http://www.deathlord.net/AerialExecutioner/aerial.htm

AErial ExEcutionEr - 1 –

Here are pics of most of the things needed for the animation of your executioner.

Here you can see the pump I used to create an air cylinder was all steel construction, so the threads on the top of the pump are metal-to-metal (bike pump available most places called BIKE XTRAS #861). The stronger the cap-joint the better for safety, so choose a high quality pump. The two closers shown will be used to make Screen Door Air cylinder s to animate the arms.

At the pressure this will work at (65 lbs), you can use plastic T fittings as shown, you will need one 3/8" each nipple for splitting air to each arm and another "T" that is 1/4" each way to attach in-line to your bike pump to attach one of your needle valves to for bleed-off. Also shown here is a diaphragm air regulator that allows you to adjust the maximum pressure allowed to your cylinder s. Since you have two different air pressure settings on this project you will actually need two of these. If you use air regulators integrated to your prop you won't ever have to worry about sending too high of pressure to it, thus avoiding the possible damage. It is a good idea. The final items shown are two brass regulators (1/4" pipe fittings). These will allow you to adjust the air going to both the head and the arms of the event.

Obtained from Omarsraunchyrail.com

The funny looking blue thing in this photo is a washing machine water solenoid that we will be using for our Air Trigger. The needle valves (shown in the pic at top)(2) 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 20' of 3/8" rubber airline and 1' of 1/4" plastic tube for attaching to the needle valves, shown attached to the valve at the top right.

Other items needed not shown here are various fittings for the air lines. You will need (14) pipe clamps to fit around your 5/8" outside diameter (called 3/8") air lines, (4) 3/8" thread-to-slip connection fittings, (2) 3/4" long 3/8" all thread male - male connectors, (2) 3/8" all female Ts, (1) female air line connector with slip fitting for your air "in", plumber's Teflon tape & (1) 1/2" conduit wall clamp.

My vision for the executioner was from the start to have a huge, imposing figure who's head comes out and up - to tower over your head, not just high, but to travel forward at the same time. That is why you see in the photo the bottom of the head air cylinder is backed away from sitting directly under the shoulders.

This would give the head the forward travel that I desired. Yet since the bicycle pump does not have the correct orifice for the rod to remain suspended at a truly parallel angle if not vertical, this was not really possible. I was able to achieve a bit of a forward travel by adding a "bearing" orifice to the existing pump's top cap, but I was not able to get the head to return if the pump were on much more than only a slight angle. Therefore you may want to build your chest section with the pump perhaps kicked out a bit less (like 2" less) than shown.

One cool upside to the construction of this skeleton is that I did not have to use any padding of any kind to dress him out.

Obtained from marshallstreet.com

His large diameter "bones" and the built-out chest not only fills out his clothes, but the cavity the chest area creates gives us more than ample space for his air line manifold and fittings.

As you can see, I have built the chest section out of schedule 40, 1 1/2" PVC pipe and fittings. Using a 4-way junction for the neck, I was able to slip the cylinder up through and hold it with nothing more than a snug fitting sleeve made out of schedule 40, 1 1/4" PVC pipe. This made for a very clean mount. Down at the bottom, the pump is mounted to a T fitting with 2 pipe clamps and 4 pan head screws. The screws are tight against the clamps and the head is left up high enough so the clamps cannot slide off the T fitting.

To put your frame together you will need a 14" x 20" piece of plywood, a box of 100 (#8) 3/4" pan head Phillips screws, a dozen (#8) 3/8" pan head Phillips screws, one 3/4" PVC slip-on end cap and these various pipe sections and these 1 1/2" fittings;

(2) feet of ABS 2" pipe
(14) feet of Schedule 40, 1 1/2" PVC pipe
(1) foot of schedule 40, 1 1/4" PVC pipe
(4) feet of Schedule 40, 1" PVC pipe
(2) feet of Schedule 40, 3/4" PVC pipe
(6) 90 degree elbows
(6) T fittings
(4) 45 degree elbows
(1) 4-way junction
(2) threaded male ends
(2) galvanized mounting flange

Screen Door Air Ram

The screen door closer has been used for years as an air cylinder for pneumatic props, but how exactly do you make one of these work? I learned how to do this with extensive research when building a Trash Can Trauma (created by Carl Chetta) a few years ago.

After the research I decided to document all the details of how to do this again in case I wanted to make more animatronics. Lucky too, since I have had occasion to use one again recently and was happy that I was able to go right to the store and buy the correct parts.

I also expect to use them in the future as well, as they are the cheapest way to achieve a self closing air cylinder that will work for years. This how-to will be slightly different from the other web sites

obtained from marshaunttrail.com

you may find on the internet, as this is a very industrial type end product since the air-in fitting is attached properly and will last under heavy abuse for years. The typical instructions show how to force large fittings into the very weak walls surrounding the threaded fitting of the closer. That type of arrangement could prove not only problematic possibly requiring repairs, but more importantly IMHO could be dangerous. Here are the details for building an alternative one that will work for a long time.

MATERIALS;

1) "California Screen" Screen Door Closer
(Model #VJ102CALBL)
1) Brake Bleeder Valve
(SIZE M7-1.0 x 33.8MM, Pep Boys NO#3139551)
1) 15/64" Drill Bit
1) 7MM - 1.00 Metric Tap
1) Roll Teflon Tape

You will need to begin with a typical screen door closer like the one shown above from your local hardware store. This one happens to be from Home Depot; "California Screen" closer model #VJ102CALBL. The fitting needed to get the air IN to your cylinder is an automotive brake bleeder fitting from Pep Boys, the technical dimensions (this is important in the event you need to go to another place to find the exact size that works with the bit and tap as documented here.) is M7-1.0 x 33.8MM and the part number from Pep Boys for one is #313955.1.

You will also need a 15/64" drill bit & 7mm - 1.00 Metric Tap as shown here.

Remove the air bleeder screw from the back of the door closer and using the 15/64" bit, drill the adjustment screw hole out until you reach the end of the aluminum, but do not drill all the way through. Stop the bit just before the end so the air fitting will have something to stop solid against.

While drilling this out you should keep the closer and drill bit pointed upward to keep all the aluminum shavings from going down into your

Obtained from Omahaguntech.com

cylinder cylinder . Now you will tap threads for the automotive bleeder screw but stopping just shy of the end of the hole just as you did with the drill bit. You will notice the bleeder fitting has a hole running down the center of it that then stops at a junction that routes the brake fluid to each side of the screw.

Since you want clear, uninterrupted air flow to your cylinder and also need the threads to run to the very end of this fitting, you must cut off the end of the screw that is smooth as shown on the right of the two fittings shown here. Use some Teflon tape around the threads on the fitting so your connection will be airtight and thread into the back of the door closer. When you are done your cylinder should look like the photo on the right.

This air cylinder produces 4 3/4" throw when fully extended and will require about 30 lbs of pressure to actuate.

This should help you in your quest of creating your own pneumatic animatronic of your own vision or to complete a project that refers to the screen door air cylinder but doesn't go into detail on how to do it and what parts to buy. If you would like to see the air cylinder in use, you can visit one of my other how-tos on this like the Aerial Executioner. Or, you can go directly to the next step you will need to activate your ram, making an Air Trigger.

Obtained from
Organized
untedtrail.com

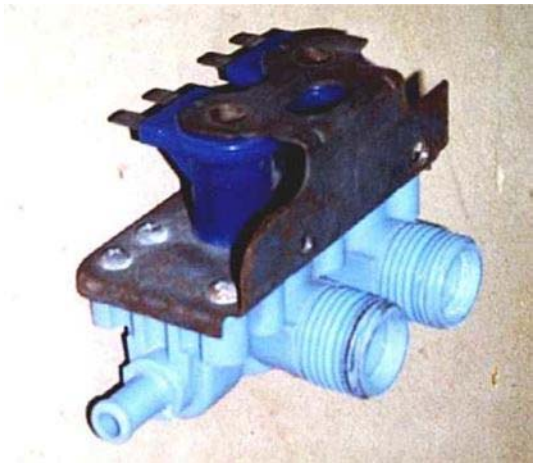
Air Trigger

Air Trigger Mufflers & Stuff 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 reseat 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.

Obtained from Omarshaunfeb.com

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 .

Obtained from Omalshaurbrian.com

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.

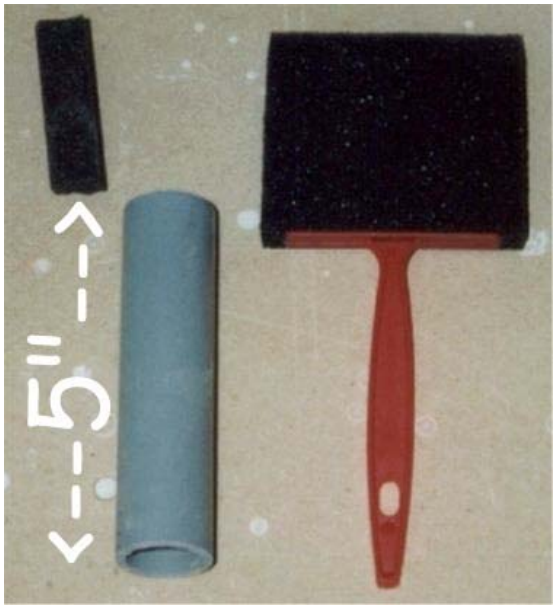
You can see there is an air valve to the muffler line because we will be dialing in the exact amount of bleed that allows our pneumatic prop to reset.

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

Obtained from
Orlonhauntedtrail.com

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.

Obtained from Omarshauntedmail.com

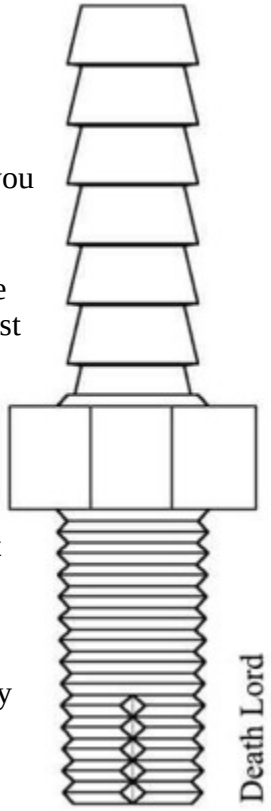
This is a really solid mount to the heavy rubber air hose, so it will not be falling off. Now When I set up my props I simply run the muffler line out behind the prop behind the wall to hide it.

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. 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.

AErial ExEcutioner - 2 -

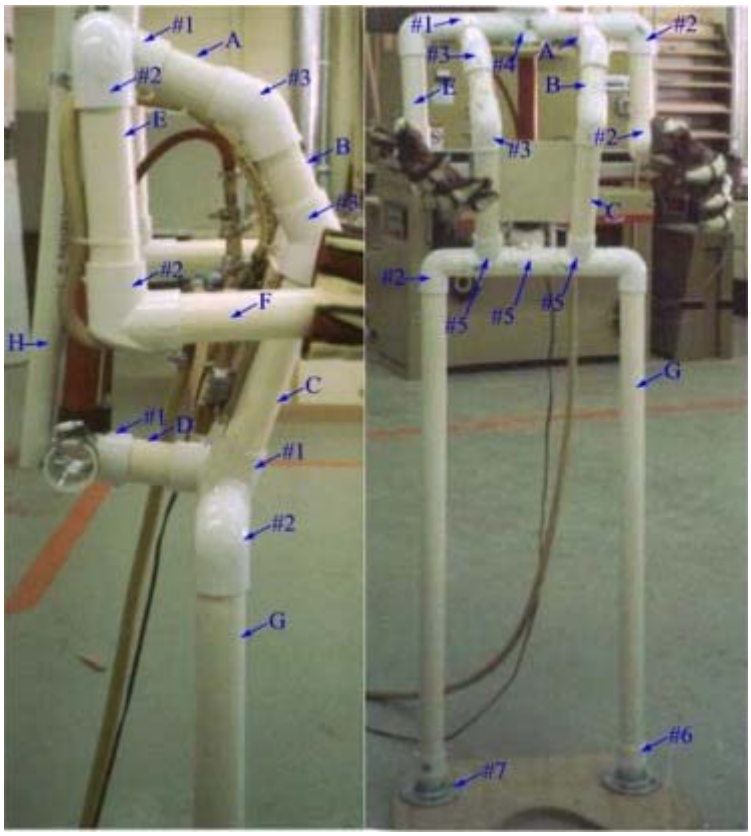
Next you can cut your pipe to length first if you like, then simply assemble the frame. Here are the cuts needed of 1 1/2" pipe;

(2) pcs 1 1/2"
(6) pcs 2"
(5) pcs 5"
(2) pcs 8"
(2) pcs 10"
(2) pcs 11"
(2) pcs 36"

Other cuts you will need are;

Cut (2) pcs of your 2" ABS pipe to 9" long for the hands.
Cut (3) Ts down 1/2" off each side for hips to measure 17 1/2" wide when done.
Cut (2) pcs of your 1" pipe to 10 1/2" long then split down the length.
Cut your 1 1/4" pipe down to 8".
Cut (1) pc of your 1" pipe to 24" long for your head guide.
Cut (1) pc of your 3/4" pipe to 22" long for your head guide.

Obtained from Omarshauntedtrail.com



Now we are ready to assemble the armature of your monster. Let's start by making the chest. As you can tell from the pics above, the chest not only angles outward, but it angles from narrower at the hips to wider at the shoulders. This is due to our trimming 1/2" off each side of all three Ts that are between the 90 degree angle hips, but not trimming anything off of the fittings of the shoulders.

Using a dead blow rubber hammer is best, but use what you have to hammer 1 of your 2" sections into each side of the 4-way fitting (#4).

Then hammer 1 T (#1) to each, then use another 2" section to attach the 90 degree (#2) shoulders. When you are done the shoulders should be 20 1/2" wide (You do not want any space between any of these fittings).

Now slide a 5" section of pipe into the two chest Ts for the top section of the chest (A). Next hammer on a 45 degree angle (#3) to the top pipes of the chest.

Now slide in another 5" pipe (B) into that angle and another 45 degree fitting to complete the front section of chest. Now hammer in the final portion of the chest, the lower pipe section (C) using the 10" sections.

Now, between the three Ts (#5) that make up the center portion of the hips (one pointing to the back for the air cylinder to rest on, two angled slightly forward and up for the chest) slip in the 1 1/2" pipe sections to attach these all flush together. (Remember to cut 1/2" off of each side of

Obtained from
Omarshauntedtrail.com

each of these three Ts so each one is a total of 1" narrower so the hips of the dummy is 3" less than the width of the shoulders.) Then slip in each end of the hip section the 2" pipes to attach the 90 degree hips (#2). Your finished width to the hips section should be 17 1/2". There should be no space between any of these fittings.

You will now insert the 8" pipe sections (E) into the shoulder elbows (#2) and then to this you need another 90 degree elbow (#2). To the other end of the elbow insert the 11" pipes (F) for the forearms.

You now need to give your guy some legs. To make him an imposing height I suggest about 36" pipes (G) for this. At the end of the pipes you will hammer on the threaded end caps (#6) and then spin on the cast iron flanges (#17) for mounting to the platform. I gave my platform a shape so that once painted black it would blend in to the floor easier. I just stood on the 14" x 20" board and traced an outline around my feet and cut out the figure with a jig saw giving it some room for the shoes of the monster to rest on. Attach your flanges exactly where you want the instep of his shoes to be.

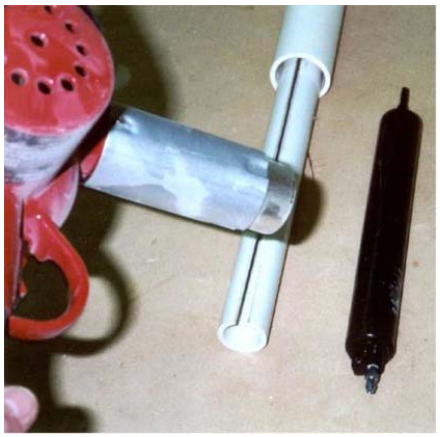
In the photos here you will see that the air line going to the arms of our project travels through the bend in the 90 degree angles at his elbow. (The elbow on the right happens to be a T that I cut off and shaped because I ran out of 90 degree bends here. But the easiest thing is to use a 90 degree.) Drill a 1/2" hole in the bend of the elbows for the line to travel through. Finally we will install the air cylinder perch or "tailbone". Insert the remaining 5" section of pipe (D) into the center T fitting of his waist (#5). Then fit the last T fitting (#1) on the end of the tailbone.

This completes our skeleton and now you should be able to slide an 8", 1 1/4" pipe section over the top section of your bicycle pump and then insert both of these up through the "neck", or the 4-way fitting (#4) and then adjust up the tailbone under the bottom of the pump until the top of the pump is 3" above the top of the fitting. To keep your 1 1/4" shim from sliding down the pump, simply drive one of your 3/8" screws through the neck of the 4-way fitting and into the shim. You need to make sure that the screw does not pierce the cylinder of the ram.

Once you have all the pieces in place and he is standing very balanced and the pieces all are very tight in their fittings, you will insert one 3/4" screw into each joint. This will insure nothing will

Obtained from Omarshaunfestival.com

come apart while in use or being moved. The forearms should be level before placing the set screws in the shoulders. I chose to use screws for securing the joints in my skeleton rather than using PVC cement so I would have the ability to adjust him at any time. Cement is rather unforgivingly permanent.



We need to install the forearm air rams at this time. First you will slip your 3/8" rubber air line over the end of the brake bleeder and then push it up over the hex teeth you use to tighten the fitting with.

Once you clamp the airline to this it will become very tight, so don't worry that the section you are tightening to isn't round. Leave a pigtail of about 30" of the air line to each ram. Next you will cut your 10 1/2", 1" PVC pipe lengthwise so you can slide your cylinder inside. I used a table saw for this, but I must warn you that it can be a very dangerous proposition.

You may want to use a hand saw or jig saw with a short blade or even tin snips to make this cut. Once you do, you will want to pry the end of the piece open and force your screen door rams up through. If you need some help with this you can heat the pipe with a heat gun as shown to make it more pliable. Flush the front of the air ram's cylinder to the pipe and let the excess pipe cover the air fitting section. We cut our pipe this length to protect the air fitting from sustaining any concussion from it's use.

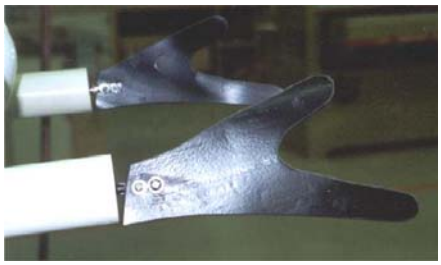
Now insert the air cylinder and the PVC shim into the forearm, air line first threaded through the 1/2" hole you have drilled into the center of the elbow. You should have no problem tapping this into place until the front of the ram, shim and forearm are all flush. The piston doesn't necessarily need to be vertical while sliding the assembly in place, as you can turn it to the correct position at any time.

Now that we have installed the rams for the hands, it would be a good time to make some hands for your beast. For this we need two 9" section of 2" ABS pipe. PVC pipe may also work, but I didn't have access to 2" size.

The photo here shows a section that I have cut in half and one side I have heated with a heat gun to flatten out. I later found that I needed more material for the hand than just half of the pipe,

Obtained from
Omarshauteduil.com

so you will need to split your pipes like you did with the arm air cylinder shims. Then you will heat them up and using a piece of wood to press down on the pipe to get it to start to separate, keep the heat on till it is pliable enough to fully open up and flatten out. I used a stick of wood to help me hold it flat to the workbench while it was hot until it had cooled. Once it cools, it will remain flat indefinitely. This is a great way to get sturdy, flat plastic stock for making any of a hundred things you may need to craft yourself.



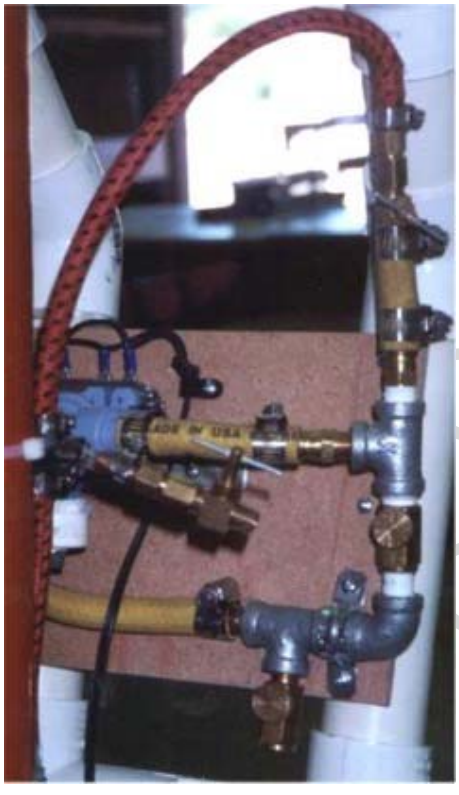
You will need to use your hand to get a good pattern to trace for the hands that you will be cutting out of your plastic stock.

I used a felt marker and traced around my thumb and index finger and then back to the wrist. We only need these digits to shape the latex monster hands that we will be slipping over the hands, and also the latex will not accept hands that are bigger than this anyway. In the photo above you see the finished product.

Once I had cut out the shapes I sanded the edges and used machine screws to attach them to the air rams. I also wound up drilling another hole in the air cylinder piston so I would have a solid 2-screw mount for mine.

Once I had them mounted I used the heat gun again to shape the hands somewhat so the latex hands would sort of pose in a grabbing position. If you fit your executioner with a chopping ax then you will need to leave the right hand totally flat so the ax will have full mobility and not run into the edges of this plastic. More on that later.

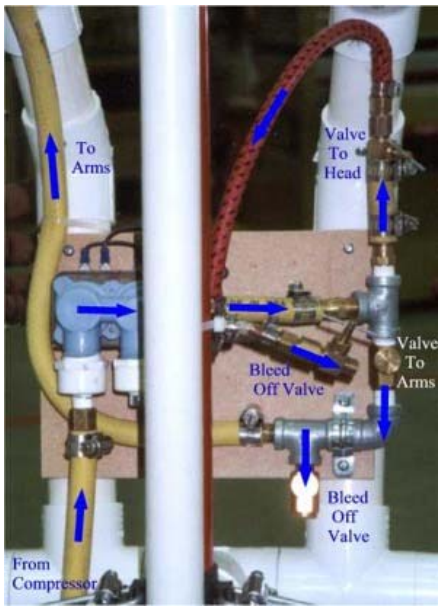
AErial ExEcutioner - 4 -



Now we need to mount the air system to the back of the chest cavity. I used a small piece of 1/4" board to mount all this on and screwed it to the frame. Since you have already assembled your air trigger, mount this on the top left of your assembly plate as shown in this picture.

You will notice that we are using 2 different valves here. Basically the only reason I use the little needle valves at all is because I have to couple these to the small 1/4" air line going to the bicycle pump and these enable me to do so for a low price and very accurate trimming of the air pressure. However, when I can use the 3/8" fittings as shown going to the arms and arm bleed off I do. It is just faster to work with and the trim ability is accurate enough for this application.

Obtained from Omarshauntedtrail.com



You should be able to duplicate the assembly above using the materials list from the previous pages. The 3/8" air line is clamped to the trigger output, then to a slip airline fitting that is threaded into a T that will go off to both the head and arms. For the line going to the arms the air then goes through a all thread fitting, into a trim valve and into a 90 degree elbow to another all thread fitting and into another T.

This T as you can see splits off for the bleed off and on to the junction at the top of the shoulders where we split off with a 3/8" male T to bring the air into the arm rams.

The line that goes on to the head cylinder at the first T goes into a male slip fitting into a 1 1/2" long piece of 3/8" air line that is then slipped over the thread section of one end of the needle valve and clamped directly to the threads.

Don't worry, this connection is more than adequate, as the connection seems to be air tight and this section of air line does not sit under the 95 lbs of pressure at all times. The only time it is subject to pressure is under firing. Then the other end of the needle valve is fitted with a 1 1/2" section of 1/4" brass tube that we clamp the end of our bike pump line to. Between this connection and the base of the bike pump we cut the line in half and insert a 1/4" male slip T inline that we come off of with a 1 1/2" section of 1/4" clear tubing that is clamped then to the 1/4" brass tube fitted to the bleed off valve. Now you can adjust the head and arms independently so you have exactly the right balance of pressure for both types of air rams being used.

AErial ExEcutioner - 5 -

There are a few things that need to be done to give this guy a head. First, you need to find a suitable skull. One that will take the punishment of being shot into the air over and over again, yet be light so not to overstress the entire system. I chose a skull made entirely of Styrofoam like a wig head for mine.

It came with flashing red eyes, it was very cheap ($4 at Big Lots) and the entire center of the skull was hollow. At first blush it seems that the hollow core would be a downside, but in order to fasten my skull to the bicycle pump rod I needed a solid connection. More on that in a moment.

Obtained from
Orrshaunteduk.com

Another thing we will need to do is accommodate the need to keep his head looking straight ahead. If you look closely you will see a 1" PVC pipe directly behind the bicycle pump. This is a guide housing for a 3/4" PVC pipe that is inside and attached to the skull. When the head is triggered, the 3/4" pipe attached to the head remains inside the 1" pipe, keeping the head facing the same direction. Also it is easy to see that on the top of the 4-way fitting we used for a neck on our skeleton, is a 1 1/2" PVC cap. I drilled a hole in center of this and then attached it to the 4-way with 2 small mending plates so it would act like a bearing surface for my piston shaft to slide against when resetting. It made the head reset even when the head was fully extended up and outward a few inches, in order to cause the head to "loom" above your head if you were directly in front of him when triggered. Without the bearing cap the piston would not reset each time unless it were vertical.

The hollow core of the skull I chose allowed for me to fabricate and install a mount made out of flat aluminum stock that was 1/8" thick, 5/8" wide and about 14" long.

I bent one end about a 100 degree bend about 4" from the end. This would be for attaching to the guide and the air ram.

The left over 10" I then bent into a curve that would fully fit inside the hollow. Once I had the mount taped into place inside the skull I filled the hollow with Great Stuff expanding foam. (Be sure to remember to turn the switch ON to the flashing eyes before this, as there is no way to keep the expanding foam from totally invading the switch area and filling it with foam also.

Plan on putting batteries in the head for each use or remove the entire battery / switch compartment before filling the head with foam and then re-installing it. I just flipped the switch ON. In about a day the foam had hardened and it was as solid as a rock. Also attached to the bottom of the skull show here is a modified mounting flange for a dryer duct. Just remove the little flappers in the middle and grind the corners off the back of the flange.

I attached the back of the flange to the mount with one machine screw and nut with lock washer and the front corners directly to the foam head itself with 3" drywall screws. This proved to be very solid indeed. Be sure the placement of the flange will allow for the 4" flex hose to slide unencumbered around both the air cylinder piston and the guide.

This will be the "neck" of your monster. You can choose to paint this completely or just the outside edges, leaving the bulk of it white like I did by spraying it with black paint while the head was in the down position. It offers a distinct impact being stark white once triggered, as you don't expect any part of this monster to be white with all the black and gray that makes him up.

Obtained from OmarShaughnessy.com

Since the skull I used was not the same size as a human head complete with skin, I needed to bulk him out so the latex mask I would use would be supported naturally. For this I used foam rubber pieces hot glued to the cranium and chin areas.

This worked well and kept the mask from excessively moving around when triggered. Here is a out-of-focus picture of what your head mounted should look like with the air duct attached.

I put a few screws through the bottom of the duct into the 4-way fitting of the skeleton and also reinforced the clamp around the base of the skull with zip ties, as the pull on the expanding duct can be a bit too strong for the flimsy clamps that they supply with kit.

I painted the skull black so the colors wouldn't be seen inside the latex mask eye holes, as well as painting the outside of the air duct so if it did show it wouldn't be seen. The mask did

Obtained from
Cmarshall@dtrail.com

We are close to the end of our project by this point. The only thing left now is to set up our chopping ax and then get him all dressed for the party.

By now you have triggered your executioner about 75 times to the great joy of your kids and the family dog. You might have also found out that if he was standing under a light fixture that he really does go up to 8' high even without his 1'

tall mask! Be careful that you have the room to trigger this guy! The above photo shows the way your killer will look once fully dressed and armed.

The ax you see is a standard issue rigid foam ax that came with a hard paper handle that I quickly tossed and replaced with 3/4" PVC pipe. You will need to cut this to 60" long and make your bottom cut at a 45 degree angle.

You will then attach the pipe to the ax (the post in the ax was wood, so I could attach solidly to it) with drywall screws. Notice the mount to the right hand is a 1/4" bolt through the PVC pipe and the ABS hand. I cut a slit in the latex glove so I could spin a nut on to the end of the bolt underneath the latex hand to cover it up.

After putting the bolt through the pipe, use a washer and then a nut to allow a slight play for the movement of the pipe on the bolt. Then send the rest of the bolt through and nut solid to the hand.

Here is the mount to the ax. As you can see, the PVC pipe is 45 degrees mated at the bend.

The two pieces are attached with a small gate hinge with machine screws and lock nuts through the pipe for a very secure attachment at the outside of the joint.

The other end of the short 5” to 6” section is attached to the wood platform with another hinge. Notice that this hinge is only attached to the board with one screw and even that one is not tight. This attachment is loose on purpose.

When the right hand triggers and sends the top of the ax out 8”, the joint that normally rests on the floor will be lifted into the air about an inch, and there is a chance that the ax handle will need to have a small amount of side to side play due to the air cylinder rod turning an 8th turn upon extension. Notice in the photo on the right above the pipe is lifted. You will also notice there is a switch mounted here on a modified L bracket that is mounted to the horizontal pipe section. This is the trigger that closes the circuit for the executioner’s voice. The switch we used

Obtained from Omarsnaunet.com

here is from OSH and is a normally closed circuit. When the ax has reset to its normal position, it opens the circuit once again, disengaging the sound. I have this wire going to a voice recorder / playback device that is triggered by two points being closed. The trigger I use for the air rams to actuate is a motion detector flood light modified with a 110 solenoid to fire an Event Control Timer (created by Jim Kadel of Haunt Masters) that limits the amount of time the animatronic receives power and then will delay resetting for the next trigger to the desired time. This gives your TOT enough time to get tired of trying to trip your animatronic 25 times to watch him work, and move on to the next phase of your haunt.

Well here is the moment of truth creeps, the finished product. Now when triggered, you will see his ax chop out for your head, his other hand reaching out and even twisting as it moves, while his already intimidating head shoots to over 8 feet in the air!

I run my Aerial Executioner at 95 lbs air pressure with the settings that I use with my event. Your air pressure may vary if you set your trim valves at different settings, including the valves that allow the head and hands to reset.

The speed at which the air bleeds out of the system has a great deal to do with the amount of air pressure you will use. I have mine set so the head comes back down rather quickly, to reset faster.

I hope you have great success with your project. Send me pictures of your completed project!

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.

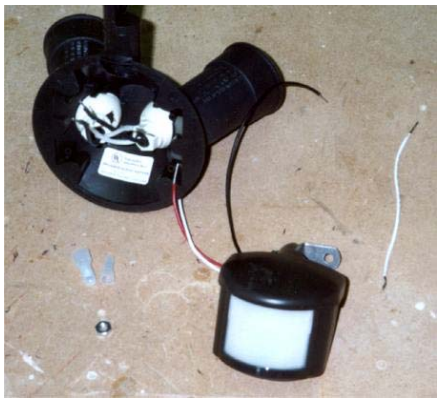
Obtained from Omarshauntedtrail.com

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.

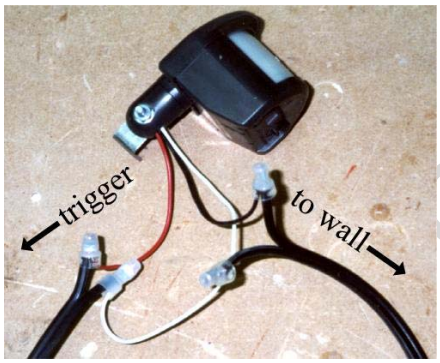
Or, you can buy the whole motion activated flood light assembly as shown above. The reason I use the assembly is for some unknown reason the separate component costs nearly twice as much as the whole set.

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.

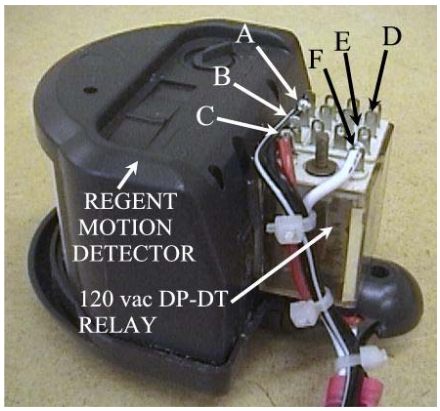


Now we will connect our leads to the detector. I use about 15' of cord going out to the trigger and about 5' going back to the wall socket. You can use standard zip cord and add your own ends to this arrangement, or you can simply purchase one 20' extension cord and cut it 5' from the male end and be 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

Obtained from Onlinetutorial.com

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.



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.

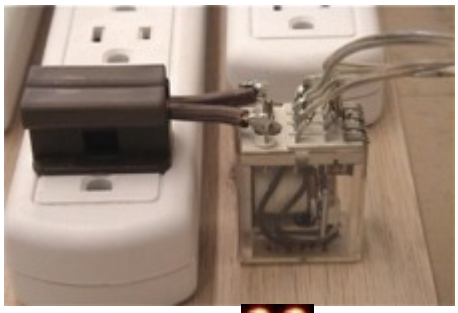
Once you have your detector wired up so it will send out a 110V signal, you will cut the output leads short and solder them to the C and F terminals of Shown is a 120V, 4 Pole, Double Throw, KH style or "Ice Cube" relay. 120VAC D.P.D.T. Relay.

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.

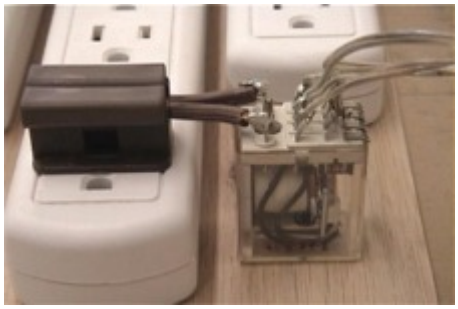
Obtained from
Omnimaunstral.com

RElay TriGGEr

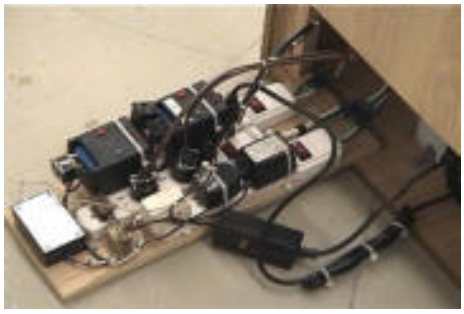


Difficulty Rating: 

Eventually, if you make enough animated props, you will want to trigger a voice or fogger or something from a remote location. Here's one way to achieve that, using a 110V relay. I have used these in many of my projects and here is a look at why they are needed and how to use one yourself.



Shown is a 120V, 4 Pole, Double Throw, KH style or "Ice Cube" relay. Nicknamed that since these relays are always covered with clear shells so you can actually see inside. That must be for geeks like me that have to see it before I can understand it. I work with these as they are readily available from surplus places such as All Electronics for just a few bucks. Ice cube relays come in different volts and amps, so be certain about your needs before choosing the one you will work with.



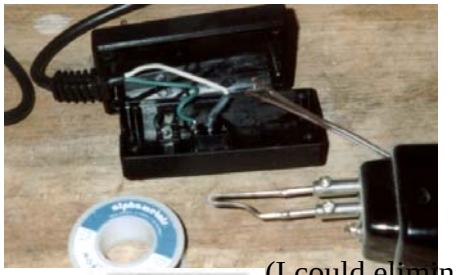
First we need to understand exactly what this little goodie does. In some cases we want to trigger something that is merely closing a circuit and is passive where it isn't actually sending 110 volts through the circuit, but connecting two points to complete a circuit which is sensed by the device we are trying to trigger.

When the ice cube relay is hooked up to 110V in this case anyway, it opens and closes a host of points inside the cube which can open or close the circuit on your device if hooked up to the proper two leads. This relay is a 4 Pole, so it has 4 circuits that it closes when energized and also features 4 other circuits that remain closed until that time. More on that next. There are lots of examples, but here I am going to use a fog machine as was just one of the many devices that was used on the single relay shown in the top photo here in the Electrocution. This one relay was employed to activate the voice, another activated a fog machine, and finally the last two

Obtained from
Ornamentedtrail.com

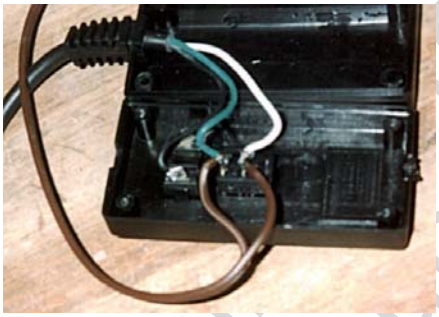
activating two Vari-Pet Timers from Cowlacious Designs for two independent animations. In this case I used a power strip to trigger the relay along with numerous other 110V devices.

So using the fog machine as an example of just how this works, you should get a pretty good idea how to use this for the other items which are triggered by passively connecting a single circuit. In this photo you can see the wired hand held remote control with a switch in the middle. Since I need so many items to go off at the same time with this prop it isn't practical to try to do it by hand, hence the reason for the conversion.



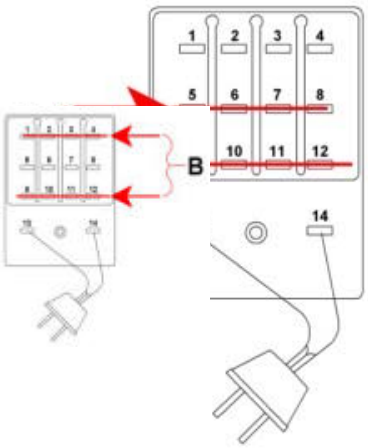
I open the switch box up and test the two leads connected to the switch to see if they carry current while the circuit is closed ("closed" meaning when the circuit or wire is fully connected in a continuous manner with no breaks as it would have when the switch is not being depressed) using a 110 V meter.

Since I determined that it is indeed a passive circuit, I simply solder a remote wire to each lead of the switch legs (I could eliminate the switch or just leave it there and not worry about it, depending on my future plans for that remote control). The other ends of the wire will now go to the relay and when activated, the readied fogger will emit fog.

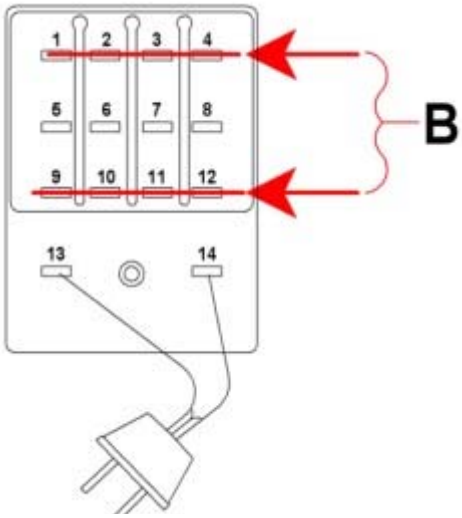


The relay, as seen from an aerial view as shown in this schematic, has numerous rows of connecting posts. On this particular relay, the second row and bottom row are the posts where you can connect one wire to each which are "normally open", meaning they are keeping the circuit from connecting. Once power is applied to the relay, 4 points inside connect 4 different circuits.

Obtained from Omaghauntedtrail.com



In this case these 4 circuits are; 5 & 9, 6 & 10, 7 & 11 and 8 & 12. These are isolated from each other, so there is no possibility of one device bleeding into the circuit of the next.

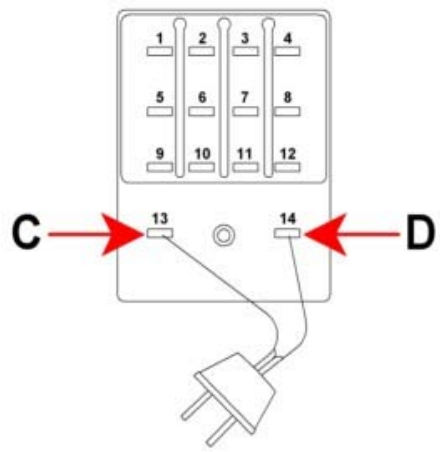


Next we have the top row and the bottom row which are "normally closed" which means two wires hooked to the 1 & 9 legs would have a complete circuit when the power if off to the relay. And sometimes you want the circuit to remain in effect until the moment something else is activated. An example of that would be the Dr. Jekyll / Mr. Hyde illusion using a two way mirror and lighting to make the person's face peering into the mirror turn into a monster. The other circuits here are 2 & 10, 3 & 11 and 4 & 12.

So what if you have a relay but it is different from this 4 pole unit, how can you find out which points close which circuits? Use a continuity tester as shown here. This unit is similar to the volt meter I used earlier, but different in as much as it actually sends out a low voltage DC current down the line and allows a person to see if two legs are open or closed as the relay is activated and un-activated. When the little light inside the meter appears, you have a closed circuit.

Be sure you are using a relay that only closes two passive points inside each circuit and does send out any current of it's own. Electricity can kill if mishandled.

Obtained from
Omarshaun@trail.com



Finally we hook up the relay to a standard power cord to enable activation of it and consequently our fog machine. Pick up a multi outlet extension cord for about .70 cents at WalMart or elsewhere and lose the female gang end. Solder each leg to the two bottom posts for your power in. The post on the relay directly between these two points is a threaded ground which I do not bother with myself. Now you have the elements of a remotely controlled event! By plugging this in to a wireless remote base unit, you can now set off your fogger, a voice to a monster or an elaborately timed animatronic from anywhere in your haunt or yard!

Once I get my relay set up the way I am happy with in my props I then coat the entire top of the exposed posts and wires with hot glue until they are completely covered and cannot shock me while handling the event while plugged in. For a deeper look into using this relay for more items look at the how-to Motion Trigger.

Motion TRiGGER - 2 -

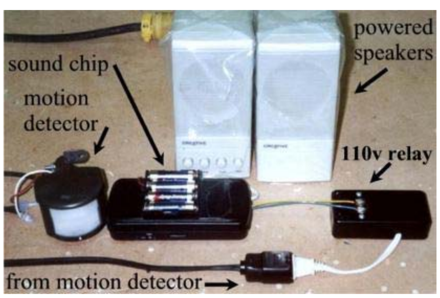
The way the Interface comes from the manufacturer is as shown on the left. Since this is a stand-alone device, I wanted mine in a tougher package so I purchased a small project box shown on the right from Radio Shack to put the Interface inside of.

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.

Obtained from Omarshauntedtrail.com

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.

Obtained from Omarshauntedtrail.com

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!

Obtained from
Omarshauntedtrail.com