



<http://www.deathlord.net/TrashCanTrauma/trauma.htm>

## Trash Can Trauma



Difficulty Rating: 

At the beginning of '97 I stumbled onto a web site of [Don Bertino's](#). This was a compilation of a few month's worth of posts from members of a [chat list](#) group. In these archives I found a very exciting project called the Trash Can Trauma, an invention of Mid-Island Appliance of New York's [Carl Chetta](#). This is a photo journal of my odyssey through trauma land. I hope there are some things herein that will make your trauma project easier or your finished product somehow better than without! Have fun and don't give up till your trash jumper comes to life!

This how-to has been updated throughout in Sept.2004 to make it easier to follow as well as to introduce new additions to the original Trash Can Trauma .

## TrasH Can TRauma - 1 -



First things first, the CAN.

In the instructions I read to get a 55 gallon Rubbermaid trash can. After much searching, finding the "208L 55 Gallon" trash can was NOT materializing. All I could find was a Rubbermaid "170L 45 gallon" can, but on Larry Lund's advice I decided to use the one recommended and double my efforts to get the "perfect can".

With a few *hours* running here and there to find the "right one" I learned that the cans in my area tell the consumer the size of the BAG it takes inside, but it is still a 45 gallon *can* size, so the two were the same. I hope this saves you A LOT of potential running around like I went through. However, ANY 45 gallon square trash can will work for this. In fact, I could have built it in a smaller can, but the height is nice at the near head level for the ghoul.

The first thing I did to prepare for the installation of the guts of this was to mount the air inlet and the end of the power strip that would be supplying the power to everything inside on a board and then screwing the board to the bottom of the can in the back. As you can see, there is a small space supplied just for this use by the manufacturers. ;~)



I wanted this to be extremely easy to use later, so I set it up to accept a standard power cord stretched to where ever it was to be used, along with the air line.



This works perfectly, but use plenty of screws & fender washers, so the pressure of plugging in the air cord doesn't rip the screw heads out of the plastic.

Here are pics of most of the things needed for the animation of your garbage monster which I refer to here as the "heart". This is the fun part to your project.

In basic terms you have one airline coming in to one air valve and from there it breaks off into two air lines going into two different adjustable valves that then go on to each air cylinder. In-line of the two lines I have inserted another 3-way splitter so I could insert yet another adjustable valve used for back flow.

You can see the pump I used was all steel construction (available most places called BIKE XTRAS #861, if you cannot find this steel pump in conventional stores in your area, try flea markets, as I have found them there on many occasions).

For the pump type shown above, you can actually drill two or even three holes around the outside of the cap and into the top edge of the cylinder and use sheet metal screws to make this connection vastly more secure as shown in the photo on your right. This is something I did not know at the time of building this event some 7 years ago now at the time of this additional information I ran across while shortening one to use for my [Lynching](#) prop.

Just measure down from the top of the cap about 3/8" to drill your holes and if you use three #8 x 3/8" screws, they will not impede the stroke of the plunger inside. You will have to unscrew the air line going in to the base of the pump and remove the back flow needle valve hiding below for the air to actually go in and out of this same port.



The closer for the [screen door air cylinder](#) that we will be using for the arm came from Home Depot. The needle valves (shown in the photo on your right, below) should be a standard 1/4" valve from the local OSH or other hardware store, (Anderson Barrows Tubing to Tubing Straight Needle Valve Part No#BP9106-CP 1/4"). You will also need 10' of 3/8" rubber airline and 1' of 1/4" plastic tube for attaching to the needle valves. You will need two 1/4" brass T fittings, three 1/4" each nipple for splitting air off for the arm and another for the bleed-off. I added another turnout after this picture was taken for the fog horn which is not yet shown as well. To see exactly how to route

the air to your bike pump and screen door closer rams, take the link above to the screen door air cylinder and follow





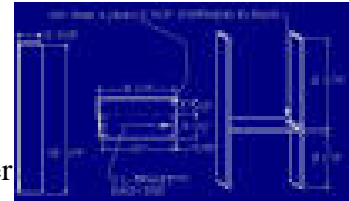
## TrasH Can TRauma - 2 -



I was afraid of the building part of the inside of this thing, because I had no idea of what it was I should build, as the instructions for this were entirely written text at that time with no illustrations and this is my very first foray into making anything operate off of air power. So. This picture should be worth a million words. If its not, I'll add narration. ;~>

The instructions written by Carl Chetta and his haunting partner Larry Lund recommend using two-by-fours for the construction of the armature of this. I offer the alternative of using 3/4" plywood. If you have a table saw at your disposal, ply is much easier to work with. If not, just use this as directions for your use of 2x4's and calculate the different lengths needed between the thickness' of the two materials.

I did not have the foresight to add the piece of wood you see here in the blueprint extending beyond the sides toward the back of the can while initially building this, so this piece was added later. You may as well add it now. The 3 5/8" extension will be used for the throw limiter that will be screwed on. More on that later. For now, simply build the structure seen in the blueprint and slide it down inside the 45 gallon can.



In this initial build I used an air horn for the "voice" of the prop, but later I retrofit it with a screaming voice and the complete update is included at the end of this how-to. I purchased a pair of truck air horns that came supplied with their own 12V DC air pump motor from Pep Boys for \$25.00 and just used the larger of the two horns to mount in my heart assembly (not shown) as mentioned earlier.

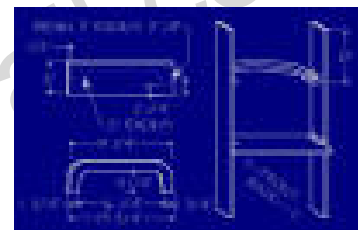


We attach this in-line with the door closer which gets the most air pressure. Using a 1" L-bracket, screw to the side. I'm glad I thought to put a needle valve in-line before the horn, as this is louder than 5 year-old twins on new-years' morning and you will want to turn it off while you are tweaking your project! Remember though after all is said and done, you will have to readjust your settings to accommodate the extra air use after opening this valve up for actual use. Note the power strip mounted on the right to supply power to the air valve and strobe light.



You will be able to use this switch later to test the air cylinders. At the top left of the photo you see the air cylinder for the monster's arm. We'll talk about this later in the odyssey.

Next let's add some illumination to our jumper's face. The strobe light above is the perfect size to tuck in, in front of the mask of your monster when in the disengaged position. This is a Radio Shack "Mini Strobe / Flasher" Cat. No. 42-3048 that I picked up for about \$29.00. At first I simply installed this on a straight brace rail between the two sides of the armature, only to realize later that this wouldn't leave ANY room for the monster's mask.....

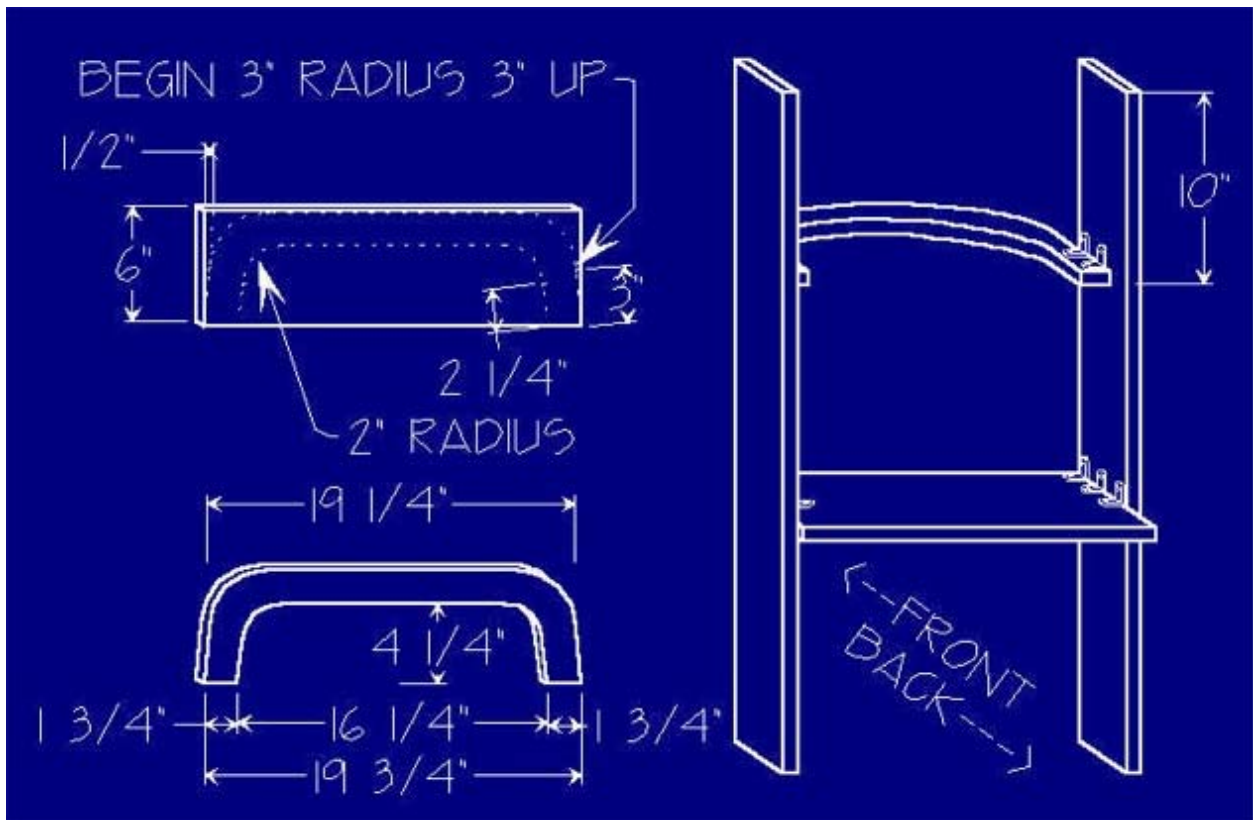
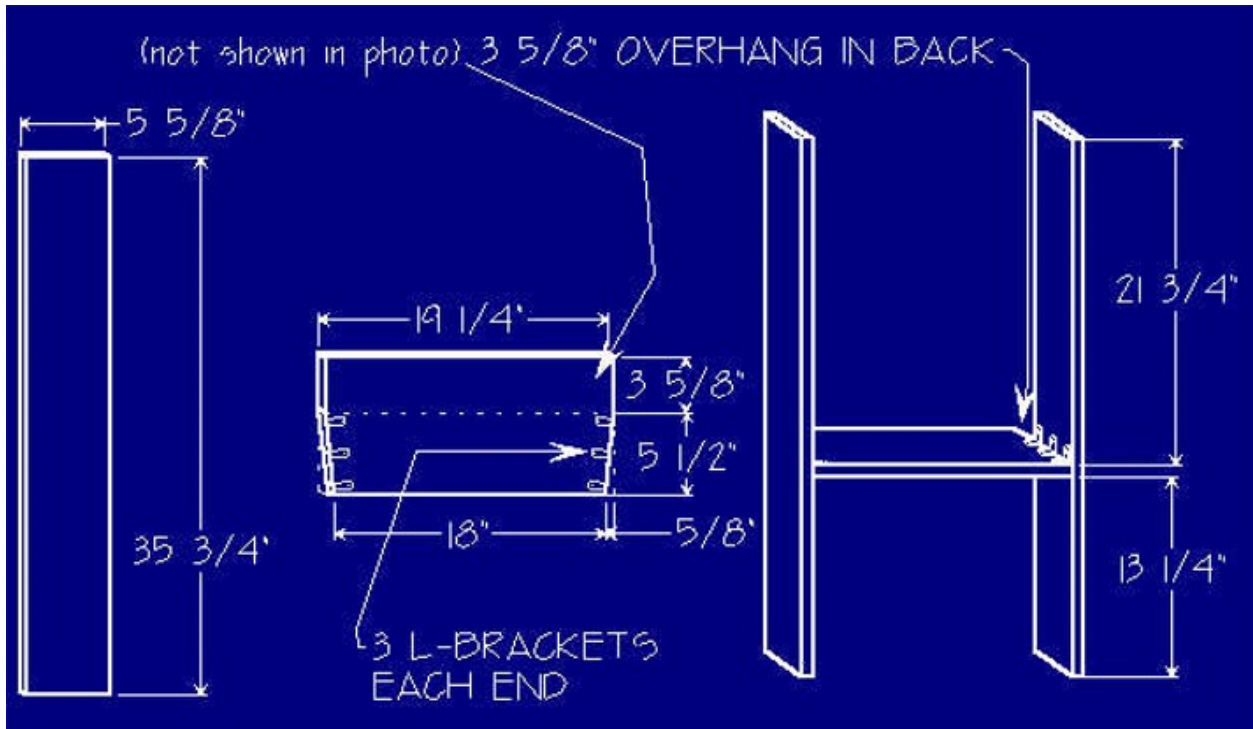


To mount this in a sturdy manner, I scribed in a brace that would follow the contour of the can. After making sure this fits, simply attach with L-brackets as shown ten inches below the top edge of the frame.



At the top left of this photo is the wood strut that your monster's arm will pivot from. This is 1 1/4" x 1 1/4" x 15 3/4", and in this case is solid oak. You can use a two-by-two just as well. Notice that it is mounted on a slight angle to accentuate the "jumping up" effect as well as jumping out at the victim.

You will need to play with the positioning of this, so be certain to use screws to attach this to the side of your choice. You will be screwing the screen door air cylinder to the back of the strut later. First let's attach the PVC pipe / arm.



### TrasH Can TRauma - 3 -



The arm is 1 1/2" PVC pipe 13 1/2" long. Your attachment of the arm to the 1 1/4" square strut will be a 7/16" bolt 4 1/2" long. Drill the mounting hole (1/2") 5/8" on center away from the end. You'll need four 7/16" flat washers & one nut for this. Place one washer between the bolt head and PVC, two between the PVC and the strut, and one more between the strut and the nut.



Dab a bit of LocTite on the threads after adjusting the nut for no play in the joint, but free-moving.

After getting the arm attached to the strut, I bent the plates of the mounting bracket supplied for the screen door closer to match the radius of the PVC pipe, and mounted it to the pipe with 5/8" x #8 pan-head phillips sheet metal screws. Pre-drilling the holes will help you get them in. The CADD drawing shows where to place your closer bracket to the PVC arm.

Now we mount the air cylinder to the arm via the mounting bracket now installed on the arm. Line up the location of the arm to the front of the can before screwing the back of the screen door closer down to the strut. Be sure to not place your screw in the very front or very back of the slotted hole to allow a bit of adjustment room for fine-tuning later. I recommend attaching the cylinder with the air line attached as well as the arm, so you can make sure the air line will have room to attach to the brake-bleeder screw air inlet. If everything doesn't align at this point, you will need to move the positioning of the strut on the armature wall. There is one point where the air line tucks right in to the bulge of the can and allows for a perfect incline to the front of the can for the arm's upwardly movement, and at the same time allows the arm to clear the lid once a glove or spooky hand is added to the end of the arm.



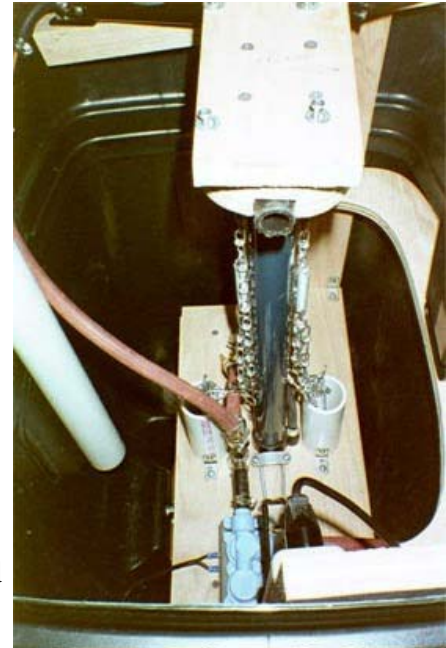
A number of steps have been taken to bring us to this image. Let me take this one piece at a time, starting from the top down. The board on top of the "mask crown" (the wood on each side and on top of the handle that is radiused at the corners) is one of a buildup of levels of plywood that will space up to the trash can lid. We have deliberately placed the height of the floor of the armature low to enable us to build up the space between the mask and the lid for the victim's clear view of the monster. Below the mask crown are the throw limiters and to the extreme left is a partial view of the lid guide.



The handle of the air cylinder has been cut down to less than the width of a human head at 4 1/2". Then we add a 1 5/8" x 3/4" piece of plywood to each side of the handle and another piece over the top to hold the side pieces together.

The top is 4 1/4" wide x 6 3/4" long. This will cradle the handle tightly and be attached securely to it by four 2" mending plates underneath that bridge the handle. Simply screw down the mending plates to the side pieces of ply and then after making sure the mask crown assembly is perfectly level, insert a 5/8" x #8 sheet metal screw through the center of each mending plate (you will have to drill a small hole in each plate for this in advance) and into the plastic handle.

We want this to be a very secure attachment, since this will be carrying the weight of the trash can lid as well as the mask and also brunting the full impact of the throw limiters that we will be talking about next.



Now we get a clear view of the placement of the strobe light in the front as well as the lid guide in back. Let's talk about the lid guide. This is more of the 1 1/2" PVC pipe (hey, I had to buy TEN FEET of this stuff just to get 13 1/2" for the arm. I have to use it SOMEWHERE.) used previously. Attach 24" of pipe to the back of the can (inside) with 3/8" no#8 sheet metal screws that have been screwed in at four places, removed and the tips of each screw ground off flush to the inside of the guide. You'll want this as smooth as possible.

This neat little trick was offered from a very helpful Larry Lund to keep the lid directly forward upon full extension. You can see where I used the same technique to keep the head facing forward on the [Aerial Executioner](#). I'll explain the rest of the working part of this soon.



Here you can see the extension piece to the armature floor has been added. This was necessary for the attachment of "throw limiters" for the main air cylinder that I decided to add to this event myself to extend the life of the animatronic. The limiters are nothing more than Stanley Chain Doorstops Item No.#74-8263 with medium-duty extension chain added for the length we will need.



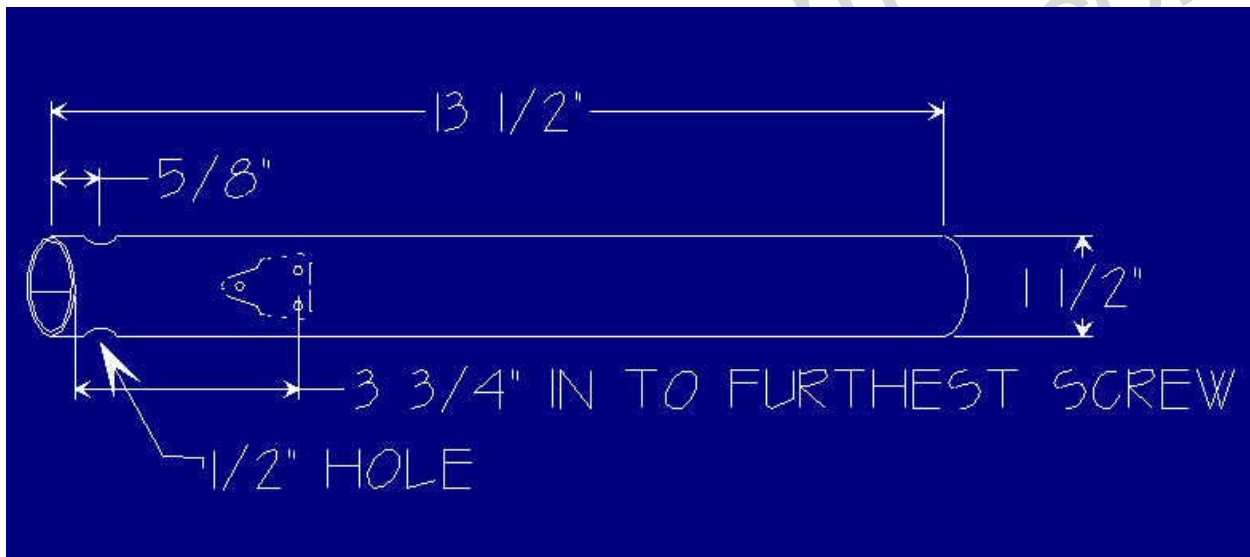
We will need about an extra foot or more for each chain. I removed the original chain and clipped the new chain for the full length I wanted to eliminate splices. I then placed a 4" lightweight extension spring to the center of the chain to take up the excess slack while in the unexecuted position.



This helps the chain to stay neatly hanging from the mask crown without tangling up with the air line and needle valve assembly below. To further facilitate this, I installed 4" long pieces of the 1 1/2" PVC pipe to the floor encasing the spring itself to keep it upright. You will want to pull your air cylinder fully extended and measure the distance between the bottom of the mask crown and the main limiter spring and cut your chain 1 1/2" or so below full extension. While you want the monster to raise as high as you can to get the mask as close as possible to face-level, you don't want to allow the cylinder to hyperextend, allowing the pump's cap to bear the full force of the throw.

Once you have your chain at the right length you need to attach the end under the mask crown solidly with the bracket provided with the doorstop. As you can clearly see, one limiter is before and one aft of the pump. Make sure these are exactly on center or they will pull your monster's head to one side or the other upon full extension.

The lid guide mentioned earlier has two parts. One we have already installed. The other is simply a smaller diameter PVC pipe tube with a cap attached to one end and a hole drilled through the center of the cap. You will need to find the exact center of the lower pipe as it lines up with the lid and send a sheet metal screw through the lid and into the cap to hold this in place. I used two fender washers (real wide washers) on each side of the plastic lid to keep the screw head from popping out. There is not much stress to this in any direction, so there is no real danger to its weakness other than some outside impact to the upper pipe while the event is engaged.



## TrasH Can TRauma - 4 - UpDatEs

As an addition to the original TCT, I added a hand that reaches up, not long after completing the project in '97. Until then the 'trauma simply didn't have more than the one hand as seen here with Carl Chetta's original trauma on the right. I attached a heavy fishing line to the ghoul's right hand, then to the lid of trash can.



When the lid lifts, it simply lifts the hand with it. There were no provisions to keep the plunger of the bicycle pump from leaning to the side once this hand was attached, since the pop-up hand was added after the 'trauma was built.



Here is event could benefit from the use of two bike pumps side by side, thus eliminating not only the need for the pvc pipe to keep the lid aligned forward and the throw limiter chains, but the lid's tilt from the hand's weight!



The other hand is attached to the pvc pipe with sheet metal screws then covered with the arm of the shirt used for the body of the ghoul.

Here is the finished product in all it's gory. You'll want to play with your needle valves now to get the throw of the arm to pause for a fraction of a second after the main air cylinder sends the lid safely out of the way, and adjust the bleeder to also allow the arm to recede a moment before the mask



begins its decent so the hand doesn't get caught by the closing lid. Looking at the photo on the left you will notice that the lid to this is not 100% shut. This is so the lid doesn't clamp down in its grooves, as well as getting the height of the mask as high as I can possibly get it.

I attached a shirt to the edges of the crown attached to the bike pump handle underneath the mask with a stapler to give the ghoul more of a body. I agree its not much to look at, but with the deafening scream of the air horn, the flashing red eyes built into the mask and the strobe light on this bad boy, I don't think the shape of his shirt will be very apparent for a 2 second cycle run.

When you send air to the heart, the bleeder valve allows the run-off air which allows the entire assembly to slowly recoil to fully closed, resetting itself for the next victim. Here's a shot of the Trash Can Trauma in the haunt springing to life!



In 2001 I decided the Trauma needed a new voice instead of blasting an air horn. So here is how I achieved a trigger for a sound chip repeater and works very similar to the system shown [here](#), only we are using a manual trigger instead of the Interface from [Haunt Masters](#).

This is a normally open momentary button I picked up at OSH. I screwed it to the bracket that my screen door closer air cylinder attaches to his arm.



Then I simply hose clamped a small piece of metal that was bent like an L-bracket at the end for the button to close against.

In the relaxed position the button leaves the connection to whatever wires are attached to it unconnected. The split second the arm is activated, the connection is made and the two wires send that signal to the sound chip repeater which then sends a sound feed to the powered speaker I have mounted inside the can and at the same moment the head pops up to position, he lets out a very audible scream.

For complete instructions on adding motion detection and sound to your project, visit the [Motion Trigger](#) how-to.

New in 2002 our guy was fitted with a silencer for his air hiss when activated and resetting. Fast and simple to make from a piece of PVC pipe and some foam, you can see how to make this in the updated instructions on making the [Air Trigger](#).

And that sums it up! I hope you have a great time with your project and if you make one yourself be sure to put the banner below up on your website and get on the mailing list for Creep Crafters member club!





# Air Trigger

<http://www.deathlord.net/AirTrigger/trigger.htm>

## Air Trigger



Difficulty Rating: 

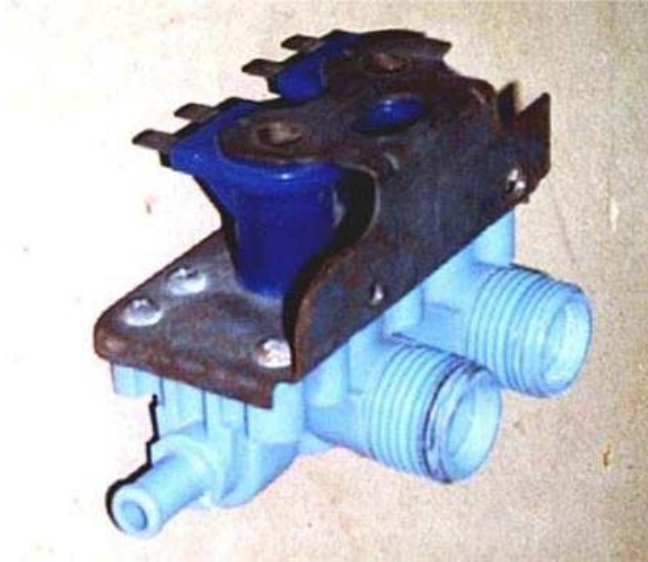
The washing machine hot / cold water valve has been used for years as a trigger for pneumatic props, but how exactly do you make one of these little goodies work? For years I followed the instructions originally offered by Carl Chetta of the Trash Can Trauma fame by using 3/4" PVC pipe threaded end caps on the hot & cold inlets. You need to force them on however, as the threads are different and some of the time they cross-thread, ruining the water valve. Then you would have to drill and tap one of the caps to install your air coupler which can be easier said than done. Here's an easy and safe method for low pressure props use.

## Air Trigger - 1 -

In November of 2002 I decided to develop an air cannon using a washing machine valve as the trigger and went on a quest to find a more secure method of sending the air in. What I found makes a \$1 water valve as simple to use to trigger air as any \$65 professional pneumatic solenoid. Here are the details.



Of course you will need a water valve from a washing machine and not just any valve will hold the air back and reseal itself under the rather high pressure I would need for an air cannon. I wound up testing many, many different valves to see which work and which don't.



There are two that I have had success with at high pressure such as what my Aerial Executioner operates at, some 85 lbs. Shown above is Horton C539 / n-6042 which not only worked well, but actually have larger inner porting, so the sound it produced for the cannon was slightly superior to the rest. The other valve that worked well as the N-51 as shown here. The first one (translucent white) is very difficult to find, but the N-51 is readily available at any appliance repair shop used or even from a scrap yard that recycles old washing machines for the scrap metal. It will cost you about \$3 from the repair shop or \$1 from the scrap yard. Be CERTAIN you get the Horton or the N-51! There are lots of other valves out there that look identical to the blue one above, but they are N-50s and DO NOT WORK under high pressure. Look carefully before driving all the way home.

#### Note;

I have received many emails saying that they couldn't find any of these over the phone calling repair places and parts desks. I need to mention here that this is a part that you will have to get in your car and go hunt down, due to it's low value / high pain in the butt ratio to the repair men. So here's my best tip; you will definitely be able to find these things if you go to the city landfill or scrap yard as mentioned above. Every time I go there I can pick up at least two or three or more. Things to take with you to the landfill; large channel lock pliers to get the old water lines off the valve, flat blade screw driver to undo the exit water line, crescent wrench to remove the valve from the washing machine, a rag to clean your hands with after and a plastic grocery bag to put the valves in. Simple. It only takes roughly 2 minutes to remove these and they are really easy to get at, so don't worry about it.

We have covered the attaining of the water valve so now it is time to get the rest of the goodies needed to make this funny looking doowhacky into something that releases the fear of God into your hapless TOTs.

- (1) Female Hose to FIP Swivel fitting 3/4" x 1/2" = \$3.97 (Home Depot)
  - (1) Hose end cap = \$.53 (Home Depot)
  - (1) 1/2 to 1/4" Galvanized reducer bushing = \$.76 (Home Depot)
  - (1) 1/4" IID male air coupler = \$.49 (Harbor Freight)
  - (1) 6' Extension cord = \$.77 (WalMart)
  - (2) 1/4" Female Quick Slide, 18 ga. crimp cord fittings \$.09 ea = \$.18 (Harbor Freight)
  - (1) Washing machine water valve = \$3.00
- Total = \$9.70



This is simple business. Spin your hose end cap on to the water inlet you will not be using and tighten with a large pair of pliers so it is more than just finger tight. The same for the hose swivel fitting to the chamber that you are using. Attach the air coupler to the reducer and the reducer to the swivel using Teflon plumber's tape. You will need to bring power to the water valve as it runs on 110V, so chop the female end off your extension cord and clamp female quick slide fitting to the end of each of the two leads.



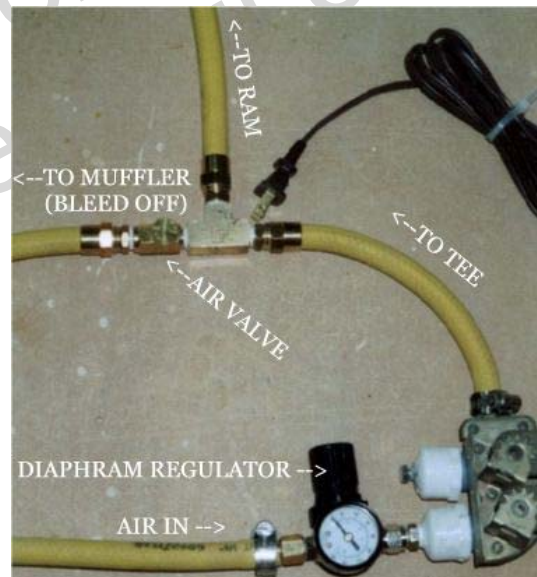
Slip on to either lead on the solenoid that triggers your water valve and then cover each with heat-shrink tubing or electrical tape. It does not matter which power cord lead you send to which connector. Either way will work as long as you attach your air nipple to the corresponding cylinder .



And here is how it will look when completed. The top of this photo got cut off, but you can see that 3/8" air hose slips perfectly over the outlet nipple for feeding the air to your prop. And that's it!

Here is an old photo of the completed system (using the previous method of forcing the PVC pipe end caps on which were tapped with threads for the air fitting) put together for the [Exorcist](#) that illustrates well how this will be used. I attached the air line from the compressor to one end of an air regulator and attached the out directly to a threaded fitting going into the solenoid.

The air out of the water valve is hose-clamped on for a positive fit. For opening the air way to your pneumatic event you will merely send power down the power cord.





Once released the air travels to a three way connector that will split the air to the air cylinder as well as out to a muffler fitted at the end of about 5 feet of line. You can see there is an air valve to the muffler line because we will be dialing in the exact amount of bleed that allows our pneumatic prop to reset.

### Air Trigger - 2 -



Here is a photo of the compact regulator I use on all of my animatronics that you might want to consider adding to your air trigger assembly as well. It is a Harbor Freight item [no# 90590-0VGA 1/4" Air Regulator With Gauge](#) and is NOT to be confused with an Air PRESSURE regulator sold for a few dollars less at the same store.

The diaphragm regulator works like the unit on your air compressor, releasing a total air pressure as shown on the gauge and never more than that. An air pressure regulator is a FLOW regulator only. Meaning that if you have a flow regulator adjusted to 28 lbs and are sending 105 lbs of pressure going into the intake AND keep the air flowing through constantly, the pressure coming out will stay at 28 pounds.

But once you stop this flow, the pressure that backs up against its inner mechanism allows the full blast of pressure you have going in to be emitted initially, until the flow stabilizes. Thus, if you have an animatronic that works on 28 lbs of pressure such as the [Exorcist](#), a PRESSURE regulator, if left hooked up to 105 lbs of direct pressure from the air compressor but set to 28 lbs for your prop, will send your puppet through it's cycle about 4 times as fast as needed and probably through the ceiling. Funny as hell for a just a moment until you realize you have to replace all its working mechanism and patch that hole in your garage roof. So be sure you are buying a DIAPHRAGM regulator. I am asked all the time how to hook this up to your 1/4" IID air fittings and the answer is exactly like regular fittings. Even though these look a little different, they do seal off just fine when using Teflon tape.



For years I have heard the loud hiss as the bypassing air escaped out while my props were triggered and then the long hiss while it reset back to its ready position. This year I determined that I would make a silencer for this sound. Here you will see one very easy way to accomplish just that, however you will find another, newer version at the bottom of this how-to that is more compact and will work with smaller air line and can even be fitted for use with a 2 way air cylinder that requires both inlets to be silenced while in use.

I found that 3/4" PVC pipe has just a little larger diameter inside than the 3/8" air hose I work with has for an outside diameter so it made sense to start there.



I had an extra foam paint brush laying around so I cut a couple of strips off that would slip inside the 5" section of pipe.

Then using a jig saw I slotted up one end of the pipe in about 4 places and simply hosed clamped that end to the air line.

To hold the foam in place I put a screw in the other end. This is a really solid mount to the heavy rubber air hose, so it will not be falling off.

Now When I set up my props I simply run the muffler line out behind the prop behind the wall to hide it.

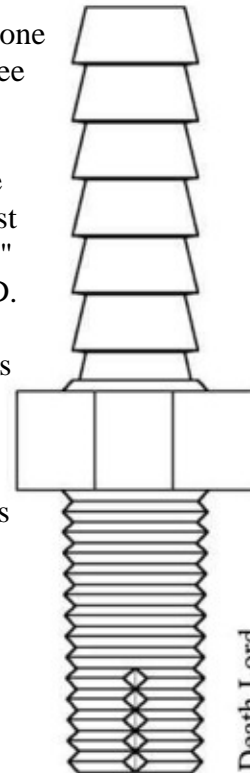
The sound is not only eliminated nearly 100%, but by introducing the muffler to the system actually cuts down on the air pressure needed to activate the prop and in turn less air volume. And that means less refilling of the compressor tank during the night.



NEW! The new "compact" muffler shown here uses 1" PVC pipe just 2 1/2" long with one end capped and threaded for the valve you see installed.

The hose fitting in the other end of the valve (which allows you to choose exactly how fast or slow you want your prop to reset) is a 1/4" slip fitting that is the right size for 3/16" O.D. clear vinyl hose. The muffler is then stuffed fairly tight with foam rubber and then screws are installed at the end to keep the foam from coming back out. This super compact muffler makes all exhaust from the cylinder completely silent, making it both effective as well as extremely easy to fit inside of any pneumatic prop.

In the far right CAD drawing you can see a very simple way to cut the threads into your end cap.



Death Lord

Once you drill out a hole just under the diameter of the threads of your fitting (15/32nds drill bit), you can use the fitting itself as a thread tap by cutting across the bottom few threads with the sharp corner of a metal file. The more vertical the cut is on the right side of the threads (in the perspective shown above) the better it will cut, as the sharp edge cuts cleanly into the plastic. When the threads are cut, remove the fitting, wrap with Teflon tape and re-install. Be sure to turn the fitting in fully past the cross cut so air cannot escape back out of the groove if you are using this technique on a high pressure system. When making the muffler, no tape is needed.



Here is yet another way to use your compact muffler. These photos, which was first used in the 2003 project, the [Lynching](#), shows a second fitting on the top side of the muffler that can be used to silence the exhaust from the secondary air inlet on a 2 way air ram. You must route these two lines into the muffler separately, as if you link them together, you will in essence be attempting to force air into both the PUSH inlet and the PULL inlet of the same air ram.



So there is the first step in making an air-activated scare event. If you would like to see the trigger in use, you can visit one of my other how-tos on this like the [Aerial Executioner](#).

If you want to automate the use of your air props you can do that by using an Event Control Timer (ECT). You can learn more about it on the [Motion Trigger](#) how pages.