

# Your typical first gun

## Getting Started

Before doing anything, it's in your best interest to read my [safety precautions](#) that you ought to take when working with this device. When you set out to building this gun you may think you're being sneaky. You may think you can go to the store and buy these components and nobody will know what it is. You may think you can go to various stores and get away with it. The truth is, unless you live in a large city that doesn't know about this stuff yet, you can expect to hear SOMEONE yell potato gun behind you in line at the checkout. Take my word for it.

I specify PVC piping although you may want to use ABS piping. It is argued which is better. I have a section discussing the [pros and cons of ABS vs PVC](#) farther ahead.

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(\*)Note: I selectively lifted the following 'Materials' and 'Assembly' sections from the 'Backyard Ballistics' 'hairspray powered spud gun'. For the remainder of this page, I will assume you're following the specifications laid out by this section, with the exception: I used a 4" dia. combustion chamber, as opposed to the 3" dia. one recommended here. A link to the 'Backyard Ballistics' page is provided at the end of the previous document under the links section.

## Chamber Volume Calculation

**This is a relatively simple calculation to figure out how on earth your going to make your chamber 1 1/2 x's the volume of the barrel. Don't ask me why this is the case. All I know is that is the best barrel chamber ratio for a combustion gun out there. The text in blue is an example.**

(1) Determine which Pipe sizes your going to use for your chamber and barrel. (e.g. 1 1/2 in. barrel : 3" chamber.)

(2) Determine the volume of your barrel (e.g. lets say that you want your barrel to be 36" long. So that's  $\cdot \Pi r^2 \cdot 63.570 \xi 41.3(2 \times 36 = 63.585 \text{ in.}^3)$  )

(3) Now multiply that by 1.5 (and you get  $95.3775 \text{ in.}^3$ )

(4) Find the area of the base of your chamber -  $\cdot \Pi r^2$  (3.14 x 1.5 x 1.5 and you get  $7.0875 \text{ in.}^2$ )

(5) Now you set the equation (  $63.3775 \text{ in.}^3 = 7.0875 \text{ in.}^2 \times X$  )

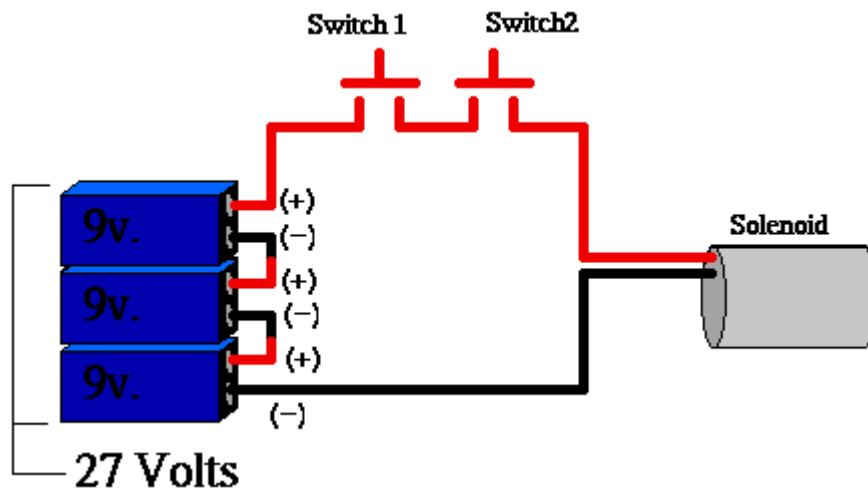
Then you simply solve for X by dividing both sides of the equation by the # next to X and if you did it right you end up with the length of your chamber (13.5 in.)

So that's a 36in barrel of 1 1/2 in. PVC and 13.5 in. chamber of 3" PVC. This is the optimum barrel-chamber ratio for your combustion gun.



## Air Cannon Electrical System

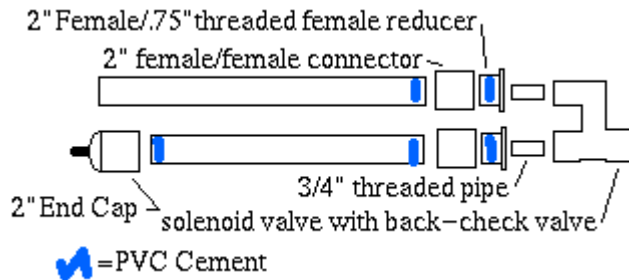
The electrical system in the air cannons I built centers around the solenoid for the sprinkler valve. Most sprinkler valve solenoids require 24 volts to open. I found the most convenient way to supply this was to link 3 9 volt batteries in series, to provide 27 volts, more than enough to open the valve.



Above is a schematic of the electrical system I used. I've colored the wires red and black out of convention. The solenoid actually has white wires as it does not matter which direction the current flows through it. You'll notice I used two push buttons (switch one and switch2). That was to allow one to act as a safety. The user must press both switches at the same time to get the air cannon to fire. As an additional safety measure, I always remove one of the batteries while loading, handling the air cannon off the game field.

# Air Cannon Fittings

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Not much to say here, the picture pretty much shows what I did. The barrel I used is 30" in length, with a 26" air chamber. Note it is important to let the PVC cement fully cure. A number of people have told me stories about how they eagerly tried their aircannons too soon, blowing out the air chambers. Pesco's first air cannon did not have the barrel glued into its connector, and consequently self destructed while firing for the 4th or 5th time!

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## Ignitor Info

The ignition is the single most important part of a combustion cannon and requires the most thought. There are several methods of ignition. (1) flint lantern igniter (2) BBQ igniter (3) piezoelectric lighter (4) high voltage stun gun. I'll have pictures up at a later date.

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(1) **Flint Igniter**-This is the most common form of spudgun ignition. It is installed directly into the cleanout plug of the spudgun. A small spark is created by sharply twisting a brass shaft which is connected to a small metal wheel. Also a tube containing flint is attached adjacent to the steel wheel. When the steel wheel turns, it brushes against the flint creating a small spark which is just enough to create the ignition.

### **Pros**

- +It works nearly every time.
- +Is easy to install
- +Require no risk of high voltage electrocution
- +Has no contacts to interfere with



### Cons

- Flint eventually runs out
  - The flint has to periodically be exchanged
  - It can get gummed fairly quickly if you don't clean it
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(2)**BBQ Igniter**- This is the second most common form of ignition used. It uses to contacts which have a high voltage running through them enough so to make a spark jump to form ignition.

### Pros

- +Works nearly every time
- +Is easy to mount
- +Is easy to activate

### Cons

- Requires a small chamber to work in
  - Is cumbersome when seen mounted
  - Is quite expensive
  - Uses metal contacts
- 

(3) **Piezoelectric Lighter**-This is a very good method which works 90% of the time. This switch is very small and compact (about the size of a penny). It also uses the spark jumping method.

### Pros

- +Very compact
- +Has a larger spark
- +Can use variable contact wired in series

### Cons

- Practically none.



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The last method is a very dangerous method that is used by the maintainers of the SpudRock page. This method should only be used by very experienced experts! You should be able to come by it through most major search engines ( Google, Hotbot, Altavista ect...)

# Air Cannon Pipe

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The pipe I used for both the air chamber and the barrel on my air cannon was thick wall (schedule 40) 2" PVC pipe. I don't remember if the thinwall pipe had the necessary pressure rating, but it didn't look rugged enough to handle the rigors of a paintball field. Pesco also made an air cannon with a 1.5" diameter barrel. I have found the 2" to be small enough to carry easily, yet large enough to handle a good size group of paint pellets.

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## PVC PIPE SPECS

Nominal Pipe Size (in)	O.D.	Average I.D.	Min. Wall	Nominal Wt./Ft.	Max. W.P. PSI**
1/8	.405	.261	.068	.045	810
1/4	.540	.354	.088	.081	780
3/8	.675	.483	.091	.109	620
1/2	.840	.608	.109	.161	600
3/4	1.050	.810	.113	.214	480
1	1.315	1.033	.133	.315	450
1-1/4	1.660	1.364	.140	.426	370
1 -1/2	1.900	1.592	.145	.509	330
2	2.375	2.049	.154	.682	280
2-1/2	2.875	2.445	.203	1.076	300
3	3.500	3.042	.216	1.409	260
3-1/2	4.000	3.520	.226	1.697	240
4	4.500	3.998	.237	2.006	220
5	5.563	5.017	.258	2.726	190
6	6.625	6.031	.280	3.535	180
8	8.625	7.943	.322	5.305	160
10	10.750	9.976	.365	7.532	140
12	12.750	11.890	.406	9.949	130
14	14.000	13.072	.437	11.810	130
16	16.000	14.940	.500	15.416	130
18	18.000	16.809	.562	20.112	130
20	20.000	18.743	.593	23.624	120
24	24.000	22.544	.687	32.873	120

Nominal Pipe Size (in)	O.D.	Average I.D.	Min. Wall	Nominal Wt./Ft.	Max. W.P. PSI**
1/8	.405	.203	.095	.058	1230
1/4	.540	.288	.119	.100	1130
3/8	.675	.407	.126	.138	920
1/2	.840	.528	.147	.202	850
3/4	1.050	.724	.154	.273	690
1	1.315	.935	.179	.402	630
1-1/4	1.660	1.256	.191	.554	520
1 -1/2	1.900	1.476	.200	.673	470
2	2.375	1.913	.218	.932	400
2-1/2	2.875	2.289	.276	1.419	420
3	3.500	2.864	.300	1.903	370
3-1/2	4.000	3.326	.318	2.322	350
4	4.500	3.786	.337	2.782	320
5	5.563	4.767	.375	3.867	290
6	6.625	5.709	.432	5.313	280
8	8.625	7.565	.500	8.058	250
10	10.750	9.492	.593	11.956	230
12	12.750	11.294	.687	16.437	230
14	14.000	12.410	.750	19.790	220
16	16.000	14.214	.843	25.430	220
18	18.000	16.014	.937	31.830	220
20	20.000	17.814	1.031	40.091	220
24	24.000	21.418	1.218	56.882	210

## Propellants

<b>Hairspray</b>	Depending on what type you use, most hairsprays are pretty standard and gum up your cannon pretty easily. I recommend that you use the White Rain brand
<b>Propane</b>	Propane works great and doesn't gum up your cannon.
<b>Butane</b>	Pretty much the same as propane
<b>Carburetor/Lighter Fluid</b>	Packs some the most powerful punches yet is harder to dispense
<b>Denatured Alcohol</b>	Hard to get to light. Very Powerful
<b>Acetylene</b>	Very Dangerous yet the strongest stuff out there. I don't

	suggest that you use it unless you are willing to take your life into your own hands for acetylene has the power to shrapnelize your chamber completely if the projectile is stuffed in too tight
Bug Sprays	Most bug sprays work well but be careful which ones release toxic vapors.
Static Guards	Same as Bug Sprays
Aerosol Right Guard	Works great and smells great

## Air Cannon Fill Valve

The fill valve I used was an automobile tire valve stem. It had its own nut and washers, so it was simply a matter of drilling an appropriate sized hole in the reservoir end cap and installing the fill valve before gluing on the end cap on to the reservoir pipe.

I'd like to talk for a minute about power sources and such. This seems kind of obvious to me, but there are a lot of people out there who just don't get it.

The schedule 40 PVC pipe is rated to 280 psi. Most sprinkler valves are rated to around 110 or 120 psi.

I commonly get asked by people how to hook up a CO2 tank to this. CO2 tanks have pressures as high as 1200psi. Do the math people! 1200psi in a system rated for 110 psi means PVC shrapnel tearing the skin from your bones in a rather ugly explosion!

The simplest and safest method for charging an air cannon is to use a bicycle pump that has a pressure gauge. It takes a minute or so to charge it up. The air cannon's air chamber is good for one shot. For paintball use, I treat the air cannon like a one shot device. I carry it around to somewhere near a flag station, wait, use it, then leave it 'till after the game. It's most practical that way.

Another charging method is to use an air compressor with a pressure gauge. A friend of mine had one that ran off the cigarette lighter connection in his car. It re-charged the air cannon quickly and easily between games in the parking lot.

The **only** way CO2 can be used is with a regulated gas supply. This means using a regulator on the CO2 supply to bring the output pressure down to 100psi, **and** using a safety valve to blow out in case the regulator fails and overpressures the air chamber. **NEVER, and I mean NEVER** hook CO2 directly into the system. I have gotten e-mail from people asking if they could just install a valve, and open it "real quick" so that just

enough gas got through to reach 100 psi. The problem with that is that the tiniest pinhole leak, or failure to totally shut the valve, means that the pressure in the air chamber will slowly continue to rise until it is enough to burst, and cause serious injury or death. I have heard an unconfirmed report from a reliable source about someone losing an arm from a system like this.

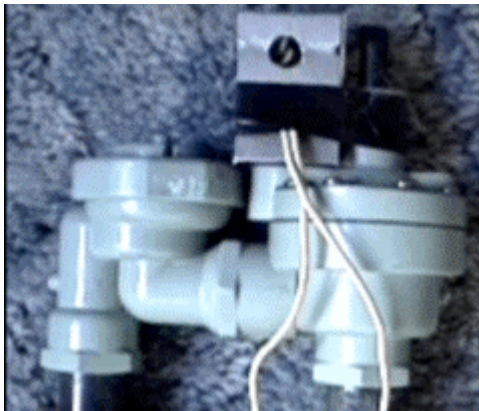
High pressure compressed air (SCUBA tanks etc.): The same thing as CO2. Regulation and safety valves are essential. Don't even think about messing with this stuff if unless you are very experienced working with and designing systems for high pressure compressed and cryogenic gasses.

Over all, if you are just building an air cannon as a fun toy, or for paintball, stick with the bike pump. It's cheap, safe, easy, and convenient (I've run regulated CO2, and it's added weight and impracticality).

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## Air Cannon Valve

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The heart of the air cannon I built was the valve. I used a solenoid operated sprinkler valve. Since it is a diaphragm valve it opens almost instantly when triggered. This is important as if it opened slowly (like a hand valve) it would let the air out slowly and not provide enough propellant force to the paintballs out of the barrel at a decent velocity. The valve I chose was rated up to 125 psi, but I always used just 100 psi, it did the trick, and I saw no need to go any higher. Another option I chose was a back check valve. This isn't really necessary, but since it hangs open normally, it makes muzzle loading easier. The real reason I chose the model with a back check valve was it meant I didn't have to mess with other adaptors and elbows, the valve outlet was pointing 180 degrees from the inlet, and spaced just right for an air cannon! You may notice the silver metal box in the above picture. I put that over the solenoid to protect it from getting banged around, which would strip out its threads.



### Materials

- 1 10 foot piece of 2 inch diameter schedule 40 ABS pipe
- 1 10 foot piece of 3 inch diameter schedule 40 ABS pipe
- 1 3 inch to 2 inch reducing bushing
- 1 3 inch coupling
- 1 3 inch threaded (one side) coupling
- 1 3 inch threaded end-cap
- 1 can ABS solvent-weld pipe glue. NEVER USE PVC GLUE on ABS!!!
- 1 Coleman sparker - these are easily found in any sporting goods store that has a decent camping section. They are normally made for putting inside a Coleman lantern or stove so you don't need matches.

### Assembly

Step 1 - Cut the combustion chamber to size. Cut off a 14 inch section of the 3 inch diameter pipe. You don't need the rest of the 10 foot length, so save it for future bazookas, or make one with a couple of buddies splitting the cost.

Step 2 - glue the 3inch to 2 inch bushing into one side of the 3 inch coupling, glue the other side of the coupling to one end of the 14 inch combustion chamber. Make sure the joints are clean first and be liberal with the glue.

Step 3 - glue the threaded coupling to the other end of the combustion chamber (using the slip-joint side, obviously) make sure the glue doesn't run into the threads.

Step 4 - Cut the "barrel" to size. Cut off a 36 inch (3 foot) length of the 2 inch pipe. Glue this into the other end of the bushing you've glued to the combustion chamber. You should now have the complete gun, but it's not ready for firing just yet.

Step 5 - Using a file, taper the "muzzle" for the last half an inch on the outside. This will serve to cut the potato as it's rammed in.

Step 6 - You'll need to mount the sparker inside the end cap. If you got the Coleman one, it is threaded and has two nuts with it. There is also an angled piece of metal meant to hold the ignitor inside a lantern. Take the knurled knob off the end of the shaft. Be

careful - there's an extra flint inside the knob. Unscrew the nut and discard the angled bit of metal. Drill a hole dead center in the ABS end cap of a diameter to take the shaft of the ignitor. Mount the ignitor inside the end cap, put the nut on the outside of the shaft and tighten until the ignitor is held in place. The shaft will slide back and forth, but won't come out. Put the end knob back on and tighten the lock screw.

Step 7 - Make sure the glue has "cured". I left mine overnight before firing.

Step 8 - make a ram rod. I used surplus 1/2 inch PVC pipe, 4 feet in length. A broom handle, etc. will do. Measure and make a mark about 2 feet 8 inches down the ram rod.

## Your First Shot

So, your gun is all assembled and you're ready to fire it for the first time. **Good!** You'll need to decide what propellant you will be using. If you're unfamiliar with the common ones, I have a section on [propellants](#) you may wish to read.

Your first shot isn't always a successful one. A handful of things can prevent the gun from firing. If it doesn't fire, read ahead to my [troubleshooting segment](#).

Firing the gun is simple enough. Because you beveled the tip of the barrel, your potato is going to be cut to the perfect size as you press it down. When you're pressing the potato into the barrel, take your time. Keep it lined up so it's not at an awkward angle (which would give you a poor seal). Use the ramrod to slide your spud as far down as you can.

*Note: Some people drive a nail through the bottom of the barrel. This lets them push the potato as far as they can without it dropping out the other end of the barrel.*

*Note: The tip of your barrel will get dulled regularly from cutting so many spuds. Don't forget to sand it down to a nice point frequently.*

Spud in place, the next step is to fill the combustion chamber with your propellant of choice. Every propellant has a different fuel/air ratio, and it varies even more depending on the size of your gun. My suggestion: start low. Use only a little of whatever you've got, because you won't need much. If it doesn't fire, then put a **little** more in next time and slowly work your way up. As soon as it will fire, keep slowly increasing the amount of propellant and notice how the power of the shot increases. At a certain point, you will notice the power of the shots begin to **decrease** as you add more propellant. The point where you stop gaining power from shots is the optimum fuel/air mixture. Stick with that for the best shots!

*Note: When you fire the gun, byproduct gasses (and liquids) may be formed by combusting your propellant, in the same way a car emits exhaust. In between shots, you should blow through your gun to flush those useless gasses out.*

*Note: I prefer to fill my combustion chamber with propellant **first** and then ram the potato. This compresses the gas in the chamber, increasing its volatility and the power of the shot.*

## Troubleshooting

**Having a little trouble?** Don't worry, it happens to everyone. Fortunately, there are only a few reasons why your gun should ever not fire reliably. And here they are:

### **Too little propellant**

Ok, so it sounds too simple, but it can be the case. Not enough propellant in your chamber and it just won't fire.

### **Too *much* propellant**

This is the more likely of the two cases. You don't need so much propellant that you could level a small city. If you keep trying to fire and it's not shooting, try less propellant. This happens to me constantly.

### **Poor seal**

Poor seal? Yes, the potato (or other projectile) needs to fit very **snugly** in your barrel. Hold the gun up and look through it. If you can see light at the other end of your barrel, it won't work. For a shot to be successful, pressure will have to build up rapidly in your chamber. It will never build up at all if the gas can just slide by the potato.

## **Extreme temperature**

This isn't so much a case of too much heat, rather too much cold. Gas will lose its heat extremely fast. This makes cold-weather shots difficult if not impossible. My propane will not reliably combust under 50°F. To fire in colder weather, keep your propellant as warm as possible, but *not hot!*. You won't be happy if your propellant starts to combust in its container. Just keep it warm, and it should still be able to fire in the cold.

## **Dirty/wet ignitor**

Electric ignitors will tend to gunk a little at their contacts. You need to keep the two contacts as clean as possible on your electric for it to spark. A flint sparker won't work when it's wet, but is impervious to gunk. If you get your sparker wet, use a lighter to dry it off.

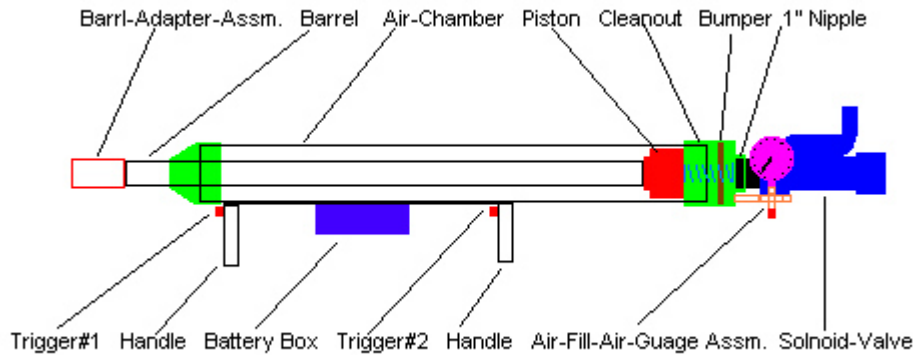
## **Too much exhaust**

When you combust your propellant, other uncombustable gasses (and liquids) will be formed as byproducts. Every few shots, you should blow air through the gun to flush these gasses out. Just like in your car, if the exhaust isn't pushed out of the engine it will kill the performance.

## **It just won't work**

There are days, few and far between, when the universe aligns itself against you and the gun simply isn't going to fire. This seems to happen whenever you're showing the gun to friends who've never seen it and expect to see spuds flying thousands of yards. My recommendation for this one: give up and try later.

# *How To Build A Better Pneumatic Spud Gun*



## **Why Do I Like Pneumatic Guns?**

They don't have the tendency to explode.

(I have not ever heard of one doing so. Most people take safety measures just incase to prevent it.)

They are quiet.

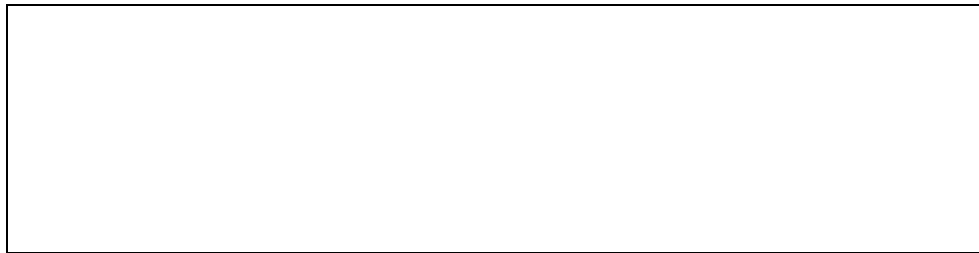
I like LOUD spud guns but my neighbors don't!

They are deceptively powerful for there size.

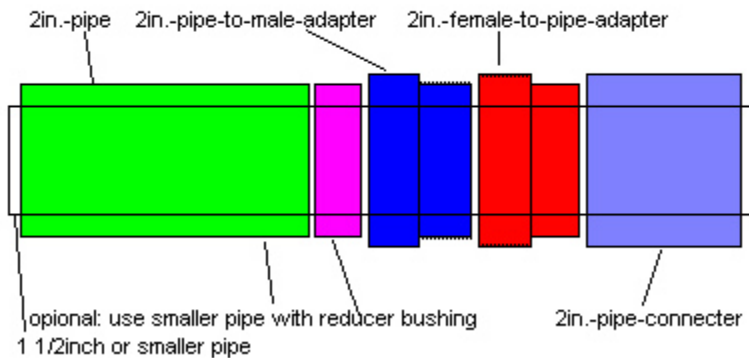
They are reasonably easy to build.

They use No Flammable fuels.

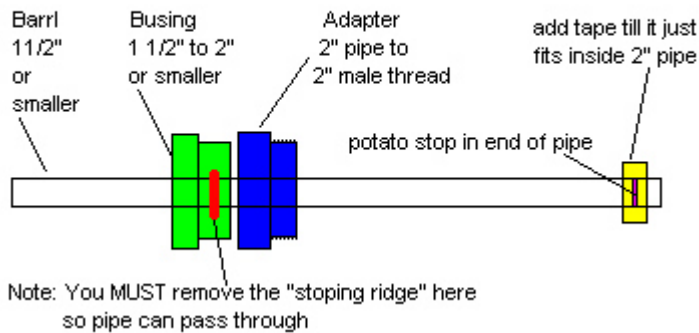
**Most Importantly I Just Plain Think They Are Cool!**



## Barrel-Adapter-Assm



## Smaller-Barrel-Assm



This is the Barrel Adapter assembly.

I made my gun with a 2" barrel with the intention of having the option to add other barrel sizes. I have a 2" coupler on the end of the barrel with a female adapter that I can attach other barrels to. The smaller barrels go down inside the 2" barrel to about 2" for the stopper. I also put a stop in the smaller barrels by drilling a small hole into the pipe and across and out the other side. I threaded it for 1/4-20 all thread. Then I installed the all thread through and out the other side. I added glue to the threads and screwed the rod in till the glue was in the threads on the pipe. I let the glue dry and then cut the rod off flush with the outside of the pipe on both sides. At this point I wrapped electrical tape around the pipe covering the all thread. I kept wrapping the tape till it would just fit inside the 2" the barrel to help keep the smaller barrel centered in the larger pipe and to help direct the compressed air into the smaller barrel instead of some of it going into the space between the two barrels.

When making a smaller barrel the "downsizing" bushing must have the stop ring removed from the inside of the bushing so the pipe will pass all the way through the bushing.

Larger barrels obviously will not go into the 2" barrel so they just attach with a male adapter and a bell adapter onto the end of the gun's 2" barrel

## Basic Combustion Cannon

This is my second most powerful combustion gun. If you are just beginning this hobby , then this is the page for you. This is the most basic spudgun there is. It'll launch just about that you can cram down the barrel.

If you are planning on constructing this gun, then go ahead and print out this entire page so as to save you the effort of dialing up the internet server every five minutes.

You will need:

### Materials

- 1 36" length of 1 1/2" Schedule 40 PVC Pipe
- 1 13.5" length of 3" Schedule 40 PVC Pipe
- 1 3" Female Adapter (also called a cleanout trap)
- 1 3" Threaded Cap (also called a cleanout cap)
- 1 1 1/2" - 3" Bell Reducer
- 1 Igniter (see my ignition methods page for details)
- 1 Can of PVC Purple Primer
- 1 Can of PVC Cement

### Directions

1. Take the 3-inch to 1 1/2 inch bell reducing brushing and glue\* over one side of the 13-inch pipe.
2. Glue the 3-inch threaded coupling (only smooth side) to the other side of the 13-inch pipe. Be careful to keep glue out of the treads or else it will create some problems for you later.
3. Glue the 36inch piece to the other side of the reducing brushing. You should now have a completed gun, except for the igniter.
4. Wait overnight until the glue has dried! Remember safety!
5. Make a ramrod from old PVC pipe or an old broomstick.
6. Take a potato and shove into the barrel.
7. Use the homemade ramrod to push the potato down the barrel.
8. Spray some propellant into the chamber in second bursts (see [propellants](#) page)
9. Quickly screw on the end cap.

10. Brace yourself for the recoil of the gun.

14. Then sharply twist the igniter, or pull the ignition switch and... BOOM

15. If by chance it doesn't make a deafening BOOM then you're doing something terribly wrong and you should contact me. WHATEVER YOU DO, NEVER LOOK DOWN THE BARREL!!!!!!!!!!!!!! I have read of so many accidents including screw drivers and broom sticks through faces as a result of carelessness

## **THIS IS YOUR BASIC BIG SPUD GUN**

AVOID PVC IF YOU CAN. IT IS MUCH WEAKER THAN ABS, I HAVE HAD PVC BLOW UP BUT NEVER ABS. PVC GETS WEAK WHEN IT IS TOO COLD OR TOO HOT ABS DOES NOT. YOU CAN TAKE A HAMMER AND BUST PVC ALL TO CRAP BUT IT JUST BOUNCES OFF ABS. PVC CAN NOT COPE WITH CEMICALS ABS IS SEWAGE PIPE IT CAN HANDEL ANYTHING!

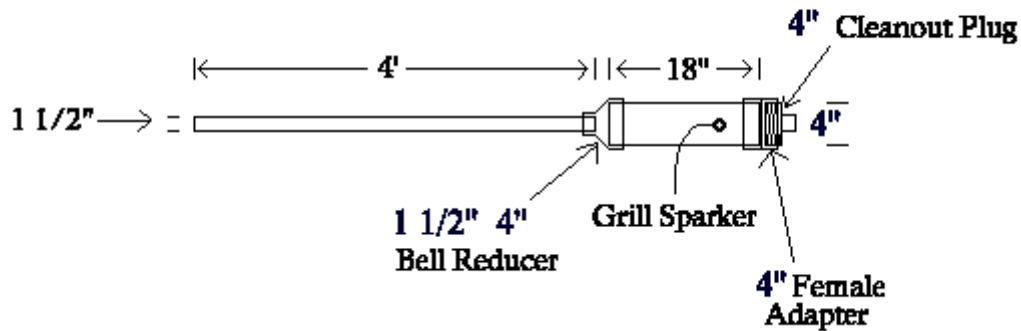
- This is what you will need:
- 4' of sch. 40 ABS
- 18" of sch. 40 ABS
- 4" to 1 1/2" Bell Reducer
- 4" Female adapter
- 4" Cleanout Plug
- BBQ Lighter
- ABS Glue, Grade Yellow or Black.!!!DO NOT USE PVC GLUE ON ABS!!!
- Drill with 1/2 Drill bit.
- Hammer

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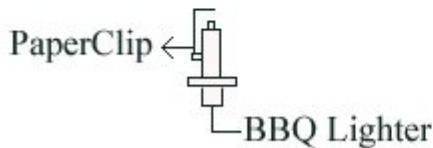
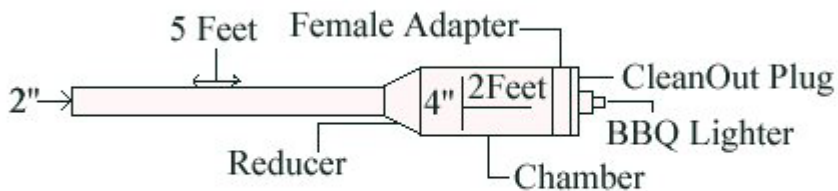
**I WILL NOT BE HELD RESPONSIBLE IF YOU BLOW YOUR FACE OFF WITH ONE OF THESE THINGS. SPUD GUNS CAN KILL YOU. THEY ARE NOT TOYS, THEY SHOULD NEVER BE POINTED AT ANYONE FOR ANY REASON.**



All parts are SCH 40 ABS



ABS (Awsome Black Stuff)



Dist: Up to 280 Yards  
FPS: 290 (Feet Per Second)  
YPS: 90 (Yards Per Second)  
Propellent: Choke Cleaner; Hair Spray.

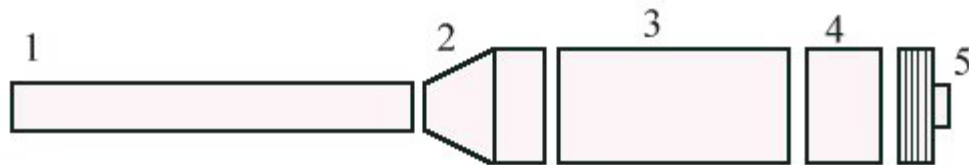
- 1st. Use a sharp hacksaw to gut pipe to size. Make sure pipe is clean, sand contact areas of pipe.
- 2nd. Glue barrel to reducer. Give it a twist as you put it in place. Then use a hammer to tap it in place.
- 3rd. Glue Female adapter to the 18"(don't get glue in threads)chamber use hammer to tap in place.
- 4th. Now glue the reducer to the 18" chamber. Make sure it is in good use a lot of glue don't get cheap on me. Take a hammer and tap the barrel top to make sure it is in good.
- 5th. Take a paper-clip cut about 1 cm off, then tape or soder it to the peice of metal on the side of the lighter. Take and bend to were it comes about a 2cm from the top. Press the button and it should spark.
- 6th. Now take the cleanout plug and use the 1/2 drill bit and drill all hole in

the square part of the plug.

- 7th Now before you put it in take the ABS glue and put on the BBQ Lighter threads. Now stick it in the hole and use the nut to secure it in place let dry for about 2min and take some pliers and give the lighter a tight COUNTER CLOCKWISE turn not the nut.
- 8th Take a file and round the ends of the barrel so that it cuts the spud to size.
- take the end cap off now take a stick or a broom stick and shove the spud down the barrel
- Spray about 8 seconds of choke cleaner or hair spray in the chamber.
- Push the button... BANG what the spud fly, and feel the kick!
- This spud gun has a range of 200 yards!!!! Using choke cleaner.

This is another one of my Example Pictures:

### Smaller ABS Spud Gun



1. Barrel:	24 inch by 2 inch
2. Bell Reducer:	4inch to 2inch
3. Chamber:	12inch by 4inch
4. Female Adapter:	4inch
5. Cleanout Plug:	4inch
Dist.	120 Yard

### Reliable Potato Cannon

#### SHOPPING LIST:

- (1) 10' 3 inch SCH 40 PVC
  - (1) 10' 2 inch SCH 40 PVC
  - (1) 3 inch to 2 inch reducer fitting (SCH 40 PVC)
  - (1) 3 inch cleanout adapter w/ plug (SCH 40 PVC)
  - (1) piezoelectric barbeque ignitor (red button kind)
  - (2) Drywall screws
  - (1) PVC primer (purple is best\*)
  - (1) PVC glue (blue is best\*\*)
- \*using purple primer allows you to visually check if you've cleaned the pipe properly or not
- \*\*using blue glue makes it easier to see if you've used enough glue or not

#### DIRECTIONS

1. Cut about 1 foot of the 3 inch pipe. this piece will become the combustion chamber
2. Cut about 3 1/2 feet of the 2 inch pipe. this piece will become the barrel
3. Bevel one end of the barrel, making it sharp, this will cut the potatoes to size when you load them.(see figure A)
4. Glue the 3 inch to 2 inch reducer to one end of the 3 inch pipe
5. Glue the cleanout adapter to the other end of the 3 inch pipe
6. Glue one end of the 2 inch pipe into the 3 inch to 2 inch reducer
7. Wait over night for the glue to dry
8. After letting the glue dry, screw the 2 drywall screws into the cleanout adapter end of the chamber, make sure they line up. (see figure B)
9. Hook up the barbeque ignitor to the drywall screws
10. Push the red button (it is EXTREMELY important to make sure all the glue fumes are gone before you do this)
11. If you see a blue spark jump across the screws, you've hooked it up correctly.(see figure C)



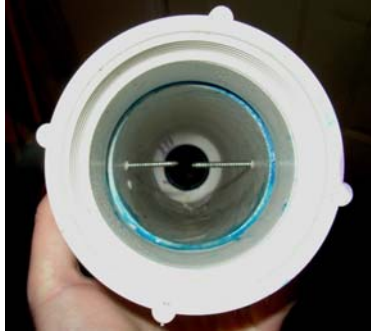


FIGURE B

## Inter-Changeable Barrels

### Parts

4' long of 1.5" PVC pipe for the barrel

1' long of 3" PVC pipe for the combustion chamber

A 1.5" treaded male coupler and a 1.5" treaded female coupler

A pipe reducer from 3" to 1.5"

An 3" end cap holder

An 3" end cap

PVC glue

Push button barbeque sparker

### Assembly

Get all your parts ready for assembly.

Cut all your pipes to the correct length using a saw or a pipe cutter.

Take the end cap holder and glue it onto the end combustion chamber pipe (Fatter, sorter one) Make sure you don't get glue into the threads.

Take the 3" to 1.5" reducer and glue the 3" end to the other side of the combustion chamber.

Next glue the female treaded coupler on to the barrel, and the male onto the reducer (you may need to use a small piece of pipe going from the reducer to the coupler.)

Drill a hole in the center of the end cap. Make sure the bit is the size of the sparker.

Take the sparker and glue it into the hole you made in step 6.

Let it dry over night, then your ready to fire.

### Firing

Select the barrel you want, Screw it in to the coupler on the combustion chamber and fire the gun the same way you would shoot a normal Spud Gun.

## Cannon Silencer

### Parts

6" piece of 4" diameter ABS or PVC piping  
10" piece of 1.5" diameter ABS or PVC piping  
4"->1.5" reducing bushing  
1.5"->1.5" coupling sleeve, threaded on the inside at one end several pieces of foam pad or sponge (silencing material)  
(NOTE) You may have to alter the diameter of the pieces to match the specifications of your gun. You shouldn't need to buy any new piping, use the leftovers from your barrel and combustion chamber.

(NOTE) Don't forget if you have a lesser diameter on any of these pieces that you ought to increase the length to compensate.

Assembly

First and most importantly, the inside of your coupling sleeve and the outside of your gun barrel need to be threaded. This is because you do not want to permanently affix the silencer to your gun for various reasons.

After having the threading done, use your piping glue to glue the piece of 10" long, 2" diameter piping into the non-threaded end of the coupling sleeve.

Once that has set, slide the 4"->2" reducing bushing down until it is flush against the coupling and the 4" end is open opposite the coupling sleeve. Apply glue, and allow setting.

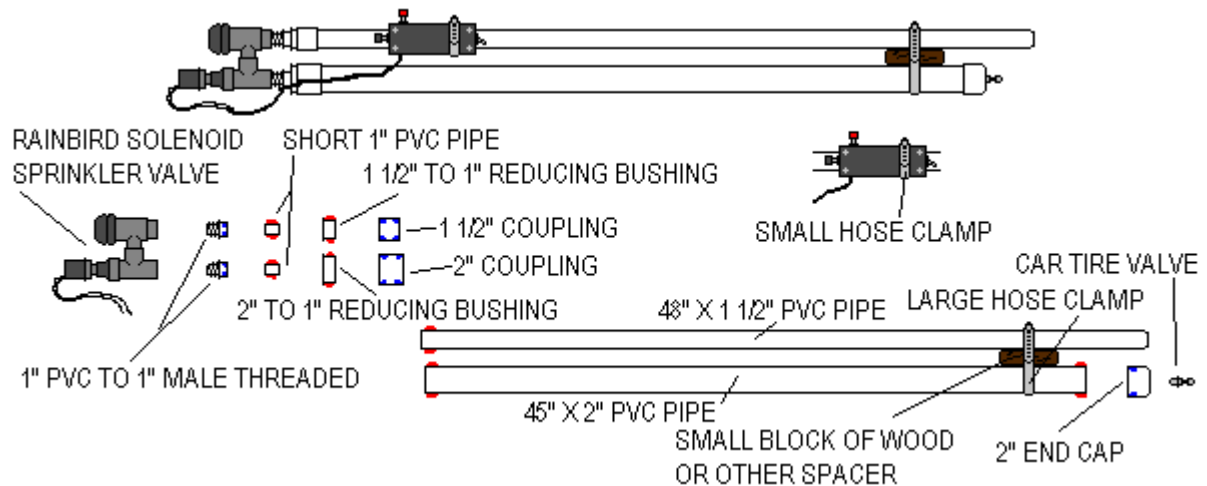
Using a drill, drill many (how many is up to you, but not TOO many) tiny holes into the 10" piece of piping. Use the smallest drill bit you can find (I don't have any suggestions), or else you'll end up turning your potato into French fries when you fire it. These holes allow the air to expand before exiting the barrel.

Next, glue the 4" diameter piece of pipe into the open end of the bushing. You should have a pipe within a pipe now otherwise you got confused somewhere. Allow the glue to set, as usual.

Jam the foam or sponge into the area between the two pipes, the tighter, the better. This silences and slowly allows the air to expand as it hits it. This is what will absorb the bang.

All told, you should have a functional silencer. I do not know the exact length of the coupling and bushing, so you may need to shorten (or length!) the 2" diameter pipe to make them even.

## **ESVC-01 Pneumatic Potato Gun**



## MATERIALS.

48" SCH 40 1 1/2" PVC Pipe  
 45" SCH 40 2" PVC Pipe  
 1' SCH 40 1" PVC Pipe  
 1 1/2" to 1" Reducing Bushing  
 2" to 1" Reducing Bushing  
 1 1/2" Coupling  
 2" Coupling  
 2" Endcap  
 1" PVC to Male Thread X2  
 Milton Chrome Tire Valve  
 RainBird Solenoid Sprinkler Valve  
 Large Hose Clamp and Block of Wood  
 Electronics Box (See Below)

## ALL PIPE IS SCH 40!

## DO NOT USE DWV PIPE!

## ASSEMBLY

First cut all pieces to length and clean the ends to be glued. Drill a hole in the end cap for the tire valve and screw it in place. Also, taper the firing barrel to shave the spuds. Glue all red areas, and the blue areas inside the couplings. Obviously, do not glue the threads. Glue the pipes to the couplings and let them sit overnight. When ready, screw the pipes to the valve. Teflon tape can be used to insure an airtight seal, however be careful not to tighten too much, or the pipes will be very hard to get off (*I had my pipes break due to a fall, and the remaining threaded pieces were extremely hard to grasp. Usually once around the male threads with the tape is good*).

The compression chamber is 2" x 45".  
 The control box features a triple safety:  
 a labeled on-off toggle switch, and two  
 buttons which must be pressed  
 simultaneously to get the cannon to fire.  
 The barrel I use most is a 1 1/2" x 48"  
 barrel. I tapered the end to help cut the  
 spud into shape. I also have a two inch  
 barrel.

The tire valve to fill the chamber is a  
 MiltonValve. To the right is a photo of  
 the package and valve. I picked this up  
 at an auto store for 5 bucks. The valve  
 is chrome and one that you bolt in  
 place. The washers and nuts are  
 included, you just drill a tap hole on the  
 endcap of the chamber for the valve.

To make the control box, use Radio  
 Shack parts. Assemble it as shown in  
 the cannon plans, or modify switch  
 location to suit your preferences. This is  
 just a guide, and two switches are not  
 necessary, one is sufficient. All joints  
 should be soldered for maximum  
 efficiency. The valve operates at 24  
 volts DC so the three 9 volts are ample  
 power, being the valve is opened for  
 only a few seconds at a time.

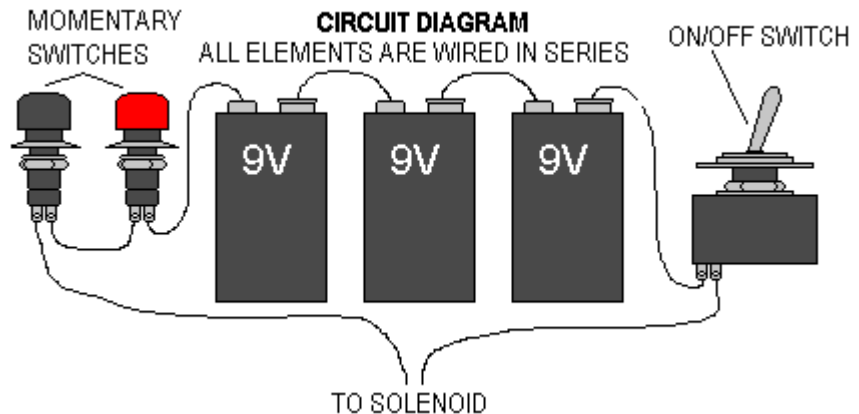


Chrome Tire Valve.

## CIRCUIT MATERIALS

These are  
 the parts  
 for this  
 circuit. The  
 links go to  
 the part  
 information  
 on the  
 Radio  
 Shack  
 Website.

- [Momentary switch, RS# 275-609](#)
- [SPST Switch, RS# 275-602](#)
- [Project box, RS# 270-1804](#)
- [9 volt battery clips RS#](#)



[270-325](#)

Set the control box against the firing barrel and use a small hose clamp to secure it. Then insert a block of wood or something similar near the business end of the launcher and use a large hose clamp to secure them.



The Firing Control Module.

Altogether, this cannon cost approximately \$47. \$12 for valve, \$15 for pipe (sold in 10' sections) and fittings, and about \$12 for batteries and electronic parts. It has been a while since I built this, so I cannot give you a more accurate price guide yet.

## Sniper Air Cannon

### MATERIALS.

Pipe can be bought in 5' sections.



3/4" Pipe  
1" Pipe  
2" Pipe  
3/4" 90 deg. Elbow x3  
3/4 " 45 deg. Elbow x6  
3/4" Tee x2  
3/4" to 1" Male thread  
1" to 3/4" Bushing  
1" to Female thread  
1" to Male thread  
2" x 1" Bushing  
2" Coupling  
2" Endcap  
Tire Valve  
1" RainBird In-line solenoid sprinkler valve

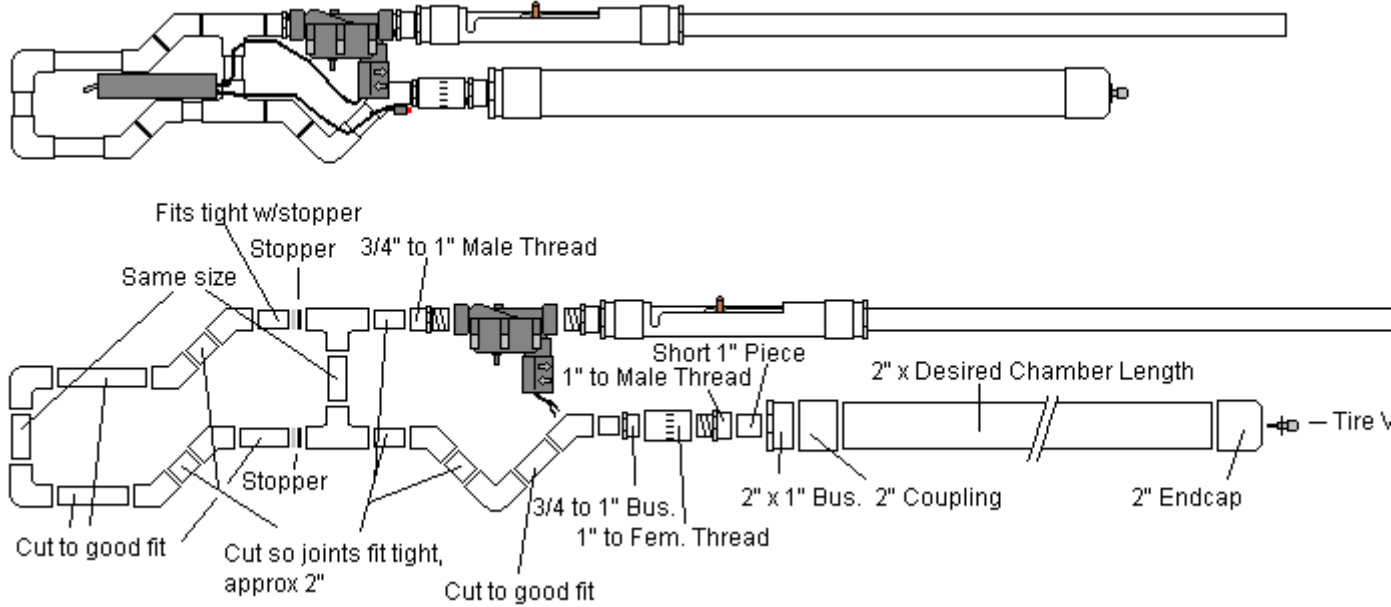
**ALL PIPE IS SCH 40!**

**DO NOT USE DWV PIPE!**

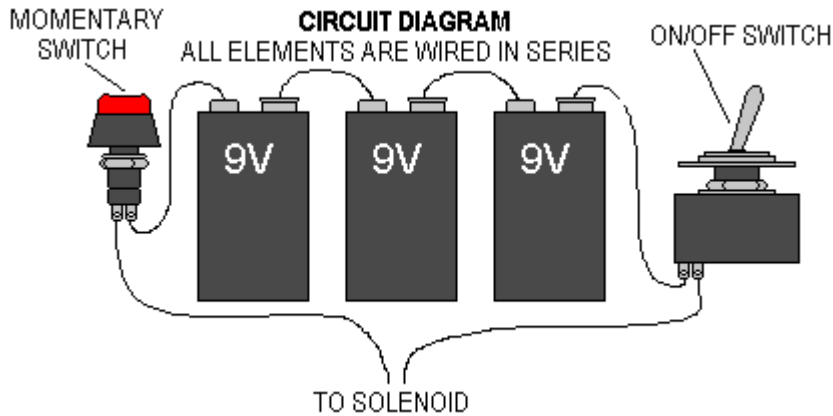
## **ASSEMBLY**

The stock assembly is the main part of the gun. I cannot give you accurate measurements, as I built it to fit my large physical profile. I will post better measurements when I find my schematics again. Stoppers (pictured below) are not necessary. Don't worry about them. Simply glue the stock pieces as shown. Feel free to change the position/length of the stock and handle to suit you.

I made the chamber 2' 6". I felt this allowed for ample volume while maintaining a low profile. Great volume is not so necessary in this gun, as you are shooting smaller, lighter projectiles (not large potatoes, although with another barrel you could).



For construction of the breech loading mechanism, please see the [breech loader](#) mod page. Construction of the firing mechanism is seen below, or for more detailed parts, see the [ESVC-01](#) page. Wire the electronics like so. More plans to come later. Place the momentary switch in its obvious location, you will need extra wire to do so. I just duct taped mine in place (oh yes).



## Basic Pneumatic Potato Cannon

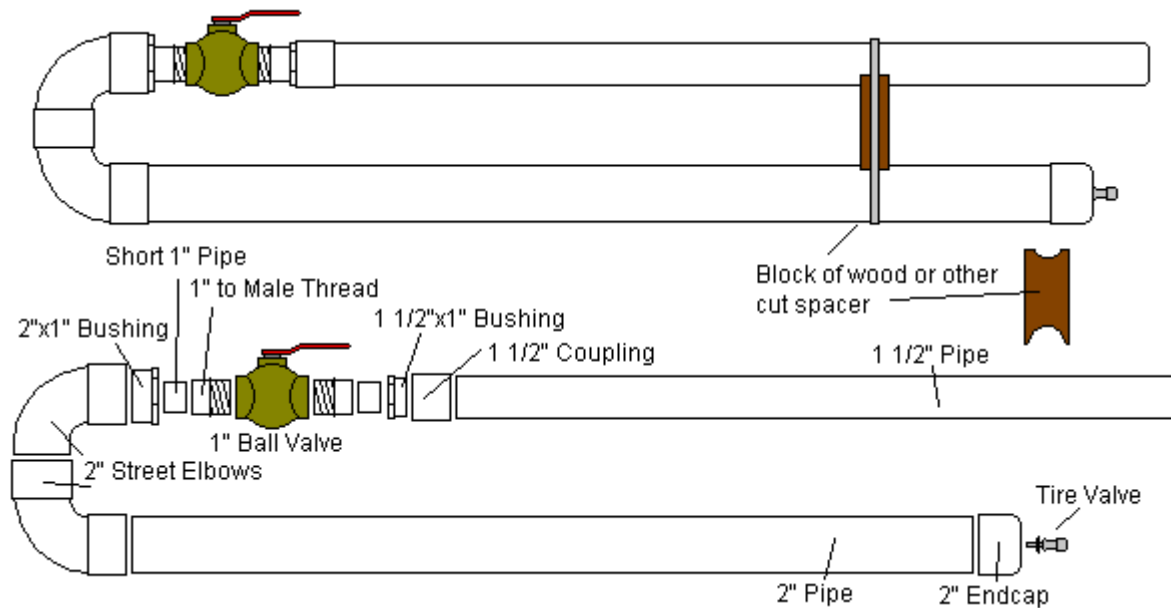
### MATERIALS

1" Pipe (short sections for use as nipples)

**ALL PIPE IS SCH 40!**

1 1/2" Pipe  
 1 1/2" Coupling  
 1 1/2"x1" Reducing Bushing  
 2" Pipe  
 2" Street Elbows (Male and  
 Female connections)  
 2" Endcap  
 2"x1" Reducing Bushing  
 1" to Male Thread x2  
 Tire Valve  
 1" Ball Valve  
 Large block of wood and tie strap  
 for spacer

**DO NOT USE  
DWV PIPE!**



## ASSEMBLY

This cannon is very simple to build. The 2" Chamber should be cut around 4 feet, but can be as short as 3 feet and still perform well. It is a matter of preference. The barrel should also be around 4 feet. Drill a hole for the tire valve and attach it to the endcap, before it is glued in place. When all pieces are arranged, prime and glue. Let them sit overnight or you risk destroying the seal of the glue.

Adaptations of this cannon abound on the Internet. One cannon is 10 feet long and shoots 3" wide bean cans of concrete!

## Combustion Spud Gun

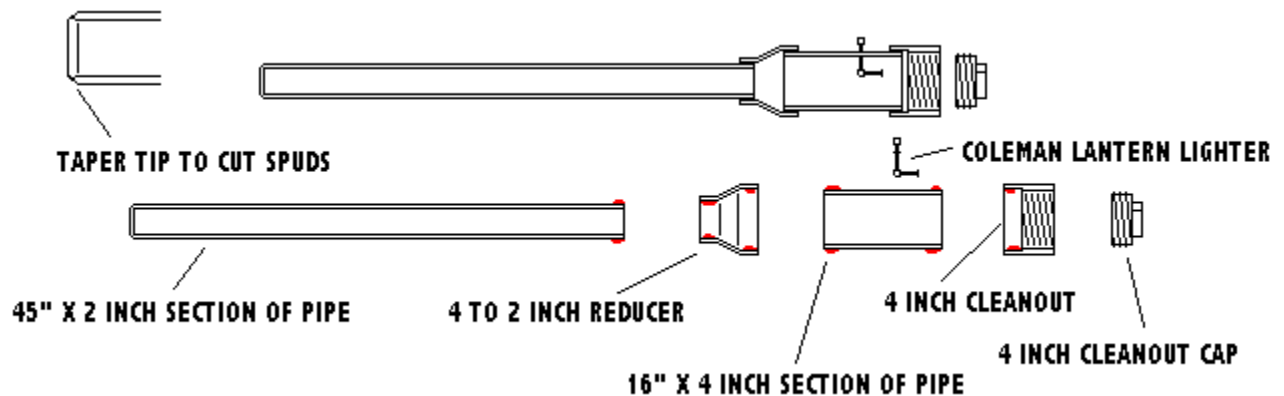
## MATERIALS.

2" x 4' pipe  
4" x 16" pipe  
4" to 2" bell reducer  
4" cleanout and cap  
Coleman lantern  
lighter

**ALL PIPE IS SCH 40!**

**DO NOT USE DWV  
PIPE!**

This potato cannon has a four foot barrel of two inch pipe. The combustion chamber is 16 inches long and is four inch diameter pipe. The Coleman lantern lighter can be found at Gander Mountain. All PVC pieces are schedule (SCH) 40 pipe. First cut all pieces to length and clean the ends to be glued. Drill a hole for the lantern lighter and install it in the 4 inch pipe, toward the rear end. Make sure it fits right, you may have to countersink it. Taper the front end of the barrel to a point to help shave the spuds. Glue all the red areas with PVC glue only. Obviously, don't glue the cleanout cap. Let the assembly sit overnight. **WARNING:** Don't spark the igniter while the glue is fresh or the fumes could ignite.



### STEP 1: The Materials

#### Building Materials

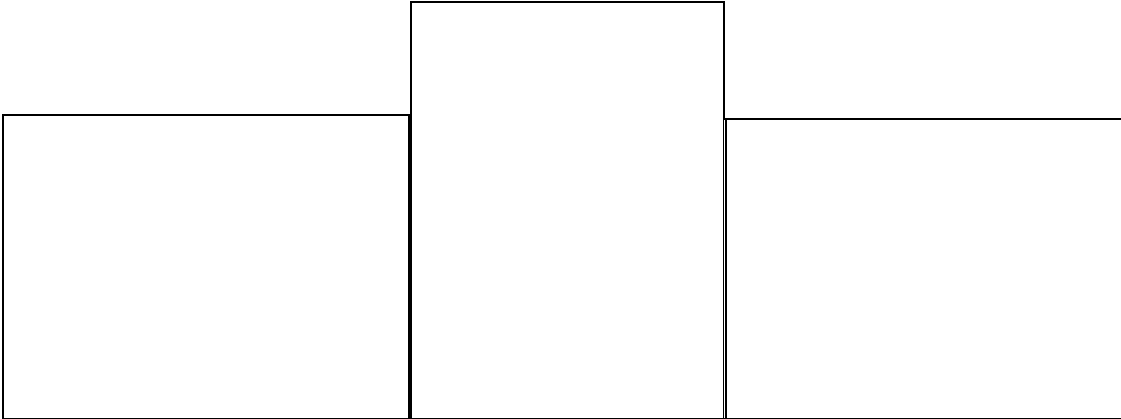
- 5 feet of 1.5" ABS (DWV) pipe
- 2 feet of 3" ABS pipe
- A 3" to 1.5" reducer
- A 3" threaded adapter
- A 3" end cap
- A BBQ ignitor (+1 Screw)
- ABS cement

#### Consumables

- Cheap aerosol hairspray
- Potatoes or similar legumes

#### Tools

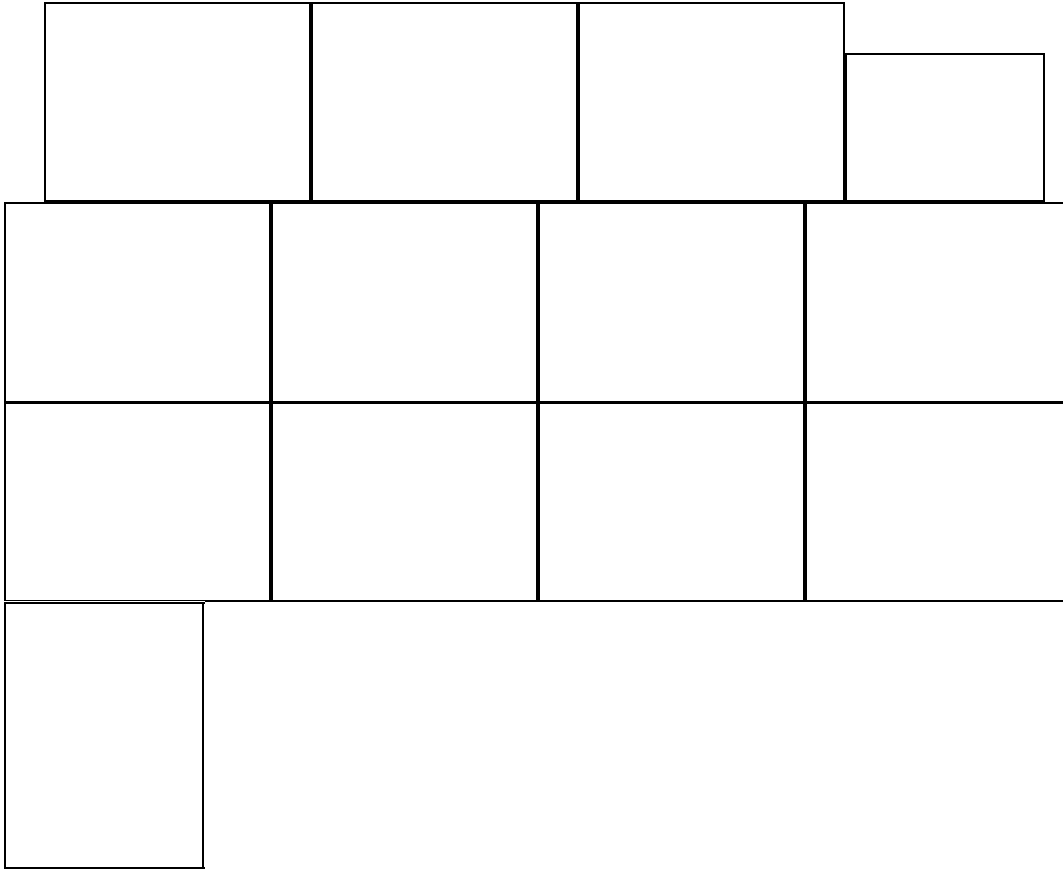
- Hacksaw
- Drill



## [STEP 2: Assembly](#)

- Cut the 3" pipe to about 13" or a size you prefer (the larger the combustion chamber; the more gas; the more boom)
- Make sure the reducer fits over the pipe
- Spread some ABS cement on the inside of the reducer and outside of one end of the pipe, slide the reducer onto the pipe with a twisting method
- Repeat this for the threaded adapter
- Repeat this for the barrel (5' of 1.5" pipe)

Make sure your gluing is done properly, you dont want it to explode.



### [STEP 3: Install the ignitor](#)

You probably saw in the last step a silver BBQ lighter attached to the side of the pipe, I tried using this, but it wasn't working, so I bought an \$8 ignitor.

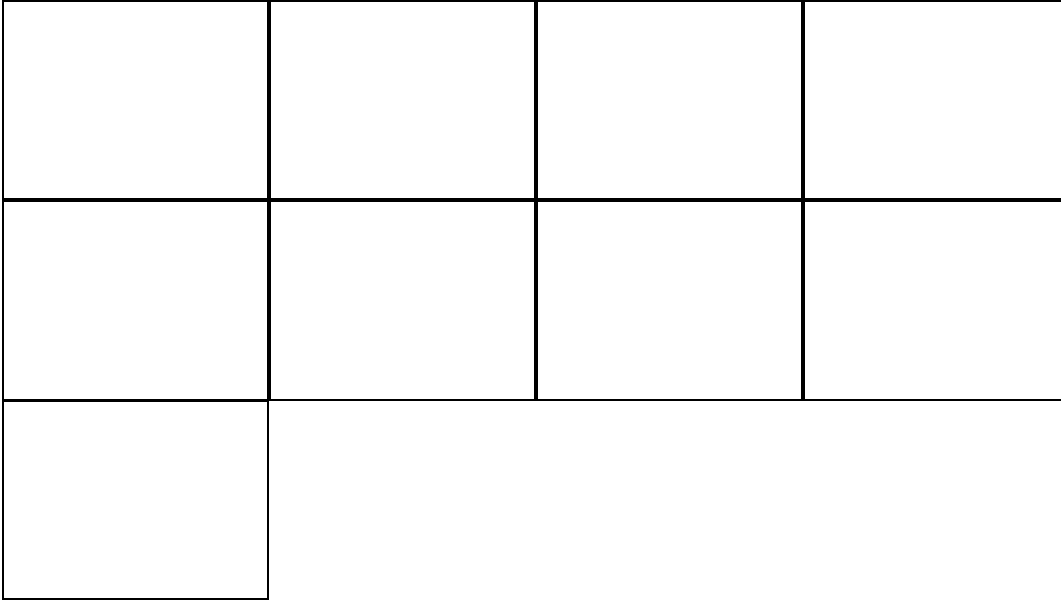
Drill a hole in the 3" pipe for the metal lead from the ignitor to fit, mount the ignitor using screws provided, you can slop some glue around the hole to make sure there won't be a gap where the flames will shoot out and burn your arm.....

In order to create the arc (spark) to ignite the gas, there needs to be a metal contact between the lead from the ignitor and the metal chassis of the ignitor.

If you mounted the ignitor with bolts into the pipe, bend the metal lead to be within 1/4" of the bolt to make a spark,

I however put another screw in from the other side, but had to run a piece of wire from it to the metal chassis.

Both methods will work.

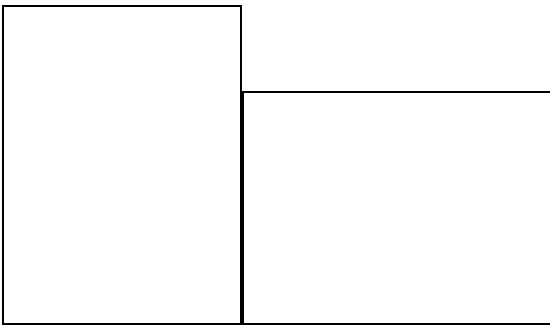


[STEP 4: You are finished: firing](#)

Let the cement cure for a couple hours.

Firing:

- Unscrew the end cap
- Force a potato into the barrel (this is easier if you sharpen the end of the barrel with a file)
- Pack it down with a broom, make sure its still inside the barrel, and not the combustion chamber
- Spray some hair spray into the 3" pipe for 2-3seconds
- Quickly screw the end cap back on
- Point it at a 45 degree angle to maximize range and push the ignitor



**THE BEAST**

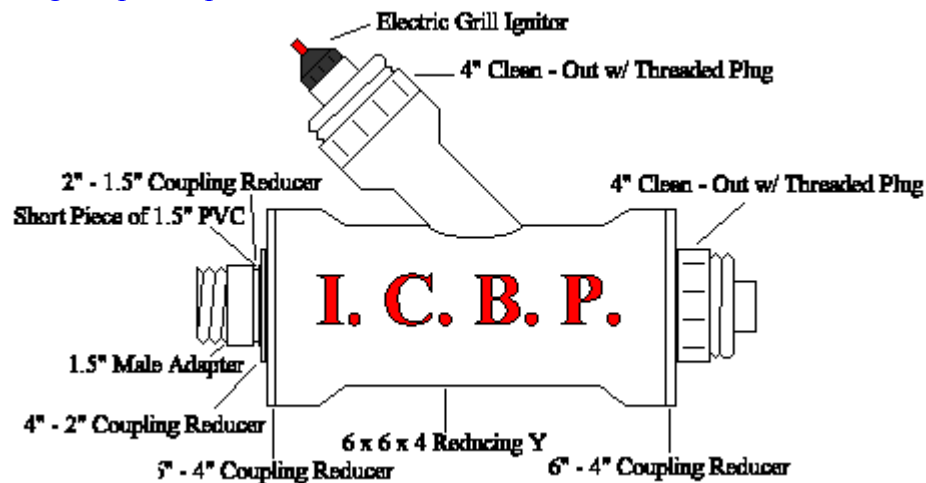
This gun is the enormous and crazy brain child of Tim Creque, Felix Canestri. This gun has finally been constructed as of 7/17/97 after many trips to Contractors Warehouse. This gun has a 6" diameter by 18" chamber, modular barrels from 1.5" to .5". I have been pricing parts for this gun and it looks as it will cost around \$60. Do to some circumstances, this gun is nothing more than a myth since it's untimely disappearance from our control (2 months after completion).

Parts List for the Chamber:

- 6"x 6"x 4" Reducing Tee
- 2- 6" to 4" Bushing Reducers
- 4" to 2" Bushing Reducer
- 3" of 1.5" PVC
- 1.5" Male Adapter
- 2 - 4" Clean - Out with Threaded Plug

[Electric Gas Grill Ignitor](#)

[Large Paper Clip](#)



Barrel for a 1.5" Potato Gun:

- 48" of 1.5" PVC (Maybe more for better performance)
- 1.5" Female Adapter

Barrel for a 1.5" Potato Gun:

- 60" of 1" PVC (Maybe more for better performance)
- 1.5" Female Adapter
- 1.5" to 1" Coupling Reducer

Barrel for a 1/2" Marble Musket:

- 36" of .5" PVC (Maybe more for better performance)
- 1.5" Female Adapter
- 1.5" to 1" Coupling Reducer
- 1" to .5" Coupling Reducer



## BL Series

These are the BL Series launchers, BL standing for Breech Loading. They are pretty straightforward launchers, offering great fun at a reasonable price. I would highly recommend them for a first launcher, they are not too high tech, but offer breech loading, a very nice feature for any launcher. Don't be fooled by their looks, they pack a punch! Best of all, the entire gun, including igniter, can be built for under \$15!

I would highly recommend the BL series for anyone just getting into spudgunning, its cost and ease of construction makes it a great launcher. It is also fairly easy to upgrade for once you start wanting more power! It is also recommended to anyone, whether you are a spudgun beginner, or a seasoned veteran, you will love its reliability and ease of use.

At the heart of the BL series is the breech loading system. See *Method Two: Pass Through* from the [breech loading](#) page.

### Plans:

The launcher is assembled as follows (listed rear to muzzle):

3" Female adapter with cleanout cap >>> 12" of 3" sch40 PVC pipe >>> 3" coupler >>> 3" to 2" reducer bushing (spigot x slip) >>> **Either: A:** 2" FPT Adapter (spig x FPT) or **B:** 2.5" section of 2" sch40 PVC pipe >>> Female Adapter (slip x FPT).

Next you will have your pass through barrel which will be 51" of 1.5" sch40 PVC to give you a 1:1 ratio (don't believe all the old 1.5:1 ratio stuff, for this **chamber**, a 1:1 ratio will outperform a 1.5:1 ratio.) Feel free to adjust the barrel length to suit your needs. The barrel will have a 2" MPT adapter as well as a 2" to 1.5" bushing on it. Looking at the [breech loading](#) page will make the barrel plans much clearer.

Now for the ignition. Do whatever you wish, but I would suggest a lantern lighter. The chrome thing on the launcher near the end cap is a lantern lighter with a knob that I fit on it. Go [here](#) for the proper lantern lighter installation method. Also, keep the lantern lighter towards the back of the launcher, this way it is possible to change flints without removing the whole assembly.

That, in a nutshell is how to build a BL series launcher.



BL Series with a black and red paintjob



This one I built for a friend and She's a GIRL hehe proof that at least one lady owns/likes spudguns : )!



Lantern Lighter installed



## Breech Loader for 1" Spudguns

This barrel modification is used primarily in conjunction with the [PSR-01](#).

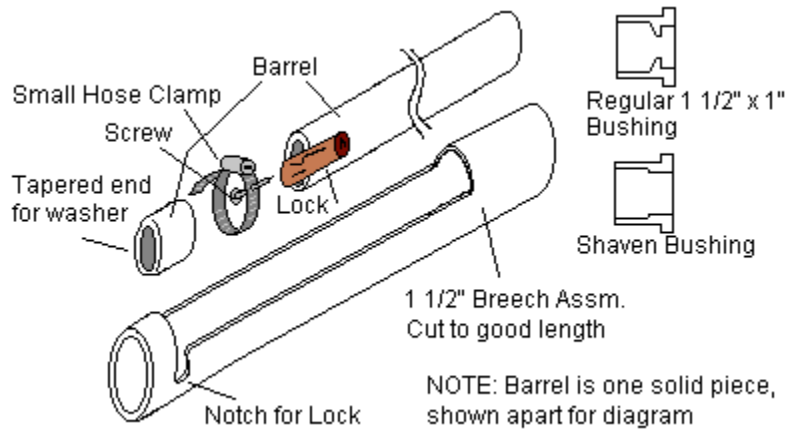
This device allows for easy breech loading of small bore projectiles into the pneumatic launcher or air cannon, and operates exactly like other breech loading rifles. This unit has an entire barrel as well, it is not an add-on like sound suppressors, as seen on other web pages. I give credit to [Xinventions](#) for the idea, and the following is my original design.

### MATERIALS

16" of 1 1/2" Pipe  
40" of 1" Pipe  
Small hose clamp for 1" Pipe  
Screw and wooden dowel for lock  
1 1/2" Bushing x2  
1 1/2" Coupling x2  
1" to Male thread  
Washer (information below)

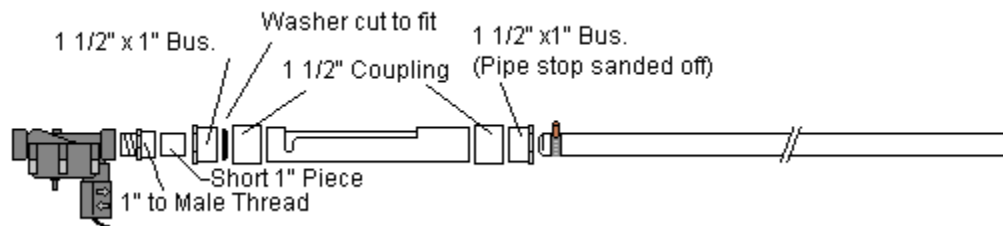
**ALL PIPE IS SCH  
40!**

**DO NOT USE DWV  
PIPE!**



## ASSEMBLY

First off, you need a 40" section of 1" pipe, this is for the barrel. Taper one end to a smooth finish at about 45 degrees. This is to make a tight fit with the washer. Find a washer that fits tightly inside the 1 1/2" pipe and will seal correctly with the barrel. This is important to secure an airtight seal. *(I and others who have built this gun have incredible difficulty forming a good seal. As a result of my design, the vibration from the air against the washer creates a deafening honking sound, not very sniper-like. Any ideas here would be greatly appreciated.)* The washer should go between the first bushing and the coupling towards the end of the barrel that screws into the solenoid valve (see below). For the bushing towards the front, you will have to shave off the pipe stop with a Dremel. Make sure it is a good enough shave so the barrel can slide in and out of it with ease.



The 1 1/2" pipe is cut as shown with enough room on top to allow access to the barrel. The section is about 1 1/2" from one end, and runs the length of the breech for 8 1/2". Use a Dremel tool to cut the opening, or alternatively, drill a section large enough to fit a small saw blade in and cut the hole with a saw. The notch should be as wide as the piece of wood you use for the handle. See notch and handle in pictures below. Once the couplings and bushings are glued and dried in place slide in the barrel, tapered end first and find where the clamp should be so the barrel fits tight with the washer. Just glue on the remaining threaded piece that screws into the valve to make it modular with your guns.



Breech closed.

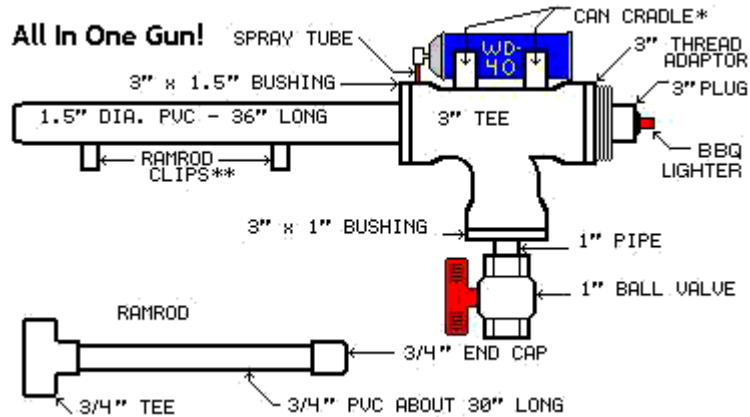


Breech open.

This barrel allows for creative uses in ammunition including carrots, paper cones, marshmallows, batteries, dowels and more. See the [ammo page](#) for more ideas.

## The Psycho Sniper

### Build the All in One Spud Gun




Assemble all PVC parts as shown in drawing.

- The igniter is your basic gas grill igniters.
- Take a small nail or cut a short piece of stiff wire  
Run from the ground connection near the base of the unit to the tip and epoxy in place with some 5 minute epoxy.
- You want to leave about 1/16" to 1/8" between the tip of the wire and the tip of the sparker.
- After the epoxy is hard you can adjust the gap to get the best spark.
- Drill a hole in the PVC threaded plug and epoxy the spark unit into the plug.
- Use enough epoxy on the inside to fill the square hole about half-way up.

For can and ramrod attachments, use PVC glue.


You can make the attachments a lot sturdier by saving the PVC "sawdust" from cutting the pieces and using it as filler around the gaps and soaking it with PVC glue.

### Can Cradle-

- 
1. Cut 1" long pieces of 1.5" PVS in half.
  2. Glue both pieces upside down to top of the 3" tee.
  3. Use rubber bands to hold the WD-40 can in place.
  4. You can use just about any flammable spray stuff that has a tube.
  5. Drill a small hole in the top of the 3" cleanout just big enough to stick the tube into.
  6. Cut the tube to leave about 1/2" inside the combustion chamber.
  7. If you want you can seal around the spray tube with silicone or epoxy (the small size will not make a noticeable drop in pressure even if it leaks)

I used WD-40 because you can get it in small cans, but it tends to leave an oily residue. Just about anything that uses butane or propane as a propellant will work. If you use a big can of whatever, size your can cradles accordingly.

### Ram Rod Clips-

- 
1. Use two 1" pieces of 1" pipe or 3/4" flared parts.
  2. Cut each piece a little more than half way around.
  3. Glue the pieces to the bottom of the barrel.
  4. The ramrod will clip into these when not in use.

### A couple of notes:

Sharpen the inside of the tip of the barrel with a file or some heavy sandpaper to cut the potatoes cleanly and evenly.

Also, cut the ramrod long enough to leave the potato about 2 or 3 inches from the combustion chamber.

### To fire the gun simply:

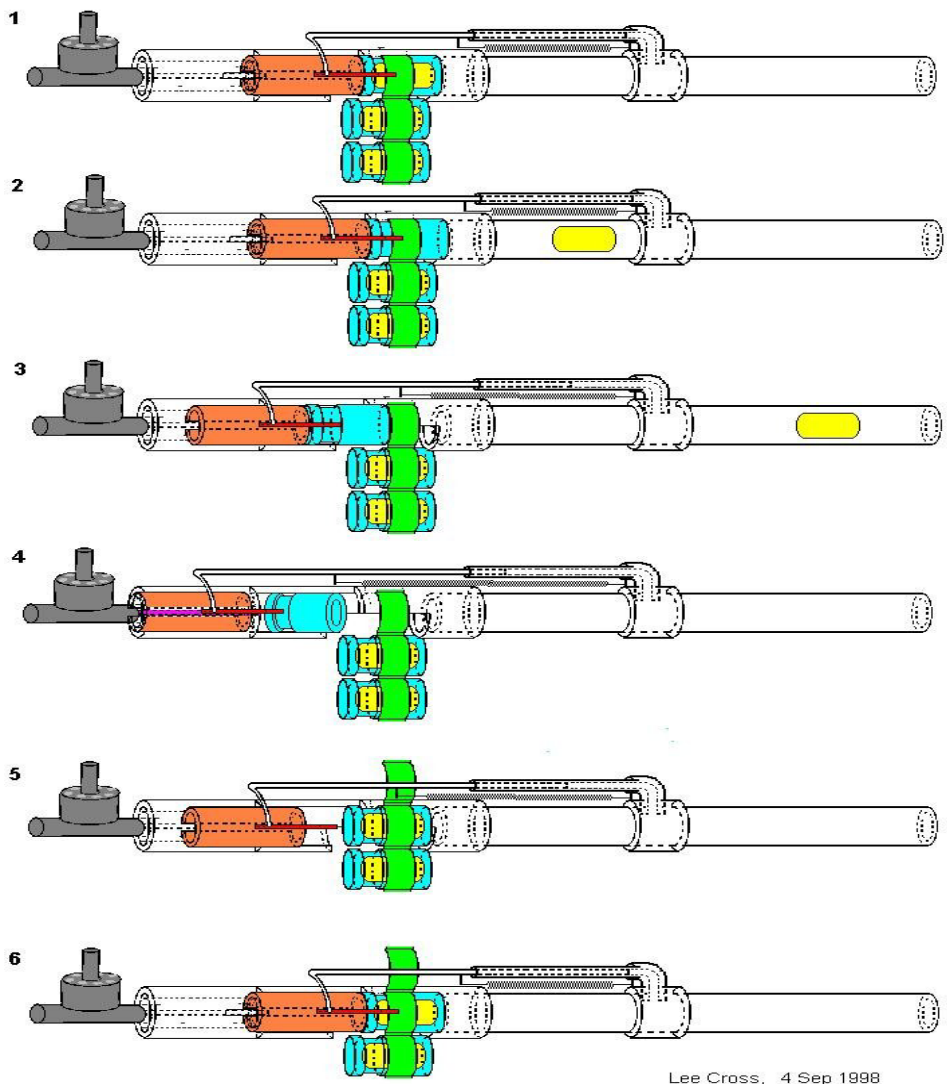
1. Ram a potato into the gun as far as the ramrod will go.
2. Close the ball valve and give a little shot from the spray can. (You may have to experiment a few times to find out just the right amount.) (Start with a very short squirt and work your way up.)
3. Take aim and press the igniter button to fire the cannon.
4. Whoop and holler. While this has absolutely no effect on the trajectory, it's really a lot of fun!
5. Open the ball valve and blow lightly into the barrel a couple of times (like in the John Wayne movies). This forces fresh air into the combustion

chamber.

6. Go to step 1.

## Semi Automatic Spud Gun

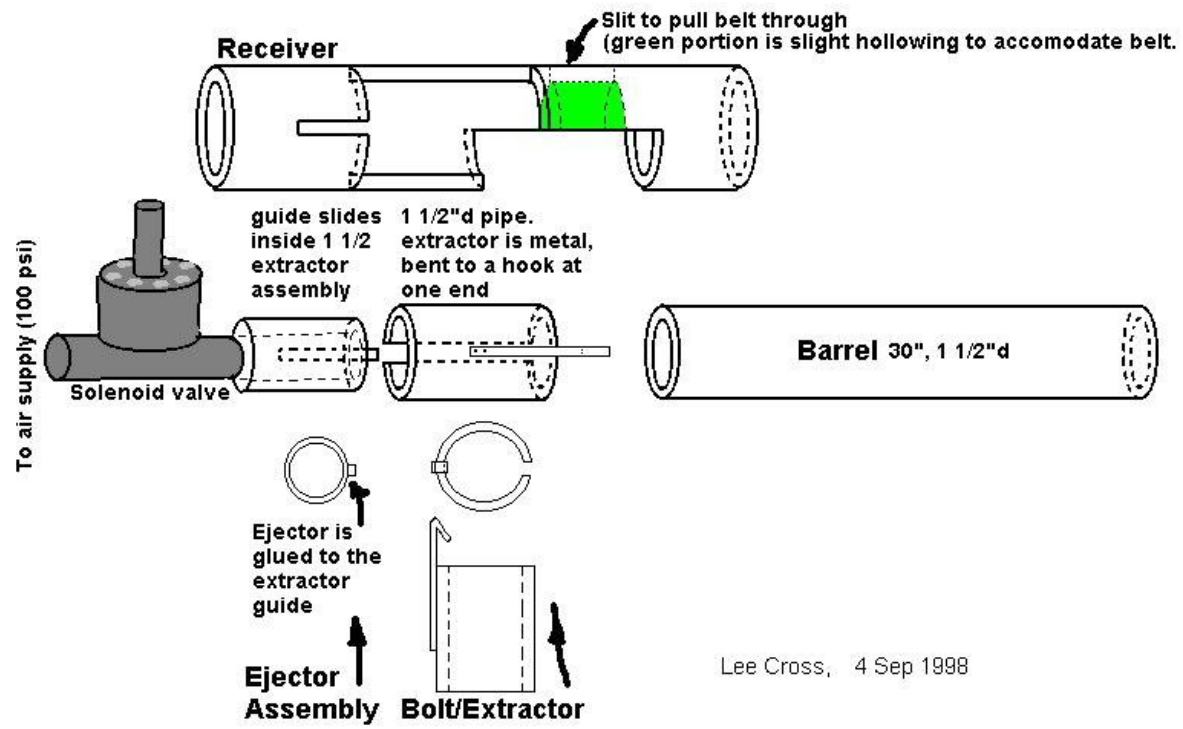
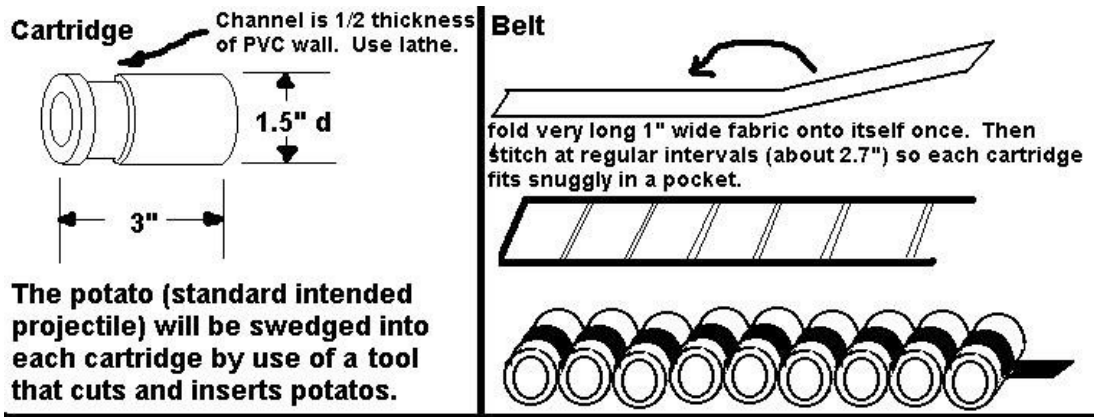




Lee Cross, 4 Sep 1998

	Sol. valve		Potato
	Ejector		Fabric Belt
	Bolt		
	Extractor		
	Case		

- 1 Round seated in shallow chamber, ready to fire
- 2 Potato accelerating
- 3 Potato past gas-operation tap. Bolt is removing case
- 4 Bolt fully open, the case hit the ejector and is being ejected
- 5 The bolt begins to close and the belt is pulled to introduce a new round (a simple mechanism is needed, otherwise it must be pulled by hand)
- 6 The next round is seated, gun is ready to fire again

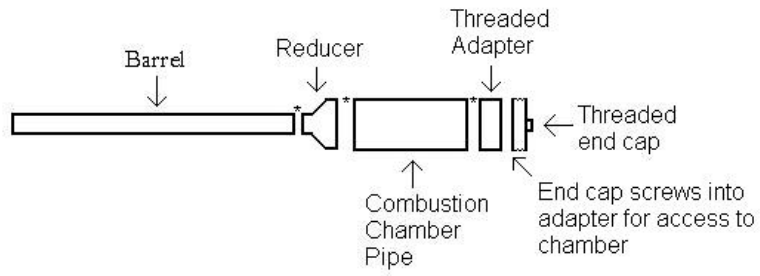


Lee Cross, 4 Sep 1998

# How to build a basic potato gun

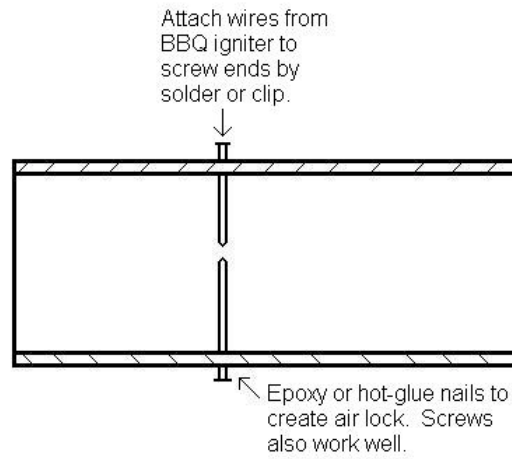
The simple instructions

### All PVC pipe

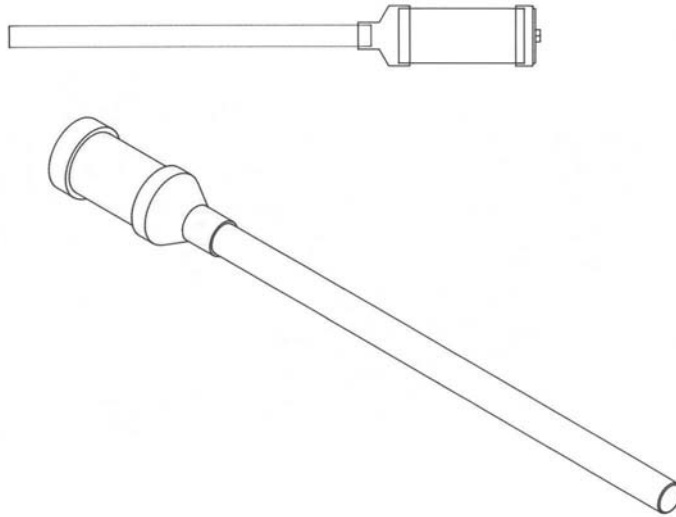


\* Glue at this joint

### Cross section of combustion chamber



Not exactly to scale



Like so many other potato gun sites have, I'm not going to tell you EXACTLY what kind of materials to get to make a potato gun. I will tell you though, what I have used, that will work for sure but really, just find the right sizes you want at your local hardware store. If you know what needs to fit into what, then put the stupid thing together at the store! I did.

All you need to do is:

- 1) Find the size end cap you want.
- 2) Find the same size adapter that fits into that end cap. (Both threaded of course.)
- 3) Find a short piece of PVC that fits into the adapter you found. Or you can just take a big piece home and cut it down to the right size you want. Then you can use the rest to make another one!
- 4) Find a reducer that fits into that PVC pipe and at the other end of the reducer, the size barrel you want to use fits into it.
- 5) Make sure the barrel fits into the reducer! Get it? Good!

Other materials and tools you need:

- 1) A saw for cutting the pieces of PVC.
- 2) PVC glue. Use the right stuff! Very important! And remember to sand wherever you use this glue!
- 3) Electric drill.
- 4) Electrical tape
- 5) Epoxy or hot glue.
- 6) Solder and iron, if you solder the wires to the screws.
- 7) Wires, speaker or phone wire works fine. Thinner the better, I think.

Instructions:

Now just take a look at the pictures I drew up at the top of the page and glue it together. Make sure you sand all the surfaces you glue together! If you don't [this](#) might happen to YOU!

What do I do with the BBQ ignitor??

This is what you need to do: Take the ignitor, do you see the metal tip on the very end of it? If you bought it new, you should have a little wire that came with it. It fits right onto that little metal tip on the end of the sparker. Now take some thin wire like speaker wire or maybe even telephone wire (two single strands) and tape or solder one piece of that wire to the end of the other wire that is stuck onto the metal tip thing on the ignitor, to make the whole thing as long as you need it. If you look at the side of the ignitor you will see a small hole with a copper piece of metal flush with the side running up to the top where the red push-button is. Now take the other piece of wire and tape and solder (make sure to use LOTS of tape because you can get shocked by it and then it will not fire) and stick it into the little hole so that it is touching that little copper strand inside it (just stick it in there and tape it down real good). So now you have two long pieces of wire hanging off this ignitor thing. If you put the two wires close to each other and click the red button on top, it should give you a nice big spark. If for some reason you don't get a spark and the wire ends are very very close to each other, you must have a bad connection somewhere or maybe the sparker is bad if you think you did everything right.

When you see that it works, this is what you need to do now. Screw two large screws (or if you only have nails, that's ok too) through the middle part of your chamber so that the screw ends are very close to each other. Make sure you drill a small hole so that the screws fit snugly and stay strong. Now tape, solder, glue, whatever, the two wires from the ignitor to the end of those screws on the outside of the chamber. Now you will see that when you click the sparker, a blue spark will jump between the two screws. You may have to tinker with how far apart the screws are from each other to get the best possible spark. Once this is all done, you are ready to go! Just cram a potato down the barrel, spray about a second or two of hairspray into the chamber, screw the endcap on and click the button! Pow! You may have to experiment with how much hair spray you need to use because of the size of the gun. That should be about it!

Now how you make the trigger is simple. Since you connected the BBQ ignitor with wires going to the nails, you can put it just about anywhere. You could even do it from a distance! I tried for myself (I didn't shoot anything, I just put the BBQ ignitor to a long piece of wire), but you could use about 5-6 feet of wire and still get a spark. Probably not as strong as if it was shorter but it would still work probably. Or you could make a handle with a hole in it like I did for the 01 and taF models. And the easiest way yet is to do what we did with the 00 model and tatter tosser. Just take some electrical or duck tape and tape the ignitor to the barrel wherever it feels right. This gives you a real 'gun like' feeling and so that you don't rip the wires off by accident. That works great.



