

American River Water Blaster

Assembly Instructions

Compiled by Dave Kush 08.09.2007

Dave@buildyouridea.com

Tools needed:

- ½" Hand drill or drill press
- ½" drill bit
- 1.75" hole saw or spade bit
- Hack saw or PVC saw

Parts Designators used in Photos:

- A. 1-1/4" PVC Cap
- B. 2.5" section of 1-1/4" pipe
- C. O-Ring
- D. 1-1/4" PVC Coupling
- E. 31" section of 1-1/4" pipe
- F. 1-1/4" PVC Tee
- G. 2" PVC Cap w/ .5" hole drilled in end
- H. 31" section of 2" pipe
- I. 2" PVC Cap w/ 1.75" hole drilled in end

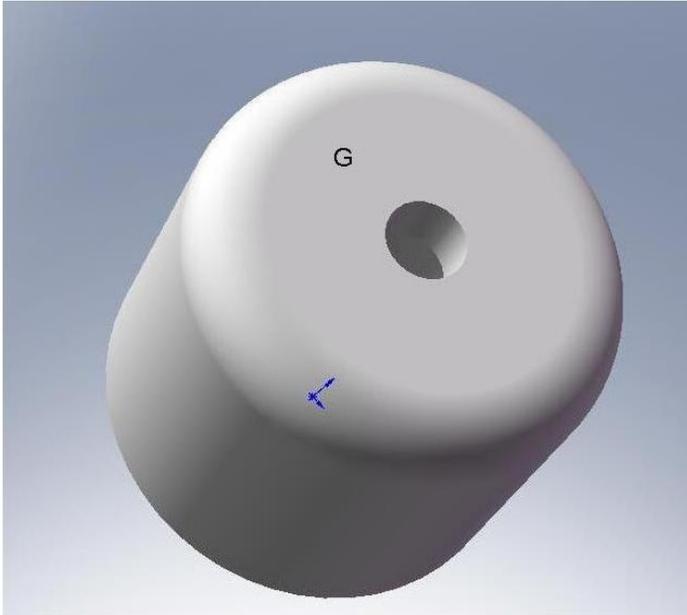
Water Blaster BOM:

The PVC pipe will be much cheaper in a 10' section than buying it cut to length. If you are cool with 30" blasters, you can get 4 guns from the 10' sections of pipe, but I built one at 32" and one at 31" and I'll probably make one other at around 36" to see which one I like the best.

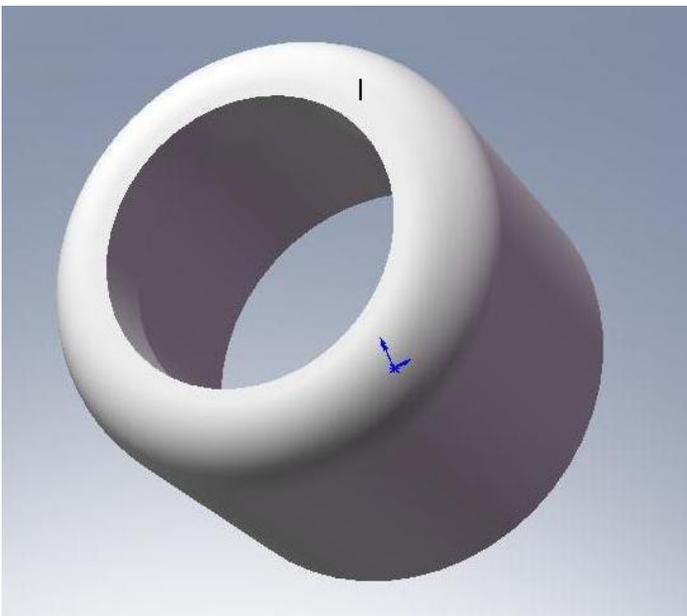
Description	Part #	Qty	Vendor	Each	Extended
10 foot length of 2" SCH 40 PVC pipe	H	1	Home Depot	\$6.77	\$6.77
10 foot length of 1-1/4" SCH40 PVC pipe	B and E	1	Home Depot	\$4.39	\$4.39
2" PVC Pipe cap	G and I	2	Home Depot	\$0.99	\$1.98
1-1/4" PVC Pipe cap (make sure this fits snugly into the 2" PVC pipe)	A	1	Home Depot	\$0.56	\$0.56
1-1/4" PVC Tee	F	1	Home Depot	\$0.98	\$0.98
1-1/4" PVC Coupling	D	1	Home Depot	\$0.59	\$0.59
2"X1-5/8"X3/16" O-ring	C	1	OSH	\$0.99	\$0.99
Small can of PVC cement (I use Christy's Red-Hot Blue Glue)	glue	1	Home Depot	\$3.00	\$3.00
				TOTAL	\$19.26

Build Plan:

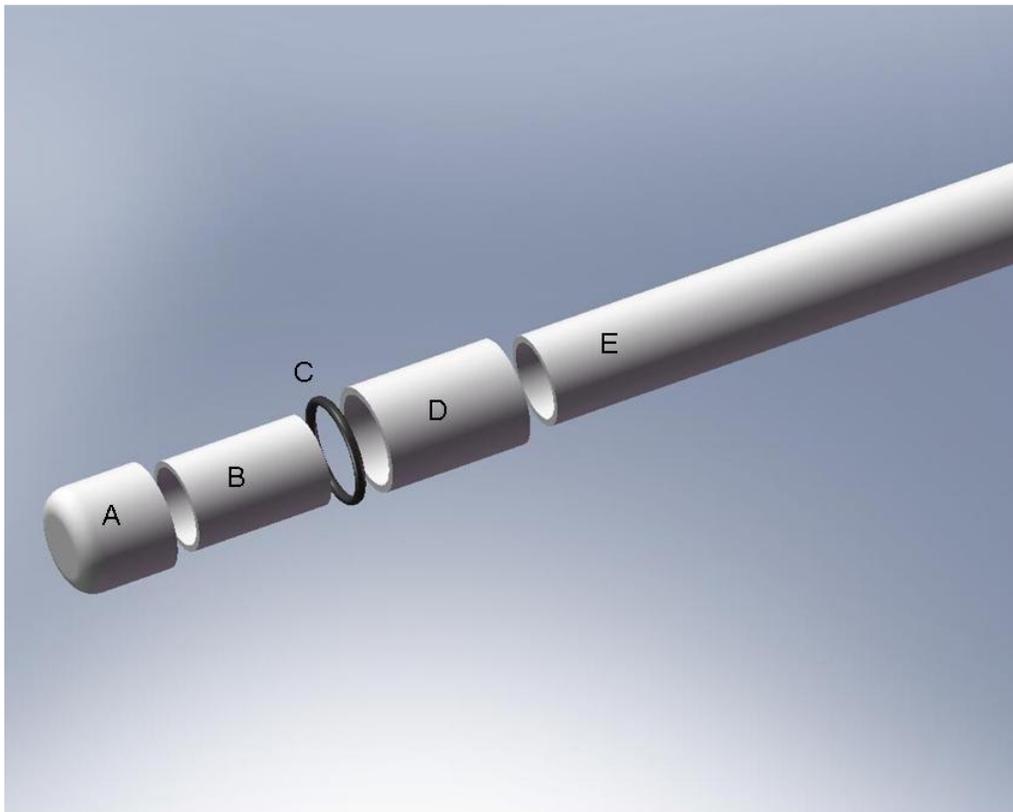
1. (Part G) Drill a .5" hole in the center of the 2" pipe cap. I use a .5" drill bit in my drill press for this step, but you should also be able to do it with a hand drill. Just make sure to get the hole nice and straight so that you get a good stream guide for the water.



2. (Part I) Drill a 1.75" hole in the center of the other 2" pipe cap. I use a 1.75" hole saw for this but you could also use a 1.75" wood working spade bit.

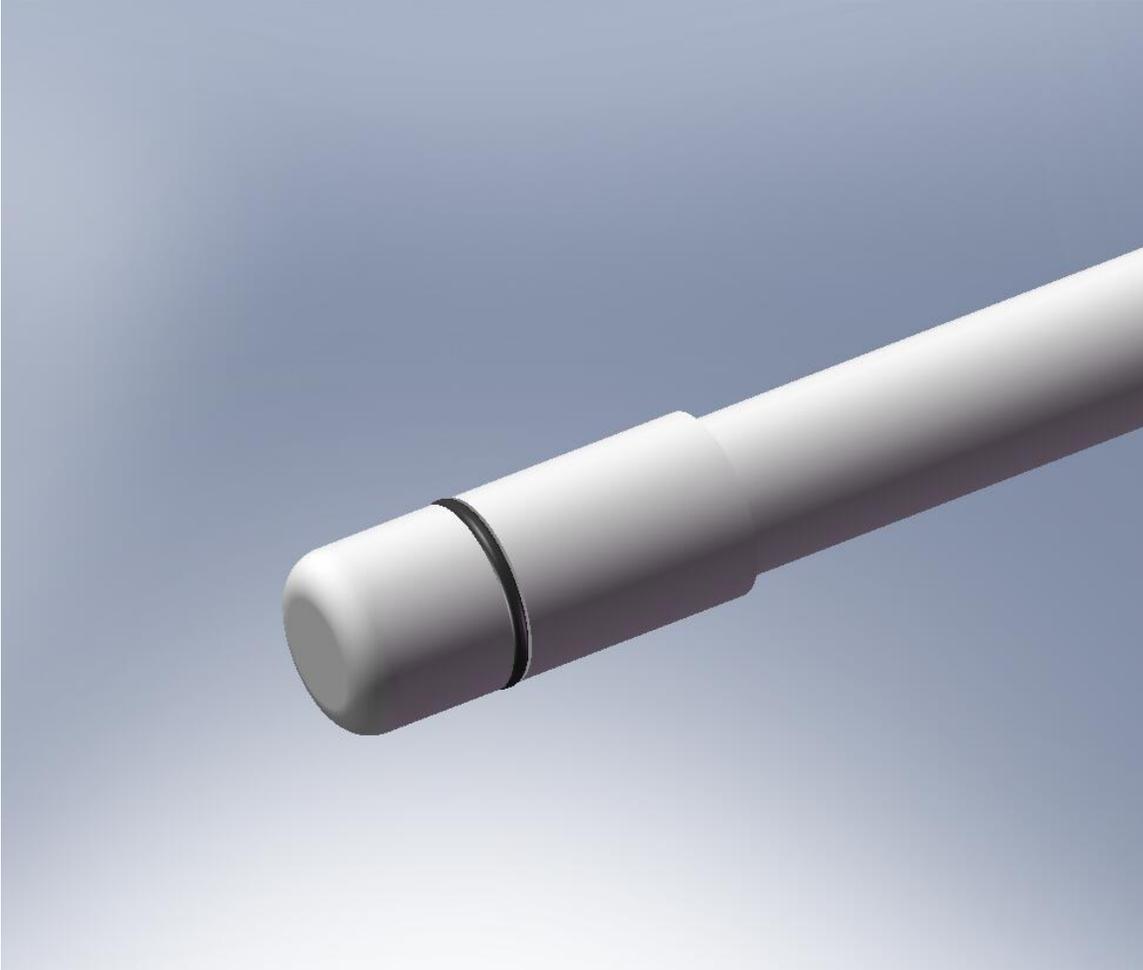


3. Assemble the piston and pump handle
 - a. (Part E) Cut a 31" piece of 1-1/4" PVC pipe
 - b. (Part B) Cut a 2.5" piece of 1-1/4" PVC pipe
 - c. Make sure that the 1-1/4" pipe cap (Part A) fits inside the 2" pipe (Part H). The 1-1/4" pipe cap that I found did not fit into the 2" pipe, so I had to machine off a bit of material so the cap would fit. You want the 1-1/4" cap to fit into the 2" pipe as snugly as possible but it still needs to move freely.
 - d. Once you are satisfied that the 1-1/4" pipe cap fits into the 2" pipe, glue the 1-1/4" cap onto the 2.5" section of 1-1/4" pipe. Use as little glue as possible so you don't have it running all over the place.



- e. Slide the o-ring onto the piston assembly and move it all the way up against the 1-1/4" pipe cap (Part A)

- f. Glue the 1-1/4" pipe coupling to the other end of the piston assembly and push the coupling all the way up against the O-ring. Don't push too hard so the O-ring is forced up, and don't leave too much gap so that the O-ring is loose in the groove. Use minimal glue so the O-ring doesn't get glued to the pipe.

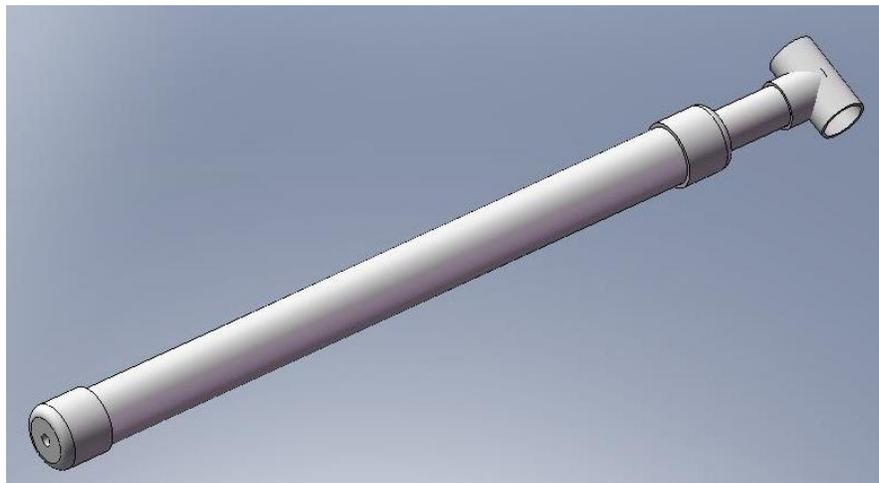


- g. Glue the 31" section of 1-1/4" pipe (Part E) into the other end of the coupling (Part D)
- h. Slide the 2" pipe cap (Part I) with the 1.75" hole onto the piston assembly with the open end of the cap facing the piston.
- i. Glue the 1-1/4" tee to the end of the 1-1/4" piston assembly

4. Assemble the outer housing
 - a. Glue the 2" pipe cap with the .5" hole in it to one end of the 31" section of 2" pipe.
 - b. Grease up the piston and O-ring with Vaseline and then slide the piston into the housing. Work the piston up and down until the entire inside of the 2" pipe is coated with grease. Remove the piston and add more grease as necessary



- c. Once everything is working well, tap the 2" pipe cap down onto the housing to hold everything together



- d. Test out the new blaster