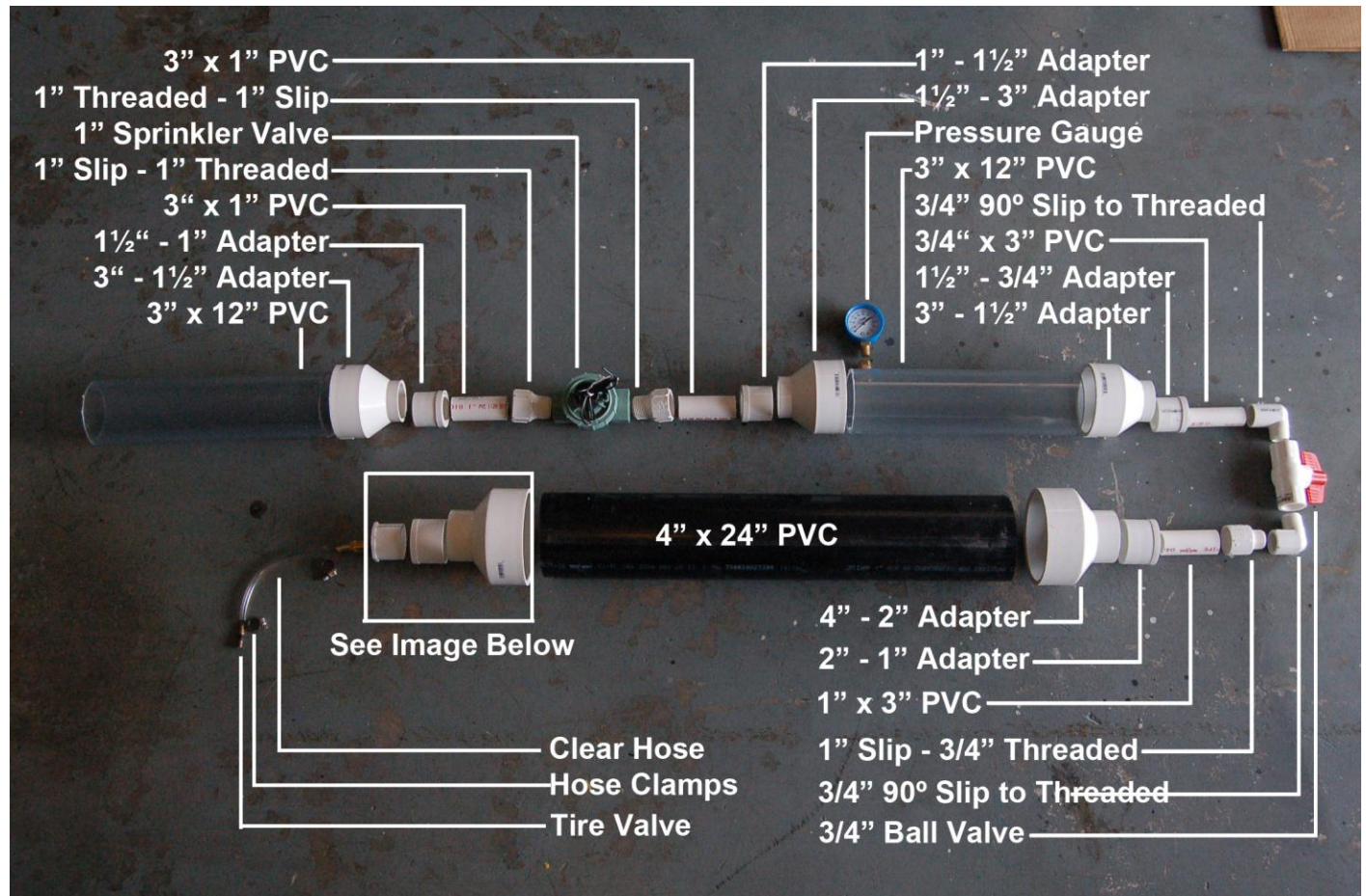


T-Shirt Launcher Instructions

The t-shirt Launcher is a high-power device. Use extreme caution when testing, building and using this device. I am not responsible for misuse, abuse or any action that might endanger any living thing or property. Build at your own discretion.

Always wear protective eyewear.

Parts list and diagram



Most of the materials can be acquired from a home improvement store and/or plumbing supply store.

The tire valve can be purchased at a discount store, auto supply store or bicycle shop.

NOTE: Clear PVC was used but that is not necessary. Clear PVC can be purchased from [McMaster-Carr](https://www.mcmaster.com/)

You should also get an adapter that fits the threads of the pressure gauge you purchase.

Additional tools and supplies needed:

PVC Cement and Primer. Use the strongest PVC cement you can find.

(2) 9 Volt Batteries and clips

(1) General purpose switch

Medium gauge wiring

Zip Ties

Electrical Tape

Hacksaw or PVC cutter

Sandpaper

Optional: Rubber Mallet

Screwdriver

Epoxy or strong glue like Liquid Nails

Plumber tape
Assorted drill bits and drill
Tire pump or air compressor

Assembly

Begin assembling the parts as shown in the diagram. Take care to make sure you pre-fit the PVC parts to make sure there are no burrs or other imperfections that might cause issues. Don't assemble them too tight for testing or you may have trouble getting them apart.

Apply PVC primer to both pieces of the slip parts (threaded parts will use plumber's tape). Let dry and apply PVC cement to both pieces. Don't apply too much. Read the directions for your PVC cement. Assemble the two parts and twist $\frac{1}{4}$ turn to 'lock' them in place.

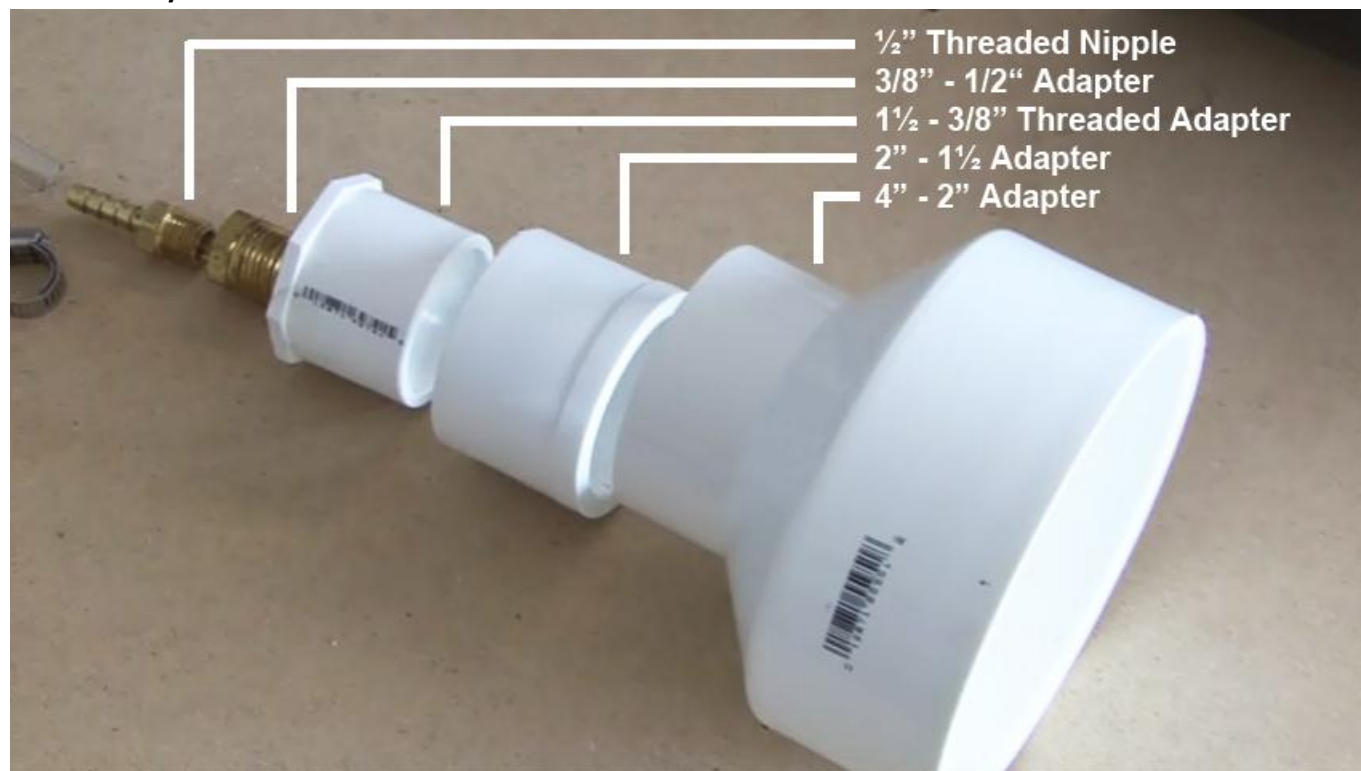
Pay attention to the arrows on the sprinkler valve to make sure the arrow goes in the direction of airflow out of the launcher.

The pressure gauge will be mounted by drilling a hole slightly smaller than the threads on the gauge. Add epoxy to the threads to prevent any leaks. It should be a tight fit as you screw it into the PVC. Use the adapter and thread it from the inside on to the pressure gauge and tighten.

The tire valve needs to be trimmed by cutting off the rubber and leaving just the metal portion of the valve.

Let all of the PVC welded parts sit at least overnight to completely harden together.

End Assembly



Brass adapters will use plumber's tape and be tightened using a pair of wrenches.

Wiring

The sprinkler valve is likely a 24 volt valve but will operate just fine using 17-18 volts. Two 9 volt batteries will work. The red wires from the two 9 volt battery clips are joined together and connected to one of the wires on the sprinkler valve. Either one will work. The other wire from the sprinkler valve is connected to one end of the switch and the black wire from the 9 volt battery clips is connected to the other connector on the switch. Press the switch and you should hear the sprinkler valve click as it opens. The valve operates by opening and then quickly closing so you will only hear one click. Test the switch/power assembly to make sure it works. Attach the switch/power assembly to one of the PVC pipes using tape or zip ties.

Test

Using a tire pump or air compressor, pump about 20lbs PSI into the launcher. Make sure the ball valve is open so air fills the entire launcher. Use soapy water and apply it to all of the fittings. Check for leaks by looking for bubbles. If you find and major leaks, add epoxy and let harden.

Use

Prepare your t-shirt by tightly rolling it up and using rubber bands to keep it together. Test the fit in the end of the barrel. It should be fairly tight but not so tight that you have to force it in the barrel. Insert the t-shirt.

With the ball valve open, pump about 30lbs PSI into the launcher. Close the ball valve. **Hold the launcher away from any living thing or object.** Press the switch. The t-shirt should fire from the barrel. Open the ball valve to let air into the pressure chamber and close it again. Test again. This time there will be less pressure but this will get you acquainted with how the launcher works. Continue to add more pressure and continue test firing. Do not add more than 70lbs PSI into the launcher. In some cases the launcher will be more effective by leaving the ball valve open and releasing all of the air in the launcher. If the t-shirt does not launch very far, check the fit of the shirt in the barrel.

Have fun, be safe!