

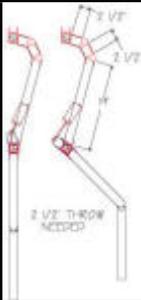
Wanna See Something ...
REALLY Scary?

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<http://www.deathlord.net/Lynching/lynch.htm>

The LynCHinG

				
The Heart?	Blueprints	Joints	Armature	Fluff
				
Trigger Happy	Gut Shot	Gettin Picky	Gallows	Lynching

Difficulty Rating: 🍌🍌🍌🍌

Obtained from
Omarshauntedtrail.com

In 2002 a good friend of mine, Jerry Chavez from www.spookyfx.com decided to help run my haunt with me for the two nights I would be letting victims through. When he arrived he had brought with him a very cool prop that he calls the [Death Dancer](#), a pneumatic animatronic in the figure of a man being hung from a simple 2 X 4 gallows. It was such a cool looking and functioning prop that I decided to create my own version of this animatronic using PVC pipe and a foot operated tire pump. Here's how I did it.

The LynCHinG - 1 -



I was very excited about this project because I had decided to use air power for this based on the great animation the Spooky FX hanging man exhibited which was also pneumatic, and I had in mind the perfect air cylinder for the job.

For many years now I have been waiting for a project that called for a short but wide cylinder, such as this prop would need, so I could try out a foot operated pump as the cylinder. I had never seen one used for a prop before and was curious if it would hold up like the [standard steel tire pump](#) does for so many of my other animatronics. After doing some rather exhaustive layout of the mechanics of the hanging guy I determined on CAD that the size of this cylinder would be perfect! So now that I have the beating heart of the thing as it were, I am ready to begin in earnest assembling a fully animated jerking, gurgling, hanging man.



Just a note here as to the needed width of this ram, or at least the perceived needed width is due to the simple fact that an air cylinder of a wider width and short stroke will trigger to full extension much quicker than a smaller cylinder cylinder while under load. Without knowing how much the legs of my guy will really weigh with his foam build-out, clothes and shoes on, I had to imagine that I would need this fat air cylinder to move the legs of the guy quickly since I was using a very short lever to activate it's legs.

---Tragically---



I learned that this foot pump will not work as an air ram, or at least won't continue to work at the pressure level I had to use to trigger the event here which was 28 pounds. For some reason the air began right away to leak past the seal and the cylinder was rendered useless in only a few cycles.



The fun continued on this project, as once the foot pump failed, I had to move on to another idea. Next I decided to cut down the length of a standard bicycle pump for the length

needed here, threaded the end of the rod at the right length to match the overall length and throw of the foot pump the prop was designed around.

---Tragically---



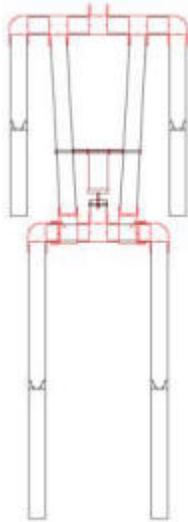
Once again I learned that this tried and true bike pump air cylinder will not work on this prop. Simply put, when the cylinder is turned upside down, as needed in this design, the oil that keeps the leather seal lubed inside runs out the cylinder and down the shaft, causing the cylinder to lose it's seal! The cylinder is slick though and I am sure it will work just fine on another prop if vertically mounted. So all that wasn't totally for nothing, but dang, after the first 10 or so major setbacks on this prop it did seem rather a bleak thing to happen, sending me back to the drawing board once again.

In the end I wound up ordering an industrial two way air cylinder that would work in any position forever. So much for SAVING money! The cylinder shown here was a 75MM (3") stroke X 40MM (1 9/16") Diameter unit from Kreepers.Biz.

---Tragically---

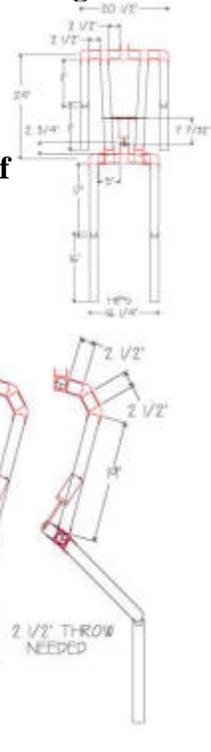
It wasn't cheap, but it was certainly 20 times stronger than this prop will ever need, so at least I should never have to worry about it!

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Here you can see the CAD blueprints used to engineer the Lynching. The drawings here are hyper linked to full page pictures of the drawings so you can look up close at the details and the dimensions. The idea here is to mount the air cylinder upside down, and using a T joint in the center of a free floating hip section suspended by modified larger T joints to the bottom of the chest cavity, we will attach the cylinder to a short lever inserted in the bottom T. Since the bottom T will be slightly angled backwards (at a 10 degree angle), when the cylinder is triggered, it will kick the hip section backwards, sending the legs forward as shown.

As seen in this photo, the air cylinder will need approximately 2 1/2" of throw if my lever piece is 2 3/4" long. Since the air cylinder we are using has a throw of almost exactly 4" (3 7/8") of travel, it will also give us some extra length of shaft to space the cylinder a little higher in the chest cavity of the skeleton, allowing us room to install a "waist" below the cylinder but above the cylinder link point. More on that later. We will be using mostly all schedule 40, 1 1/2" PVC pipe for the construction of our skeleton, topping it off with a wig form once it is all done. Everywhere you see dimensions in these photos illustrates the length of PVC pipe needed. So this means to achieve our skeleton we will need;

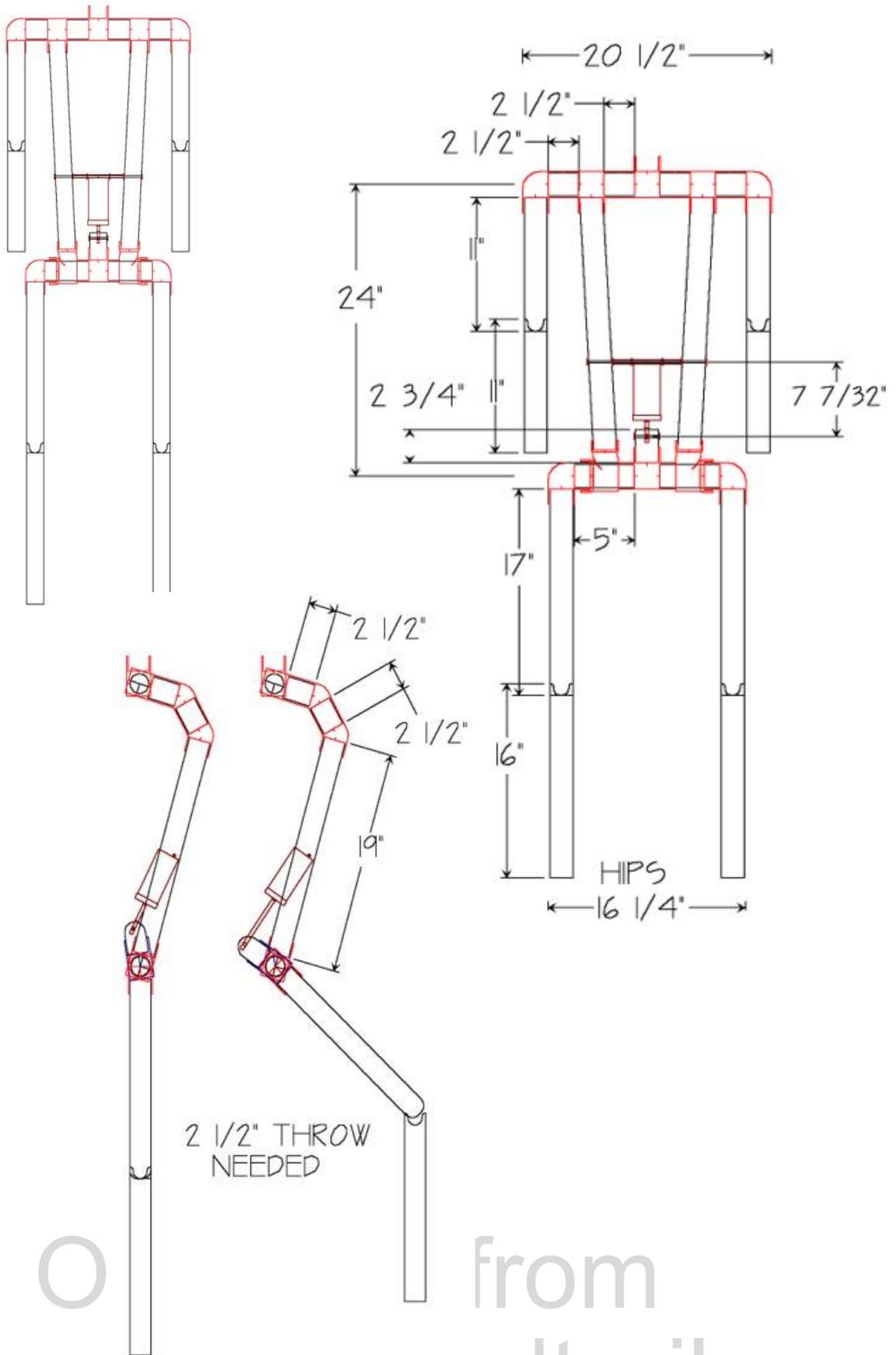


- (8) pieces 2 1/2" (shoulders, chest)
 - (1) piece 2 3/4" (cylinder lever)
 - (2) pieces 5" (waist)
 - (2) pieces 6" (feet, not shown)
 - (4) pieces 11" (arms)
 - (2) pieces 16" (lower leg)
 - (2) pieces 17" (upper leg)
 - (2) pieces 19" (chest)
 - (1) piece (not shown) 8" (neck)
- =at least 16 feet of pipe



The construction of our guy here will be very similar to the way the [Aerial Executioner](#) was assembled, but with a slight change to the chest pieces in order to make the chest a little closer to the shape and size of a normal full sized man, plus obviously the legs will have to be pivoting here to make him double over in the throws of death. Above you see the only types of fittings needed for our construction. You will need a laundry list of;

- (4) 90 degree 1 1/2" PVC elbows (shoulders & hips)
- (4) 3 way 1 1/2" PVC "T"s (chest / shoulders, neck & waist)
- (2) 3 way 2" ABS "T"s (black) (waist / stomach connection)
- (4) 45 degree 1 1/2" PVC elbows (chest)
- (16) feet of 1 1/2" schedule 40 PVC pipe



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To begin building our skeleton we must first address the special joints this will use so the arms are adjustable to the right position once it's completed and the knees will bend while in action. This joint is achieved by cutting a scoop out of the front of the lower leg section for instance, and a larger scoop out of the back of the same section so that the upper leg will be able to slip down inside the two ends now sticking up on each side and will be able to bend one way, just like a real knee or elbow. Of course the upper section of pipe will need to be rounded at the end to allow for a "ball" for our "socket", so that will be the next step. Let's take a look now at the front and back of our knee here to get a clear picture of how much of a scoop will need to be cut from the front and also the back of the lower section.



The left picture shows the front of the elbow or leg and of course the right one is the back, showing how the scoop there will need to be lower.



If you look closed not only is the end of the upper piece rounded at the end, but the inside of the lower part is belled out and the inside edges

have been beveled inside the cut out to allow more space for the top piece to move freely inside the joint. So how did we round the one and bell the other? It wasn't that hard.



To round the end of the upper section I used a wine glass, as it had a rounded bottom inside and I need to use that as a mold for the plastic. The heat gun brought the PVC up to a soft, pliable point in just a couple of minutes and I simply pressed the end to the bottom of the glass and held it there until the plastic cooled.

You can also pour cold water in the glass and have this set in a couple of



seconds to save some time. Once you have cut out the scoop from the front and from the back of the top end of the lower section, you will need to bevel the inside edges as covered in the last set of photos above. Then you will be ready to bell out the top "ears" and the pipe itself enough to accept the upper piece.

You will do this by heating up the entire area with the hot gun as with the upper piece and then once hot enough, simply press the rounded end of the other piece down into the socket and hold the ears against the upper piece as it cools so the ears are fairly snug against it so the socket isn't all floppy and loose. Then drill a pilot hole through each ear into the upper piece so the two are lined up.

Now remove the top section and drill each ear out to a large enough hole so your #8 x 3/4" pan head screw slips through it without rubbing too tight. This way once the screw has been sent in to the upper piece to complete the socket, the lower section will swing effortlessly.

Go ahead and assemble the arms (each section of which is 11" long) and both legs at this time so once the chest has been assembled you can complete your skeleton with a couple of screws in each joint.

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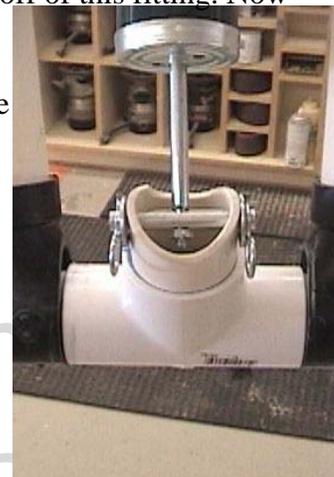
Another step we need to take to prepare for the assembly is to modify our ABS fittings. These are the black goodies at the bottom of the chest cavity you will see in one of the next photos.



Once you have the chest perfectly square and lined up, these two fittings will act as the hinges for our animation. But to get the waist narrow enough to fit the size of a man's waist that doesn't eat at Mc Donald's every day, we need to shorten these fittings. In the top left you see where, at the dotted line, to cut the long nipple off of this fitting. Now when assembled the two ABS fittings will remain in place between the center and the outside fittings.



Our final item to prepare for the assembly of our animatronic's armature is the 2 3/4" piece of 1 1/2" PVC pipe which you will



cut away the front and back of enough to offer you access to the plunger nut as well as the plunger enough clearance to work. Now drill a hole through the wings approximately 1/4" away from the edge that will allow for the connecting rod you see passing through the lever above and held in place with hitch pins. The size of the hole here and the rod you see drilled out had to be replaced with a much larger rod once the final air cylinder was acquired that would actually work in the inverted position it has to here, as the plunger was 3 times as thick on the industrial unit than our bike pump! You will find a photo of the final unit in the next shot below along with the sizes needed for this particular ram.



The massive plunger on this air cylinder that was mentioned at the start of this how-to, is 3/8" in diameter! So out of the lever comes the old steel rod, the PVC lever is drilled out with huge 5/8" holes and a section of 1/2" electrical conduit is drilled and fitted for the ram's plunger and the hitch pins.

Notice the hole going through the nut on the bottom of the plunger and a piece of heavy gauge wire slipped through and bent down so the nut can never loosen on us. You will also clearly see a need to cut out the front and the back of the lever to clear the cylinder and the attaching nut. At least we know the rod isn't going to bend anytime soon!

Using the CAD drawings as a guide along with your cut out list, you should easily be able to assemble the chest and obviously the extremities. Across the shoulders you will simply join together three 1 1/2" "T" fittings using the 2 1/2" sections of pipe so each joint presses tight against each other.

All of your torso area should be assembled using only #8 x 3/4" screws through each joint to hold it together so you can make changes if needed, do NOT use any glue until later.

The top T should be either straight up or slightly leaned forward, as the skeleton's head will be positioned as hanging from a noose. The two top chest Ts as you can see are slightly lower than level at exactly a 16 1/2 degree angle. Do not worry if you can't determine this angle, as it will become self apparent. Once this is assembled using a rubber or dead-blow plastic hammer, finish the shoulder area with 2 more 2 1/2" pipe sections to attach the 90 degree shoulders that will be angled slightly backward, as his arms will be tied behind his back.





Next you will need another 4 pieces of 2 1/2" sections of pipe to attach four 45 degree 1 1/2" elbows to the front of the chest.



The lower of the two will be slightly angled inward at the bottom, as the lower, 19" sections of pipe that cover the "stomach" area will be traveling toward each other somewhat, narrowing at the waist. Then we will need to attach our modified 2" black ABS T fittings. Be sure they are perfectly aligned with each other. I laid the assembly on its back on a flat surface and made sure all the points were level to each other at the same time so it is square and plumb. (Once the entire skeleton has been assembled and everything is square and plumb I set each joint with a couple of #8 X 3/4" screws as shown on the right above.) Ignore the air cylinder in this photo for now. We will come back to that later.

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Now it is a simple matter of attaching the two 90 degree "hip" elbows to the 5" sections of pipe that go into the center 1 1/2" T fitting.

Your elbows should fit perfectly almost snug to the very inside deepest point of the two ABS T fittings when fully inserted to both the elbows and the white T.

Once you have determined that your angle of the PVC fitting is going to be ideal, go ahead and mark your fittings, disassemble using your hammer and



re-assemble using a PVC pipe cement so this section which will be constantly moving when in use will stay together securely. If you lay the chest and hip assembly on a flat surface you will be able to tell if the fittings on the hips are parallel with each other before angling the middle fitting backward.

Once glued together it is important to grease the inside of the ABS fittings well so your animatronic doesn't wear out in the first year of use. You will find plenty of space to insert your grease nipple into the top cut-out section of the fittings. Now attach the arms and legs with screws. In the lousy photo on the right you will see a shot of the feet of our dead fellow that was not on the CAD drawings. They are 6" long and held to the bottom of the lower leg with one 2" long mending plate on each side and screwed loosely to the ankle area of the foot so it will move when the animatronic goes through it's cycle. The reason the lower leg looks so fat here is this photo came from the bulked-out stage of our prop.



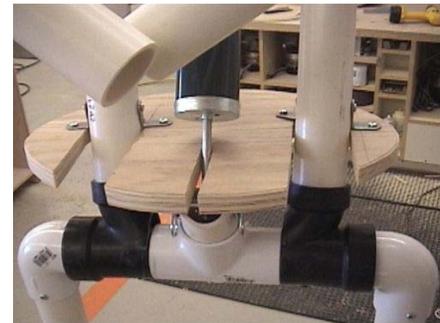
Next we will need to fit our skeleton with a waist and a back. For this we will use a chunk of 3/4" plywood cut in a parabolic oval in the general shape of a man's waist at 8 1/2" X 14". Leave the back of the oval (directly behind the air ram) flat, as I had to go back after assembling the one shown here and cut this down to allow the lower portion of the wood I used for the back to attach to. This flattened off section will also need to be sanded down on a slight angle as you will see, to accommodate the slight forward pitch of the back. See photo below.



Three slots will need to be cut out as you can see for the wood to slip over the PVC pipe and the plunger from the air ram.

The slot for the air cylinder will need to be much wider than shown here since the plunger is 3/8" wide, so cut this slot about 5/8" to 3/4" wide and about 3" deep.

The slots for the pipes will go to the middle of the wood as you can see and need to be just under 2" wide. Just hold the wood up to the skeleton to make the marks where the cuts will need to be with the



plunger slot dead center and the wood down almost as low as you can get it and still clear the lever assembly underneath. As you can see I merely held this in place with two 1" X 1" L brackets.

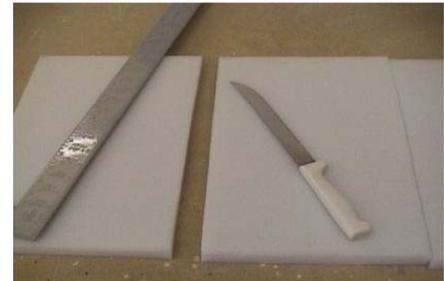


You will need a piece of 1/4" plywood or fiberboard as you see used here for the back to not only keep our skeleton together but to give us something to attach a large amount of electronics to. Notice how the waist is angled to meet the back. You can use #8 X 3/4" screws to attach this to the PVC and waist. The photo on the left shows the legs elevated with the lever fully deployed to show the end will just touch the back of the pants of our su

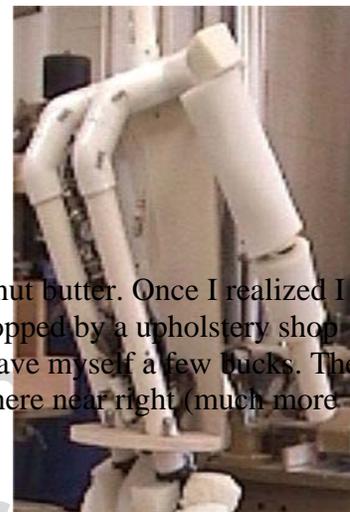
The LynCHinG - 6 -



I started with 1" thick foam rubber for the lower legs and lower arms when I began to fluff this guy out to roughly a man's size. I would cut the foam to just wrap around each section of pipe to meet in the back so it could be glued to both the PVC and to itself, making a clean seam.



For the upper arms and legs and shoulders I used 1 1/2" foam. It is important to note here that you will need a very good cement for this to work, as the water based DAP



Weldwood Contact Cement I first used worked about as well as peanut butter. Once I realized I hadn't gotten enough foam rubber to do a really convincing job, I stopped by a upholstery shop and bummed a large section of used foam from an old car seat and save myself a few bucks. The shoulders and upper legs really took a lot of foam to get them anywhere near right (much more than these photos show here), so get plenty while you're there.



Using a serrated kitchen knife I sculpted the foam to roughly the shape each part of the "body" should look and kept adding additional foam as needed to get it to really bulk out.



Remember, under 2 shirts and denim pants it will be impossible to detect slight irregularities in the surface of the foam, so you don't have to have perfection to look good when dressed.



The best thing to use for sculpting foam is an electric carving kitchen knife if you have one but a serrated knife does an okay job if you take your time. The photo of the back of the shoulders here shows some of the details that will be added later to your jerking, gurgling guy.



The idea of this prop from the very beginning was for all the sound and controls to be fully encased within the dummy's chest so to operate him a person would only need to run an air line and 110V power line to it and walk away.

That is a tall order with all the Things this guy is going to need, so let's get started. Once I had the body of my guy roughly fluffed out I turned to the pneumatics needed to fire our prop. The assembly here is the tightest package I could fit together for the trigger using a washing machine water valve



just for the campiness of it, pressure regulator, inlet and outlet which was then mounted to the back side of the PVC chest upright using conduit mounts, but plumber's tape would work just fine for this as well. For a full how-to on how to use a washing machine water valve as shown here as an air trigger and details on the pressure regulator, go to [AIR TRIGGER](#) at the end of this article. You will need some length of 3/16" OD plastic air line which can be picked up at any hardware store. The fittings used here are 1/4" slip fittings.

In this photo you can see the first few items going into the chest (however, the speakers were replaced later due to their lack of power to sound really realistic!). Most everything will be mounted to this board, so make sure you have compact power supplies and place them carefully so they will all fit.

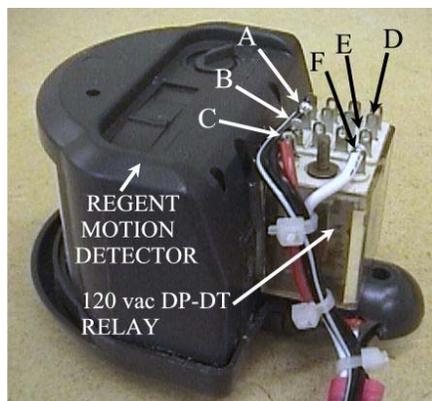


Next you will get a better idea of just how stuffed this turkey is going to get.

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Here is a laundry list of what you will need to stuff in here besides the air assembly;

- (1) [110V power strip w/ at least 6 outlets](#)
- (1) [Sound playback device](#)
- (1) [Powered computer speaker](#)
- (1) [Event Control Timer](#)
- (1) [Variable PET Timer](#)
- (1) [Motion detector \(OSH\)](#)
- (1) [120 VAC D.P.D.T. Relay](#)
- (2) [9 volt DC transformer](#)
- (2) [6 volt DC transformer](#)



Here is the same motion detector unit I show how to modify from a flood light under the [Motion Trigger](#) pages at the end of this article. Once you have it wired up so it will send out a 110V signal, you will cut the output leads short and solder them to the C and F terminals of your 120VAC D.P.D.T. Relay. When power is then triggered to the relay, there are little solenoid-driven points that are magnetically pulled together, closing the circuit to some of the other terminals and opening the others. The A and B arrows and the E and F arrows shows you where to connect up to two separately triggered circuits. We decided to wire this prop that way in an effort to eliminate "ghost"

triggering of our playback device that we experienced later in the project, however we learned that it wouldn't fully isolate it, so we had to add a second timer to our prop, just to run the voice. More on that later. The detector will be mounted on the waist board front and center with a screw through the mounting hole, through a shim and into the wood.



This is a panorama of the completed guts of our spastic friend after replacing 2 timers in search of one that would really make the actions of the jerking believable, adding yet another event control timer to control just the voice due to the ghost signaling we were getting, replacing the pressure regulator, replacing both the powered speakers for the large one at the top of the pictures and the replacement of 2 air rams.



Oh yes Martha, this one's been really fun. But, now that the right parts have been identified, at least you'll be good to go! One note here, the second slip fitting had yet to be added to the compact muffler in this photo, so ignore the little white goodie hooked to an air line at the bottom left of the photos.

You will notice an arrow on the top left picture pointing to the foam-covered air regulator knob. This is a special note that in an attempt to make this event *really quiet, we made a muffler to go over the knob where air can be heard escaping after being triggered occasionally. Must be a regulator issue. Further, you will notice the battery eliminators we used to run power to the speakers, the Mimic Machine and both timers have been zip tied to the power strip to keep them from shaking out of place during use. Everything else has been screwed directly to the back and waist with #8 screws for a solid mount. Notice how the air cylinder is mounted. We ran a 3/8" steel rod through the stomach pipes at just the right height so that when fully deployed, the ram's plunger would move the lever below the waist to the right distance (2 1/2") to cause his legs to

jerk upward in a realistic manner. To each side of the cylinder you see sections of 1/2" conduit cut at the right length to space out the cylinder to remain perfectly centered while operating. Then to mount the steel rod, we drilled the ends and after slipping a washer over the end, attached a hitch pin for easy removal.

ThE LynCHinG - 8 -

It is difficult to see everything stuffed into the chest cavity of our jerk, but at the top is the powered speaker (mostly hidden), the mimic under that and a 9 volt power supply to the right of that, then the Event Control Timer and to it's right is another power source for the powered speaker and below that the Vari-PET timer. Then of course you see the air ram, the air muffler is at the bottom left and of course front and center of the bottom is our motion detector.

When adjusting the animations of the prop I recorded around 6 seconds of sound (the recorder is limited to a max. of 8) with my own voice gurgling and groaning anxiously. I hooked that up to an ECT that was set for a 20 second cycle, so the Mimic would have power going to it for that amount of time. Then the Vari-PET timer which runs the pneumatics of the prop, plugged directly into the bottom outlet of the outlet strip was then timed to make him jerk his legs up and down sporadically for around 20 seconds.

Then both timers were set to 20 seconds OFF time so they couldn't be re-triggered by the same victim while walking away. What was curious here was that even though we wired up the electronics in such a way as to isolate the Mimic from the other electrical surges from all the other powered things going on, it still regularly triggered repeatedly 3 times while the ECT had the power going to it. This means that we have both sound and motion for a full 20 second run! So what was a huge headache turned in to a blessing in disguise.



It turned out the air cylinder we used was double acting, which means it will push or pull the plunger.

This is a cool feature, but it also means that you need to attach both the inlet (top) and the

second inlet (bottom) to the exhaust muffler shown in the top



right close-up photo. This is a new construction of muffler, using 1" PVC pipe 2 1/2" long with one end capped and threaded for the valve you see installed. The muffler is then stuffed firmly 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 not only extremely easy to fit inside of any pneumatic prop, but perfectly effective. It was attached to the PVC stomach upright with 2 modified 1" X 1" L brackets.

Also in the top left pic you will see the motion detector field of vision screen has been reduced to a very tight, small field with the use of black electrical tape. Now your victim will need to be pretty close to directly in front of the prop before it will fire, ensuring they will definitely witness the gruesome death.



Here is another look at the back of our dummy where you will see that the PVC pipe neck has been heated up with a heat gun and bent forward to imitate the slouched forward head of a hanging man. This is about a 20 degree angle shown here.

When dressed, I simply slipped a wig head over the neck and connected it with one long screw through the neck of the head and into the pipe on each side.

You can see at the base of the neck is a mirror hanger attached with a single screw (NOTE: this was ultimately replaced with a solid 2" mending plate for added strength after our jerk jerked himself loose by breaking one of the mirror hangers). This is where we will suspend him from using a steel cable attached to the gallows with an eye bolt and to a snap clip on the other, making him detachable. The cable needs to be about 10" long. There is also the air line connector and the power IN for our spastic shown in close ups below.



Here in the right photo you can see a cut out of the foam and the air line has been slipped through a hole in the back board and attached using a cable clamp.



It is fitted on the end with a quick connect for 3/16" O.D. vinyl hose, also making it easy to detach if we want to take our boy down for any reason. In the left pic is the square cut-out in the foam where we have fitted a hard-mounted female 110 V electrical cord outlet we recycled from the back of an old tape deck, which is soldered to the shortened end of the power strip on the

other side of the back board. The electric cord from the same deck was then was wired to the electric cord we have imbedded inside the core of the gallows, making the plug in very slender and easy to hide under the clothes of the dummy, and just like the air and cable fasteners, allows him to be removed for repairs.

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A look now at our gallows once assembled. You will need;

- (1) Handful of 2" drywall screws
 - (8) 3" drywall screws
 - (1) 3/8" Cove router bit
 - (1) Bottle of woodworker's glue
 - (2) 3/8" cabinet levelers
 - (1) Air line, 3/16" O.D. vinyl, 20' long
 - (1) Electrical cord, 16 gauge, 20' long
- And;
- (4) Pressure treated 2 X 4s, 8' long

Cut 2x4s into these sizes;

(Make sure you cut out as shown below, as there is no scrap left over at all)

(2) 24"

(A)(same board as (D))

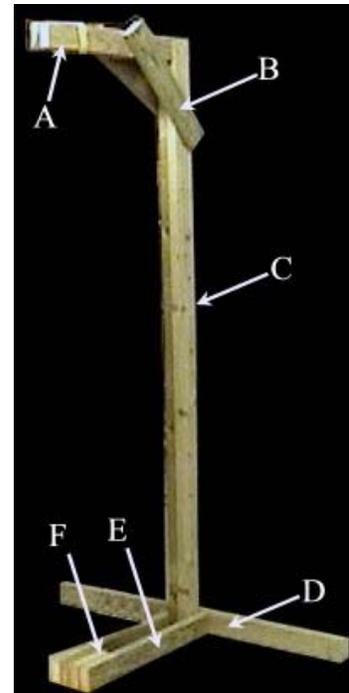
(2) 20" (B)(same board as E)

(2) 89" (C)(same board as F)

(1) 48" (D)(same board as A)

(2) 28" (E)(same board as B)

(2) 7" (F)(same board as C)



The idea of the Lynching from the start was to have a gallows with a hanging man on it with absolutely no apparent way to have air lines or electrical cords running out to the hanging man, all the more elements to suspend disbelief. To accomplish that we will need to run the air and electric lines inside the wood of the gallows. In the photo above you will see the groove that has been routed out of the center of the inside surfaces of the 2 X 4s that will give them enough space to clear and not get crushed flat when the two pieces are screwed together. Staple your line in place and then tape your cord to it every 12 inches or so to keep them together.



Here's how you will want to mark where you will run your 3/8" Cove bit in your router; in pieces A, mark a turnout where the lines will drop out of the wood at about 5" before the very end where the guy will be hanging from. Then mark all the way down the center and out the end of each. Above is a shot of the bottom of pieces C.

For these pieces, mark a turnout on the back side of each 2 X 4 at 1 3/4 on center and then all the way to 1 3/4" away from the top end where you will mark a turnout on the OPPOSITE side of the other turnout. This should match up perfectly with the two cantilevered piece (A). Now set your router to just over 1/4" deep and make two overlapping passes on each side of your marks so you will have a groove that is about 1/2" to 5/8" wide and the same depth.

Once you have determined all your grooves match up with their mates, then take one of your A pieces and pocket bore that to the top of the matching C piece. Be sure to use plenty of woodworker's glue in the joint, as this will be the strength of our cantilever.

Here you can see a tool you can buy or make yourself. This jig holds a piece of wood at a particular angle to the drill bit so the board may be screwed to another using either drywall screws or the special pocket bore screws shown above which work with a square drive bit.



The jig shown here is a Pock'it Jig Kit you can order from a tool supply like [Woodcraft](#). When making fine finish products with a jig such as this, you also need the special drill bit as well, so your center hole and counter sink are correct. For our project you can just wing it with a #8 drill bit through the end of the A piece and then come in behind that for about 1/2" deep with a 3/8" bit to countersink the screws. Also the long square drive screw driver bit is needed if you are using the square drive pocket bore screws as shown. Just be sure your joint is on a perfect 90 degree angle and is flat once assembled.

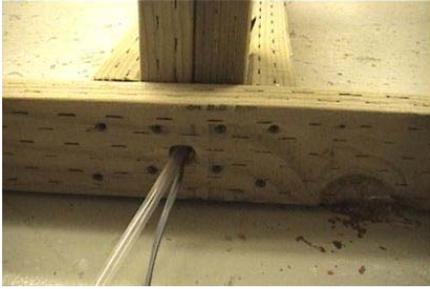


Now you can lay on the mating pieces of both A and C and screw together using 2" drywall screws. Don't worry that these pieces are not glued and screwed at the joint like our first half was, since the strength of that one joint along with the support of the angle pieces (B) will be more than enough to support your dangling dead dude.

You can see here that both of the braces were screwed to the uprights and cantilever in different positions, just to accentuate the rough nature a gallows might be thrown together like. Be sure you leave enough air and electric line hanging down to reach your fittings on your dummy's back before stapling the air line in place.

You can see how simple the base of this is here. The 28" pieces are separated with the uprights C and at the end with the 2 left over 7" pieces from our 89" cuts. Be sure to get this joint at a perfect 90 degree angle and use plenty of glue when screwing to the upright. For the rear stabilizer D, you will want to use 3" drywall screws and plenty of glue once again.

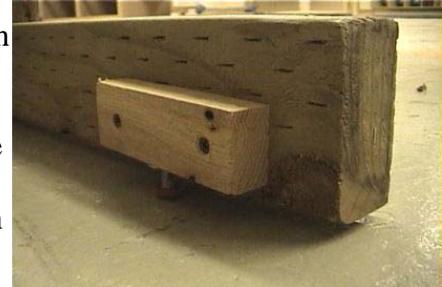




There is a lot of side to side stress on this joint and if this isn't a beefy joint it WILL come apart without braces like the top cantilever has.

Here is a nice touch. Since this covers so much ground with this 48" wide footprint, I decided

to use furniture levelers under the ends of stabilizer. Notice the 3" x 1 1/2" oak block they are mounted in is 1/2" above the bottom edge of the stabilizer to clear the thickness of the nylon glide.



You will need a 3/8" drill bit to drill your hole under this block to tap in the threaded insert for this glide to screw in to. Then attach with a little glue and a couple of screws. Now you can instantly spin one or the other down to take up the slack from uneven concrete to keep this much more stable and from rocking while in use.

ThE LynCHinG - 10 -

Now you will finish up putting your inlet fitting on the air line, the male 110 V 2 prong plug to your electric line and solder or crimp clamp your small cord end from the tape player that goes to the back of your dummy.



When you hang your dummy up make sure you zip tie your air, electric and steel cord together to prepare for the rope wrapping. And be sure to use a heavy gauge eye bolt in the gallows for the steel cord, as this guy jerks pretty hard against the connections.

This is a look at our boy once fitted with a head and dressed. I simply put 3 wraps of rope around the gallows that hid the eye bolt he is hanging from as well as the air line and electrical cord that is routed out of the



gallows at exactly the same point, and stapled it in place on top. Then, laying the rope against the bundled and zip-tied together group of air line, electric and steel cord to bulk out the "noose" I wrapped the rope around the very top of the bundle as tight as I could without crushing the air line and continued the wrap to the bottom of the bundle then zip-tied it off. Then with another separate section of

rope, I wrapped a single line around his neck that was then cut off where it met at the back of his neck, just overlapping about 2 inches and then zip-tied together. Now he will be fully removable as mentioned earlier, from his grim fate. The wig head was covered using a simple sand bag from Harbor Freight Tools that was sewn rounded instead of square which would also look great too. Then I cut and shredded the ends of the excess part of the bag. Use a wire brush to shred cloth for a fast and really worn look.



[Stage Hands](#) were attached to the end of the arms with about 3 screws apiece, then tied with the same heavy hemp rope we used to hang him with and wrap in a cross across his chest. You will need to buy 30 feet of rope to do everything.

When we dressed our jerk we used a long sleeve shirt under the over shirt so I can add not only layering to soften the shape of



the skeleton underneath, but also to cover up the crap load of machinations inside.

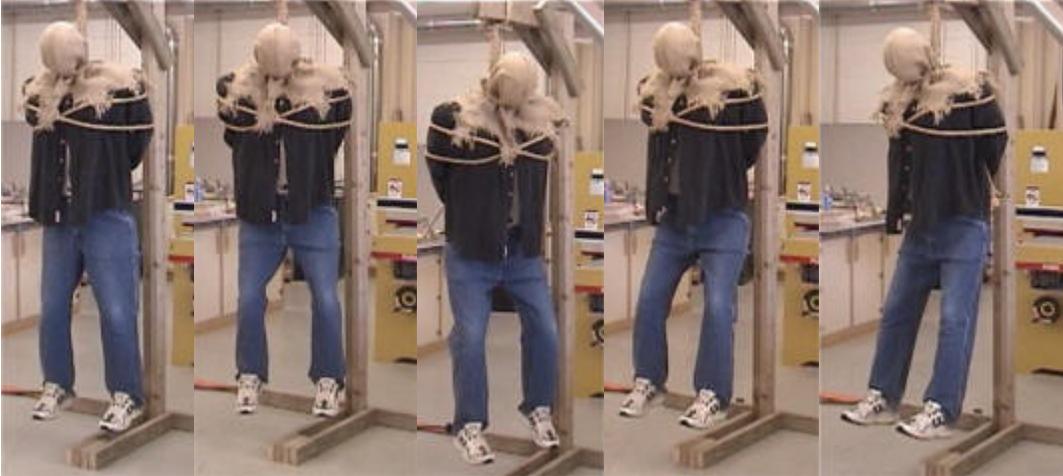
I screwed the undershirt to the stomach uprights up by the chest joints to keep it taught and then tucked in the bottom and screwed through the pants and shirt to the waist to keep the small slit you see here centered over the motion detector window. In the low light he will be in this will look like nothing more than a holy shirt, but if the undershirt had been black, it would have been totally stealth. With the over shirt open at the bottom, it hangs just right to keep this area clear.



Here is a look at the finished product up close. Even on top of this guy, you can't tell the skeleton hasn't been padded around the chest or stomach area, meaning you can keep the entire chest cavity open air inside and staying cool during operation. Here is another little detail I decided to add once I had him functioning nicely. I attached black braided fishing line which is totally invisible in even dim light, to the gallows and to each side of his hips.



One line is shorter than the other, so when he begins to thrash the left side hits the end of the line first, pulling the dummy to the left until it slaps against the end of the right line which whips him back to the right. So his movements aren't just his legs going up and down, the whole body is thrashing against the grips of death.



And here is the Lynching in his full gory. After this many set backs, it was very rewarding seeing him work this well. His movements and sound were very satisfactory and his looks were convincing enough to make you sort of queazy while watching him squirm and eventually die! Success! I hope you have a very smooth road to your project and if you build your own version of this guy, please email me a photo of the finished product to put up on my website here for others to see as well.

Obtained from
Omarshauntedtrail.com



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.



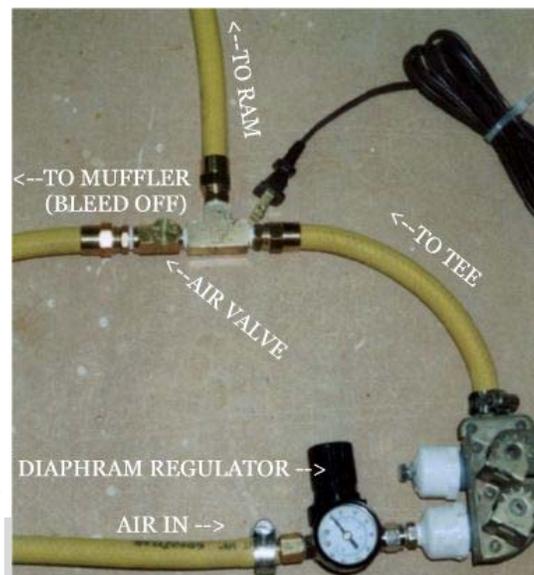
Slip on to either lead on the solenoid that triggers your water valve and then cover each with heat-shrink tubing or electrical tape. It does not matter which power cord lead you send to which connector. Either way will work as long as you attach your air nipple to the corresponding cylinder .



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.

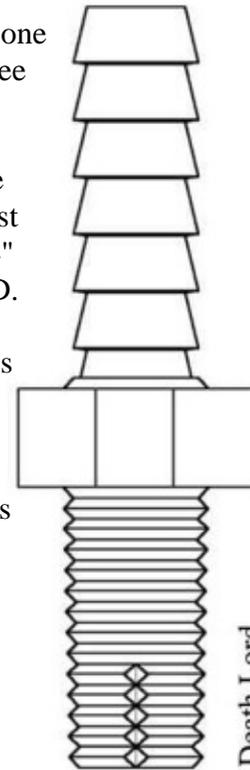
The sound is not only eliminated nearly 100%, but by introducing the muffler to the system actually cuts down on the air pressure needed to activate the prop and in turn less air volume. And that means less refilling of the compressor tank during the night.



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.



<http://www.deathlord.net/MotionTrigger/motion.htm>

Motion TRiGGER



Difficulty Rating:

There are few things in the unusual world of haunting that are more illusive than the automated portion of operating a spooky event. Sure, you can find how-to's on making jumping, pounding, flapping, flailing, dropping and hacking creeps galore, but when it comes to making these things go off by themselves at the right time, the search gets pretty grim. And if you can find it, just try giving it a voice. I have personally found how difficult it is to get a TOT to step on a section of carpet in my haunt because they figure it will trigger the coffin it is laying in front of. And of course they are right. So how do you trigger your leaping loafer and have him scream without advertising where the trigger is short of carpeting your entire haunt? Take a look inside.

Motion TRiGGER - 1 -

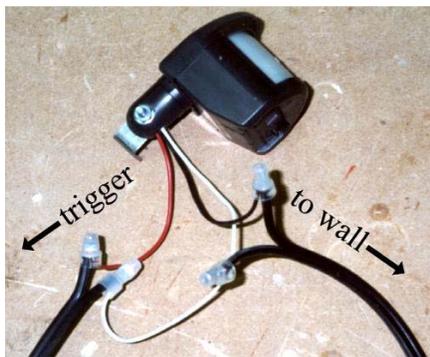
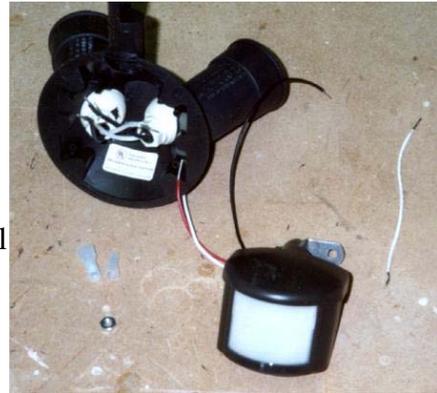


When making a motion detector for your 110 V animated event you can start with just a motion detector component like you see in the above picture shown hanging below and between the two flood lights. Or, you can buy the whole motion activated flood light assembly as shown above. The reason I use the assembly is for some unknown reason the separate component costs nearly twice as much as the whole set.

It is a very important point to make here that not all motion activated flood light sets can be made into the motion detector we are planning to make here. The reason for this is that some assemblies have additional circuitry attached to the inside of the mount for the flood lights that are required for the detector to work. And you sure don't want to have to solder these wires all back up together after tearing them out and then assembling them somehow to the side of the detector component. That's why you should look for the same brand as shown above if you can find it (It doesn't actually HAVE to be packaged in Spanish to work does it?). This was purchased from OSH and costs about \$10. It is the least expensive that I can find in my area.

First thing is to disconnect the detector from the rest of the assembly as shown here. There is an extra length of wire that is used in the attachment to the light sockets that you will want to save for the next step.

On close inspection of the photo you can just make out two wire couplers on the lower left. One is for coupling two small electrical wires and the other is one size larger that accepts three wires. You will need two of each.



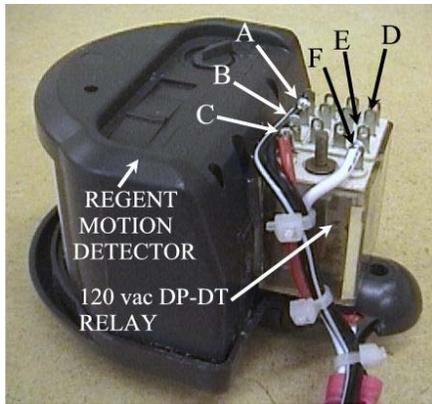
Now we will connect our leads to the detector. I use about 15' of cord going out to the trigger and about 5' going back to the wall socket. You can use standard zip cord and add your own ends to this arrangement, or you can simply purchase one 20' extension cord and cut it 5' from the male end and be done with it. Not only does this take 10 minutes less work, but it costs about 1/3rd as much as using separate components.



I already had the cord for my project so I assembled the one shown here in this how to. If you are assembling yours from scratch be sure to put a female plug on the TRIGGER side of your detector and the male on the WALL side.

To attach to the detector clamp the BLACK wire to either leg of the extension cord that will be going to the wall. Twist one end of the short section of white wire that came from the flood light assembly to the WHITE wire on the detector and then clamp both to the other leg of the cord going to the wall. Now clamp the RED wire to either leg of the cord going to the event or trigger (the female cord end). Now clamp the short WHITE jumper wire to the remaining leg of the trigger cord. Next we see how this actually makes your oversized dolly barf green chunky water.

Obtained from
Omarshantedtrail.com



While this little goodie shown here was not used on this particular how-to showing how to set up a fully automated sound and trigger system, I wanted to add this section here so you could see how you can solder up your own relay in a very small, compact package that has the capacity to totally isolate trigger signals.

Once you have your detector wired up so it will send out a 110V signal, you will cut the output leads short and solder them to the C and F terminals of Shown is a 120V, 4 Pole, Double Throw, KH style or "Ice Cube" relay. [120VAC D.P.D.T. Relay.](#)

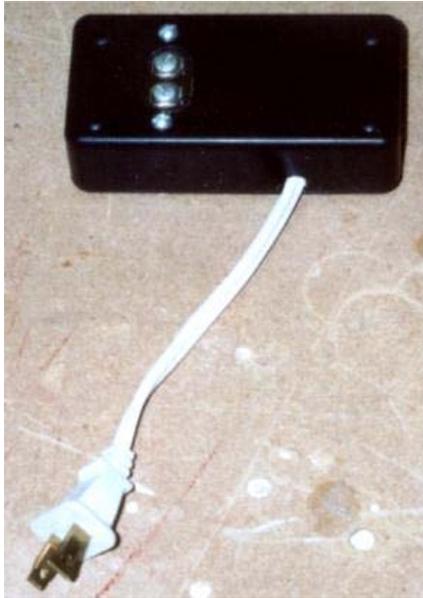
When power is then triggered to the relay, there are little solenoid-driven points that are magnetically pulled together, closing the circuit to some of the other terminals and opening the others. The A and B arrows and the E and F arrows shows you where to connect up to two separately triggered circuits. This is important, as on some props you may have to isolate two circuits in order to eliminate "ghost" triggering of playback devices, as we learned on our [Lynching](#). Once you have soldered leads to the A and B terminals for instance, you will then run these to your timer to signal it to make your animatronic go through it's cycle and then resets 20 seconds later. Then you will solder to the E and F another set of leads that will then signal another timer to tell the Mimic Machine when to turn on and then the timer will keep it from triggering again for 20 seconds until the first timer resets through it's cycle. For an expanded look at using the ice cube relay as shown here, visit the [Relay Trigger](#) how-to.

Here is the actual relay assembly we used here in this set of photos for the how-to. Jim Kadel of [Haunt Master Products](#) sells a little pre-made package that makes your detector actually trigger two points that is very affordable and easy to use. He calls this an [Interface](#) and when your detector fires it sends a 110V signal down the female cord which then triggers the relay inside this little plastic box which then simply closes two point, like the points described in the last section above.



Motion TRiGGER - 2 -

The way the Interface comes from the manufacturer is as shown on the left. Since this is a stand-alone device, I wanted mine in a tougher package so I purchased a small project box shown on the right from Radio Shack to put the Interface inside of.



I just cut a slot out of one side of the box, drilled two holes and mounted the attachment board facing out. I also had to grove a hole out from between both top and bottom sections to get the power cord out. Now we are ready to put this to use.

The goodie you see here is an [Event Control Timer](#), also made by Haunt Master Products. This is at least the most important part of my haunt. It has the ability to turn your Jumping Jezebel on, leave it on for exactly 3 seconds, turn it off and then keep it from being able to be triggered again

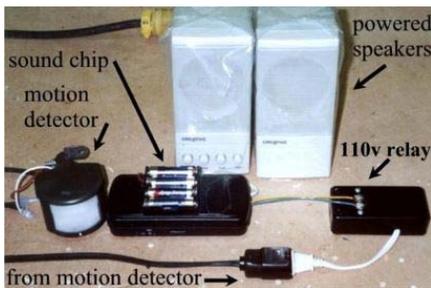


for, say, 20 seconds. If you run two wires from your solenoid, or Interface, to the side attachments on this ECT it will detect the circuit closure and send 110V power out of the power outlet on the right side of your picture and to your Jezebel.



The playback device I use for my projects anymore is the [Mimic Machine](#) which records 8 seconds of sound. This unit has red LED eyes on on and extension wire, built in mic & built in light / motion activation and at about \$16 is the best deal I have ever found.

You can order these from the Halloween Club in Santa Fe Springs, Ca. over the phone at (562)-407-3284. For patching the sound out of this device you need to open up the case and solder external speaker wires to the two terminals on the speaker itself then solder to the other end a phone jack to plug into the powered speakers. This how-to doesn't show the Mimic in use, but a home-made unit that does basically the same thing.



Here you will see a nearly complete assembly of motion detection, circuit opening and a sound chip (digital voice recorder) box to produce a sound signal that is then fed into the powered speakers so we can hear the voice of the monster. I sometimes use the powered speakers similar to the above, and sometimes I use the much louder karaoke machine to relay the sound. The solenoid, or Interface, can have just this hooked up to it or can go to an animated prop to trigger that, or both. What is not shown in the photo above is the ECT (shown below) hooked up.

You will need two more wires coming from the 110v relay that will be attached to the side mounted screw attachments on the ECT.

The FORMULA to hooking this together is this;

Plug ECT into 110v wall socket.

Plug 110v power line to event into the female 110v out of the ECT.

Plug motion detector into 110v wall socket.

Plug 110v relay into female out of the motion detector.

Attach the two wires from the out of the 110v relay to both the trigger to the digital sound chip and to the side attachments of the ECT.

Hook speaker out wires from the digital sound chip to the line in of the powered speakers.

It might seem like a hell of a long way to go to give your animatronic a voice and become animated, but so far this is the simplest system I have ever found to achieve everything we have just achieved here in this combination. This is the same system I use for my [Coffin Coronary](#), [Aerial Executioner](#), [Crypt Keeper](#), a static werewolf, [Trash Can Trauma](#) the [Exorcist](#) and the new [Lynching](#). Hopefully your next haunt will become even more animated than ever with the help of our Floodlight Motion Detector!

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