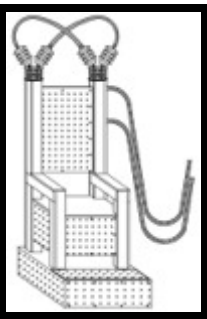
http://www.deathlord.net/Electrocution/elec.htm

ThE ELEctRocuTion


Conception

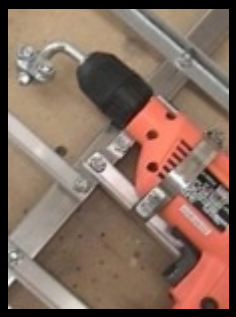

Construction

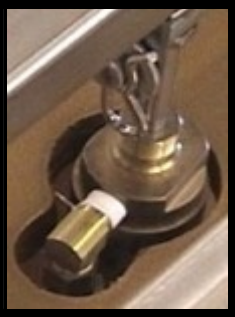

Chair


Motion

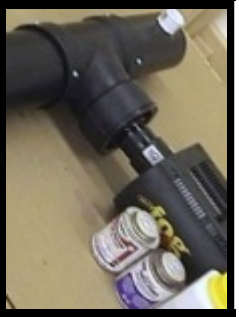

Skeleton


Nuts & Bolts


Animation


Pneumatics


Sound


Vortex™


Dressing


Programming

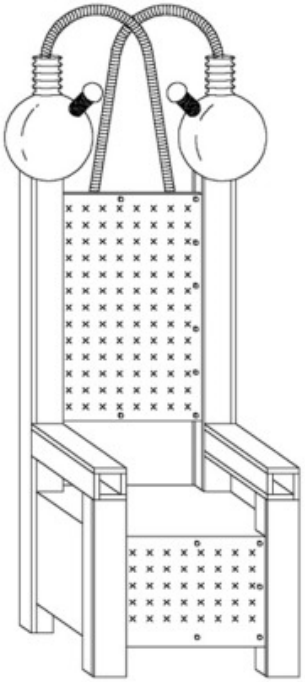

Electrocution

Difficulty Rating: 

I fell in love with the spectacular effects of the Shake And Bake made by Distortions not long ago and decided though a bit more ambitious than I am used to, that it would be a super project to build my own version of an electrocution scene. I don't have quite the mechanical prowess of the Distortion engineers, so I had to choose a method of animating my newest prop with technology I had already used in the past. In this case I chose to go with a combination of both electrical and pneumatics. In the end it turned out to be a much more vast project than I had intended it to be, but I was pleased with how it turned out.

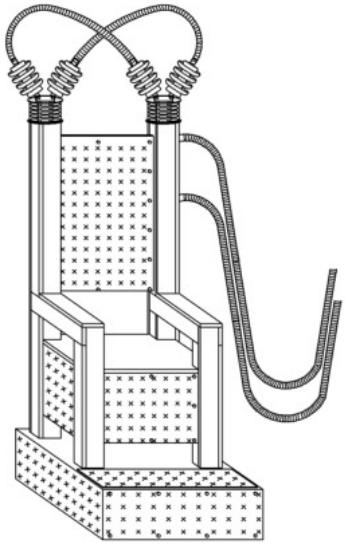
Here's how I did it.

The Electrocution -1-

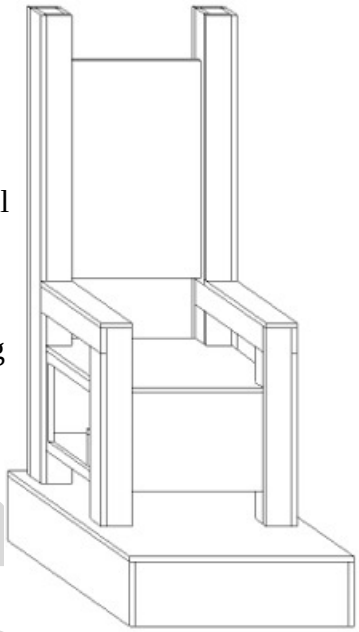


Like many ideas, mine was brought to the light of day glowing with pomp and pageantry on a restaurant napkin. Well, to be more accurate, on the back of a paper restaurant place setting that had grease smudges on it and looked a lot like the picture on the left only the lines weren't nearly as straight.

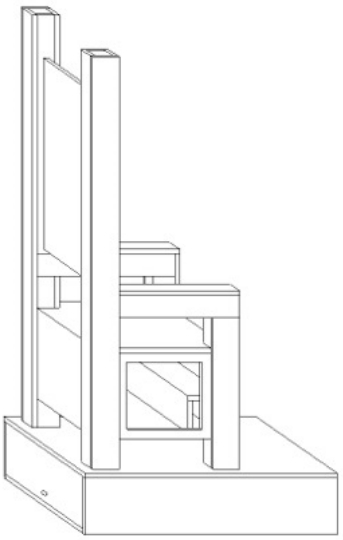
In it's initial design, the chair itself was going to incorporate two 8" diameter Tesla Coils (sisters) at the top of each rear seat post that would send a blazing blue bolt of electricity to each of the two orbs while the unfortunate guy taking the brunt of this torturous death was leaning forward and shaking violently. Then when he sat back upright for a moment between full body spasms, the bolt of electricity from both coils would zap to a metal head cage he was wearing, really giving him something to whine about.



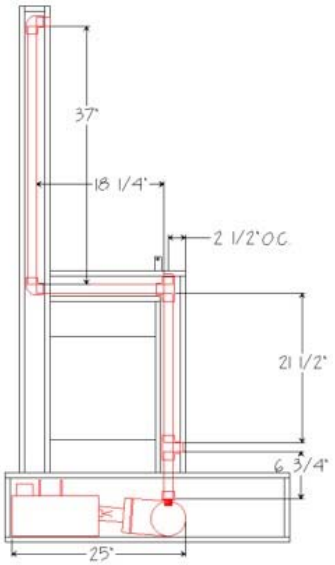
-Tragically-

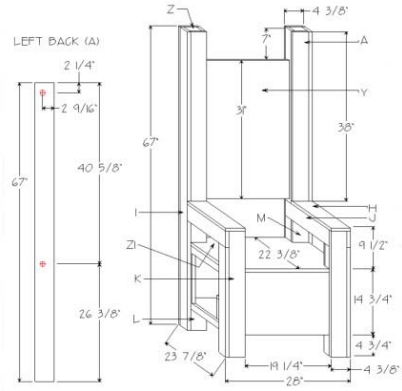


That couldn't happen. The chair was going to be literally filled with on board electrical gadgets to make all elements of this scene come to life and I learned there was really no practical way to fully isolate those on board delicate circuit boards from being fried into puddles of carbon each time the coils were triggered. So this element had to be scrapped. However, among the other animations our prop will have in common with the Shake and Bake, we would be able to create smoking skin at the feet

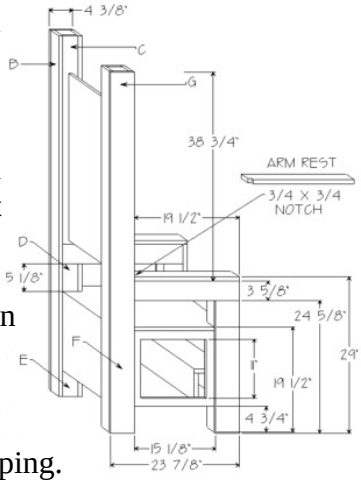


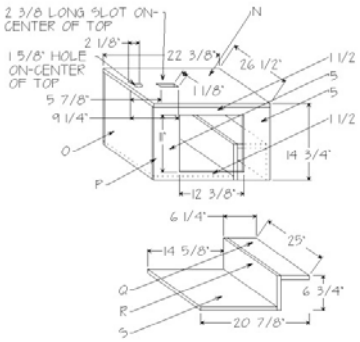
and wrists, and, going a bit further I replaced the Tesla coils in the imagineering stage with a chaotic fiasco of electrical insulators and heat sinks that would also emit excess smoke created by the dead ground created when shocking a person to death. The re-draw of the new chair would then look similar to the drawing just above on the left here. Not as dramatic as the blue lightening bolt-like spark from the coils, but it would have some redeeming value in our finished product.





Since this project has been engineered on computer, I was cautiously optimistic that I could build the chair and pedestal to the dimensions shown here before prototyping the dummy's movements and dimensions with a real life mockup and it did work out very well. To the left and right you will see draftings of the chair including its dimensions. The construction is made up of 3/4" plywood and is entirely hollow. This gives us channels throughout the legs and arms and even under the seat to run our wires and fog piping.

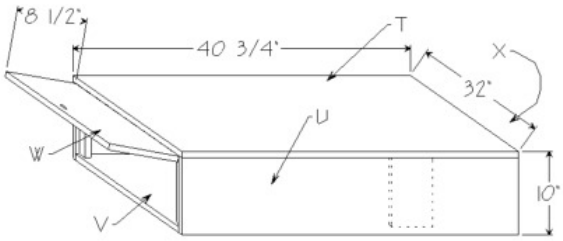




In this photo on the left you will get a clear look at the seat, which is a separately constructed box. Since this chair is all wood construction and will be subject to rather demanding vibration and concussion from the animations of our dummy, we need to use this as our anchor of rigidity for the entire build. It is important to note that the box is built with a face frame on each side for just this reason. You can either make a face frame using solid wood, glue and dowels or face frame screws, or using the simpler method of cutting out your opening in a single piece of plywood such as I will be doing here. Any of these three will produce the same desired result, a laterally stable box to base the rest of the chair's features on.

This is where our pneumatics will be to animate our thrashing guy as well as an isolated area to mount the speaker. We will be employing two air rams inside, one for the chest and arms and one for the legs. Our hopes are to completely eliminate any noise the air rams and exhaust might

have, so this box will need to be sealed off for operation. This is why the need for a floor as well as the separated area for the speaker. More on that later. Once the prop has been completed, the side openings will be covered up with 1/16" polished diamond plate aluminum that will kill 95% of the sound from inside.



The pedestal shown on the right is where the fog machine, the expansion chamber (based on the system that makes the Fog, On The Rocks work so much differently than other coolers) and electronics will be stored. Not only will this space be handy for our purposes of keeping this prop entirely self contained but it gets the view of the scene up higher to pronounce the animation to the viewer's eye. You will notice here that the back of the pedestal is hinged, allowing access to the electrical and other items it will store inside.

A) 2) 3 5/8	38	O) 2) 14	25
B) 2) 3 5/8	67	P) 2) 14	22 3/8
C) 2) 2 7/8	38 3/4	Q) 1) 5 1/2	25
D) 4) 2 7/8	5 1/8	R) 1) 6 3/4	25
E) 4) 2 7/8	4 3/4	S) 1) 14 5/8	25
F) 4) 4 3/8	24 5/8	T) 1) 32	40 3/4
G) 2) 3 5/8	67	U) 2) 9 1/4	40 3/4
H) 2) 4 3/8	20 1/4	V) 1) 30 1/2	40
I) 2) 3 5/8	19 1/2	W) 1) 8 1/2	30 1/2
J) 2) 3 5/8	22 3/8	X) 1) 9 1/4	30 1/2
K) 2) 3 5/8	28 1/4	Y) 1) 19 1/4	31
L) 4) 3 5/8	4 3/4	Z) 2) 2 7/8	2 7/8
M) 4) 3 5/8	5 1/8	ZI) 2) 2 7/8	16 5/8
N) 1) 22 3/8	26 1/2		

I have decided to offer the actual cut out list I used for mine for your benefit. I've tried to get each piece that was actually used but there will be a couple of minor pieces you will have to add to it such as the braces used inside the pedestal that the door closes against and the ones just under the front legs of the chair that will allow you to take either side off without the pedestal's top sagging under the weight above. If you find any sizes here to be off by even 1/4" please email me so I can make the corrections here.

The Electrocution -2-

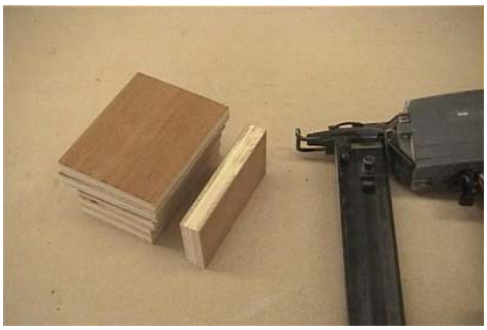
(Note; All vertical pieces of wood on a structure are stiles while all horizontal pieces are rails.)

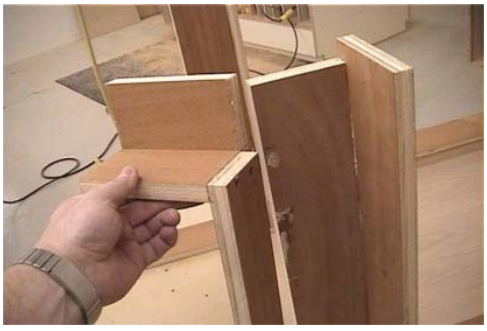
Now add the front panels to the sides (A). For this portion I am using a 1/4" crown stapler using 1 1/2" long staples. This will be ample strength for this section. Look carefully at the larger photo of the one on the left and you will see that A is 3/4" shorter C. The difference will be that the inside stile will be 3/4" below the front section A. Remember to keep the edges flush and use a generous amount of glue. To clean off the excess immediately after your pieces are attached, wipe well with a damp rag and it will clean right off.

Flip the back assembly over and solidly attach the back stiles (B). Notice I have also stapled in place the top caps (Z) that helps keep my pieces square as well as stable while I handle this section. It is important these are a single piece of wood, as we are relying on them for all of our serious vertical support. Look closely at the dimensional picture that shows the back of the chair. You will see that the back stile B is overlaid to C the same way that A is. This will create a flush opening on each side of the chair that will go from the top of the back stiles to the floor that can then be capped off with stile G, fully overlaying both B and A. That means G (the side pieces) can be attached using only drywall screws and can be removed at any time for access to the inside of the hollow legs where the fog directional piping will be.

Once flipped back over again the back assembly will look like this. We are now looking at the seat section where you would rest your back. Laying on the back is the LEFT armrest already glued and stapled together. The lower piece (J) is set back 3 5 /8" from the back edge of the horizontal piece H. And if you look closely you will see a 3/4" X 3/4" notch at the back of this piece that will fit over the edge of the 3/4" exposed section of the inside back stiles. Here is a close up of how they will fit together. Notice that the top (H) is slipped UNDER the bottom edge of the front back stile A. Be sure to attach these two piece with screws and glue, as this is a critical stress point. I carefully predrilled two holes in the back of the lower piece as you an see here as I wanted this to be as secure as possible. If you don't predrill carefully you will split this narrow piece of plywood. For my connection of this piece,

J to the inside back stile A, I used mending plates (2) on the inside of the channel as you will see in upcoming photos.





Your assembly will now look like the photo on the left. Now we will assemble the small L shaped sections that will go under the arm rest in both the front and back of the seat (M & D). Remember, your end grain on M will be visible, making that piece overlaid to the fully concealed edges of D. This is how it will look attached. Be careful to keep the joint perfectly flush so you will need little or no belt sanding to surface them. My end goal with the chair I made was for it to look like it was made out of steel. I just didn't want to have to try to move around a 450 pound electric chair in and out of the haunt to set it up!

In this next shot you can see the assembly of the bottom of the arm rest that is attached to the short L shaped legs just assembled above. Look carefully at the draftings that show which edge is exposed and which isn't. This is a serious jigsaw puzzle and there is really no room for error in assembly if you want all your edges to line up flush with one another, giving the look of solid steel tube. This assembly, made up of the M & D assembly attached to Z-I will be butt joined to the side of the vertical arm rest section J. The photo on the left gives you a bird's eye view of the assembly that will make more sense to you when you see it attached to the arm rest and seat box. We will see that on the next page of our how-to.

Now we turn to the floor assembly to begin the build of the seat box. The first thing you might be asking about this is why is the floor shaped funny. The front portion of lifted floor will be used to house a hidden on-board powered computer speaker that will need to be open to the outside of the box of course while the inside of the box needs to be sealed off to eliminate mechanical noise as covered earlier. As you can see, I am using glue and screws and I have also used staples to hold this S shaped assembly in place as I reinforce it with the drywall screws. I am treating the entire seat box as my most rigid portion of this build, as the vibrations from the shaking motor and the slamming of the air rams will be pounding on the joints of this part the most.

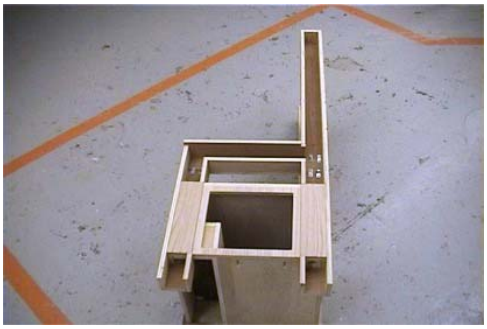
This assembly combines S, R and Q. Next center the spacer pad we will be attaching the air cylinder mount for the torso's animation to and screw to R. This piece is not shown on the cut out list and is approximately 5" X 10" X 1/2" thick. This will offer the perfect spacing I will need to use my 10" air ram. Since I wasn't able to post actual air cylinder item numbers here because my rams were purchased used from surplus recyclers you will need to measure carefully before making your mounts. The critical dimension here is that your torso air cylinder has at least a 5 1/16" throw. More will be covered on this later, so this is not important at this juncture.

Here is what your box will look like once you put the sides on. I cut out my openings before assembly, as you can see there is in fact a small amount of the raised floor that is exposed to the opening, keeping us from being able to make this cut out after the box's assembly.

Access inside this box will be important while installing the mechanisms that will run our prop. Here is a look at the underneath side of the floor. You can see that I have used face frame screws and pocket-bored to the sides and front so that I would have the strength of screws without the head of the screw showing. This turned out to be a non event, as I had many screw heads exposed by the end of this construction anyway and they weren't even visually evident.

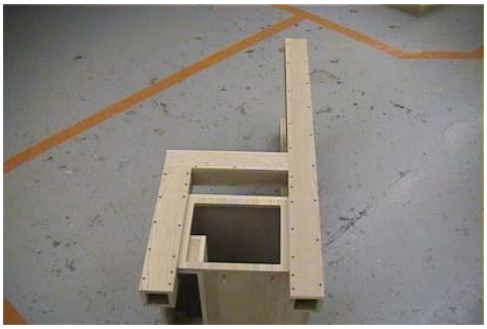
Another thing you see here is a 1 1/16" hole bored into the corners. This will allow us to not only get our fog ducting through the seat area, but provides ports for air lines and electrical wires. Drill all 4 corners at precisely centered to where the chair's hollow leg openings will be through both the floor and the top of the box as shown on the right.

Once you are completed with the assembly, belt sand all edges flush, wood patching any voids first. Here we finally get to see the back and leg assemblies attached to the seat box. It will be easy to screw through the rear back stiles into the box with 1 1/4" drywall screws, but the bottom of the armrests will need to be attached using L brackets.



I used 1" x 1" brackets, carefully avoiding overlap of the holes in the seat. Here you can see the mending plates attaching the side of the armrest to the leg section. Now assemble your lower L shaped leg sections identically to the ones that went under the armrest using the 4 3/4" long pieces E and L. These can be glued and stapled to the rear back stiles B as shown in the photo below.

The connection of pieces L and the bottom of the seat box will not be able to be attached, so be sure to attach L to the pedestal that you will be building next. Otherwise this is a very fragile section of the build. There is no worry about the fact that it isn't terribly strong however, because this is strictly a decorative section anyway that bears to stress. You can see that the front leg pieces (K) have been attached to the arm rest and seat box. Use plenty of glue here and staples will be perfectly acceptable to it's stress. Everything we have built so far is permanently attached. The removable pieces will be covered next.



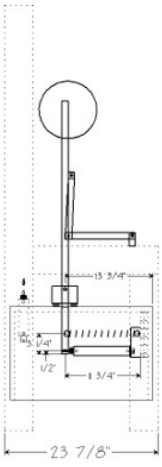
And here we see the chair with the outside removable channel covers attached with 2" drywall screws. Space your screws roughly 6" apart, starting no closer than about 3" from the ends of each piece when possible. Once you have assembled the chair, belt sand all edges perfectly flush, filling gaps or voids with wood patch. Exposed edges of the plywood should be fully coated with wood patch as well, sanded smooth to the adjoining piece, otherwise you will be filling this with sanding sealer for a year and a half to get the end grain voids fully filled out flush!

The pedestal is a fairly straight forward box with a hinged rear door that will be frenched in below the top and above the 3/4" floor. I used a 3/4" X 3/4" glue block to attach the front to the floor as you can see in the picture on our left. As mentioned earlier in the how-to, I am using some solid oak braces that will be attached to the top and the floor that will allow me to remove the sides of the pedestal should I need access inside to work on the fog expansion chamber and ducting system. The rear pieces you see near the corner is set in 3/4" from the back of the floor and can be flush with the side. The idea here is the top will fully overlay the sides for maximum support to the seat above. The braces shown on the left and right of the photo will be placed just forward of the front legs of the chair and can be flush as well. After this point you will attach the sides to the floor and front panel with 2" screws only, so they may be removed. Then attach your top down to the sides with screws only as well, then glue and either staple or screw down to the permanent front panel. Then fit your back door to be snug so there is no sagging when closed. Attach the door with a continuous piano hinge and use every other screw hole provided. More than that can cause the wood to split apart.

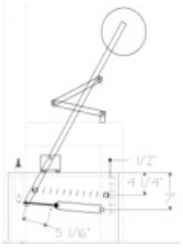
The Electrocution -4-

And there you have it. Position the chair to the back of the pedestal on center from side to side. You will be screwing (no glue) through the top of pedestal top into the legs of the chair to attach them, but remember that you will need to be able to remove the chair to complete the installation of the speaker as well as install the fog ducting up through the legs of the chair.

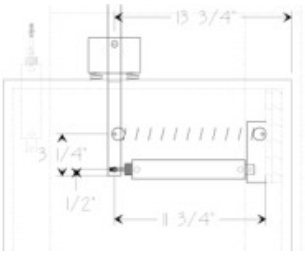
This would be a good time to do your final finish sanding and wood patching to make sure everything is as close to glass smooth as possible before you enter the painting phase. For finish I sprayed the chair with 3 gallons of sanding sealer, sanding with #220 grit sandpaper between roughly 6 coats to get it glassy smooth and followed that up with a full gallon of automotive gold paint to give it an industrial look.



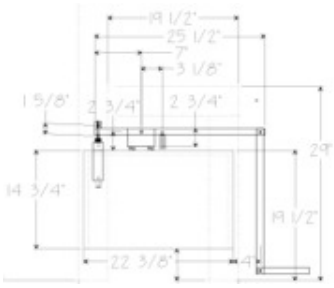
For me, the difficult part of this project was trying to determine a relatively simple way of achieving the motion of a guy throwing himself forward in the chair he is chained and lashed into, shaking violently from 50,000 volts charging through his innocent body and also sporadically stomping his feet from the unbearable pain. I finally decided on using one air cylinder to throw his torso forward, another one to stomp his feet and then using a motorized vibration for his shaking. To see where my pivot points would



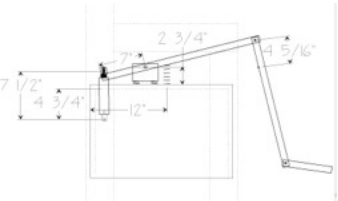
have to be to make this work I went to the CAD system. In the photo on the left you will see the torso and arms attached to a 10" air cylinder located inside the seat box below, hinged at the bottom of the spine. Looking to the photo on the right you can see that I didn't need quite 10" of air cylinder to deliver the needed throw which in this case turns out to be 5 1/16", but it turned out to be easier to use than an 8" cylinder would be, as I would then only need to use a 1/2" spacer from the front wall of the seat box to attach my clevis (air cylinder pivoting mounting bracket) to.

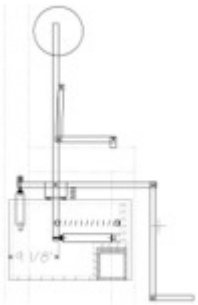


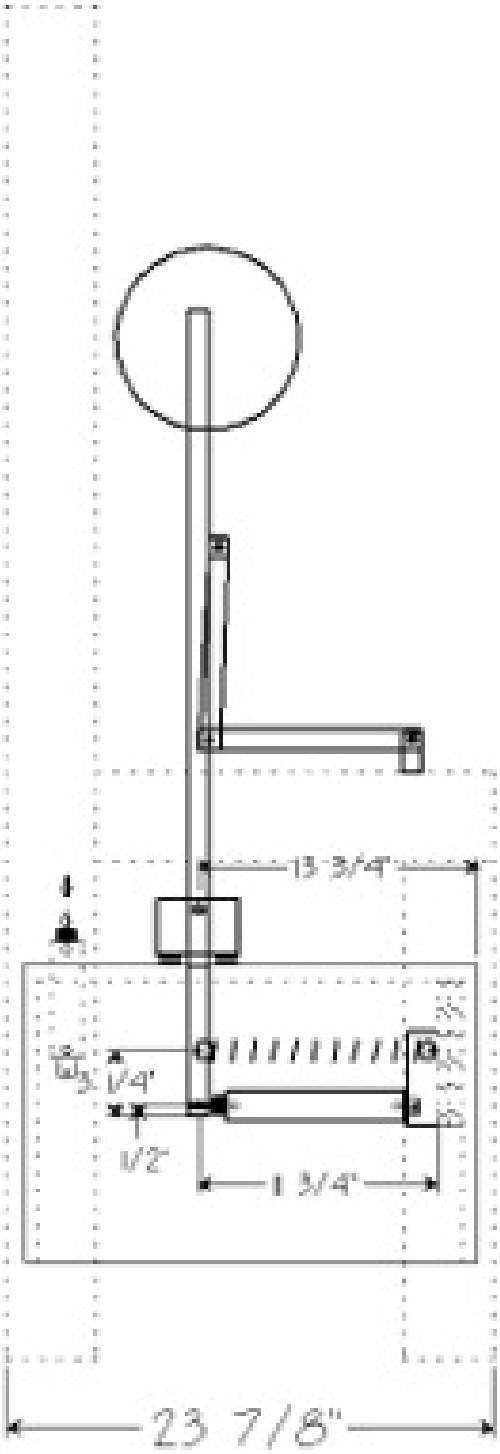
Above the air ram, 3 1/4" on the clevis and the lever I have shown a 12" spring that when installed will be slightly engaged, keeping the torso in an upright position when it is not activated and of course, bringing the torso back upright after activation. So at this point, it looks like we have succeeded with the first of the 5 animations our freaked out friend will hopefully wind up with. In this photo on the left you can see a close up of the mechanism.

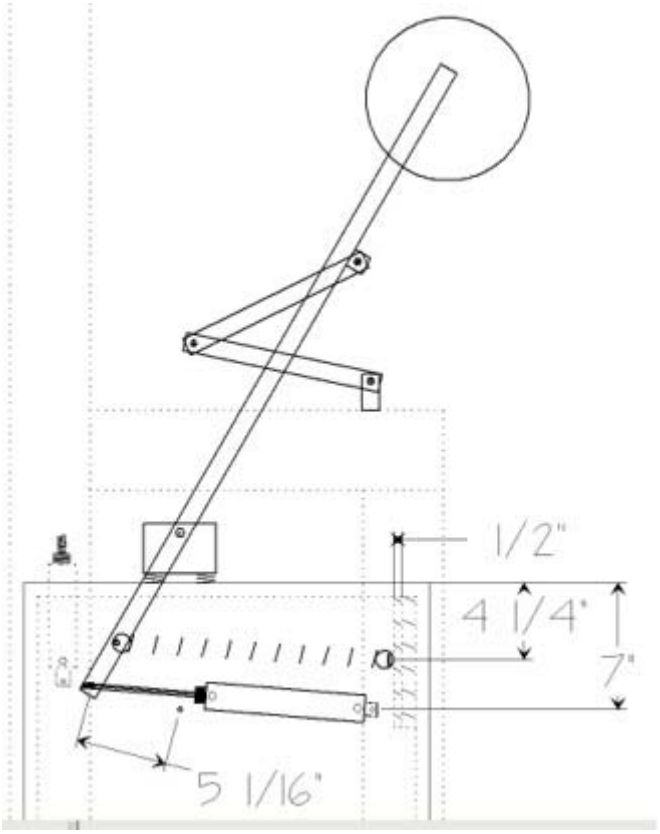


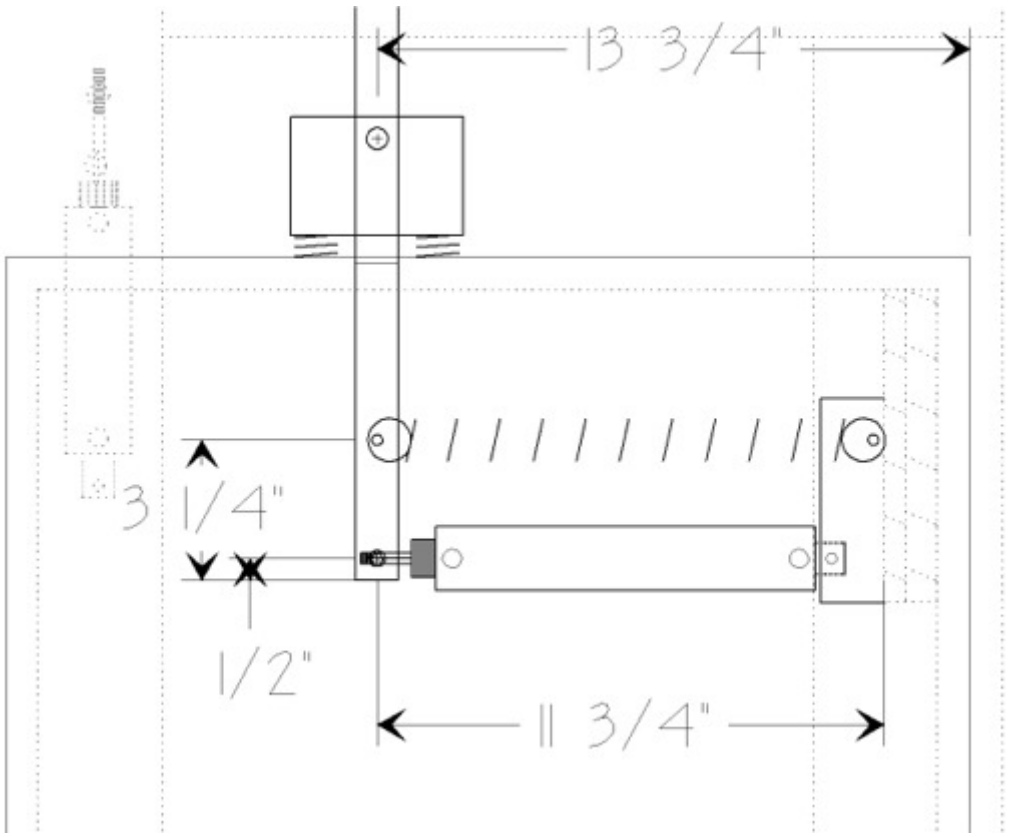
Next I used the same drawing to lay out the leg animation, as this ensures absolute accuracy of the positions of the axis point that I hope to use for both the torso and the legs. In this photo you will find what seems excessive amounts of dimensions, but trust me when I say you will want every one of them. Using a short 7 1/2" air cylinder that is two way, I determine it would be easier to pull down on the back of the leg assembly to lift up the feet of our spastic friend than it would be to push them up. I choose to overlay a rail across both of the leg sections behind where his butt would be, creating a 1" additional hollow space, so I will use that for the attaching bracket. This small cylinder is more than ample to clear the very small distance of 1 5 /8" travel I will need of course. The top of the cylinder will need to protrude out of the top of the seat box by 2" for my ram's throw to be limited to what is needed. This will give us a 4 1 /4" travel at the knee, which I determined to be adequate. So the next step is to put these two drawings together and make sure everything clears each other inside the seat as well as in the skeleton. In the first one, all is clear and working together, even allowing us enough space for the speaker under the raised floor section of the box. In the photo on the left we see that at the apex of it's cycle, both the skeleton and the air cylinder mechanisms are clearing by just enough to allow fluid motion. Success! Now it is only a matter of cutting some steel and aluminum!

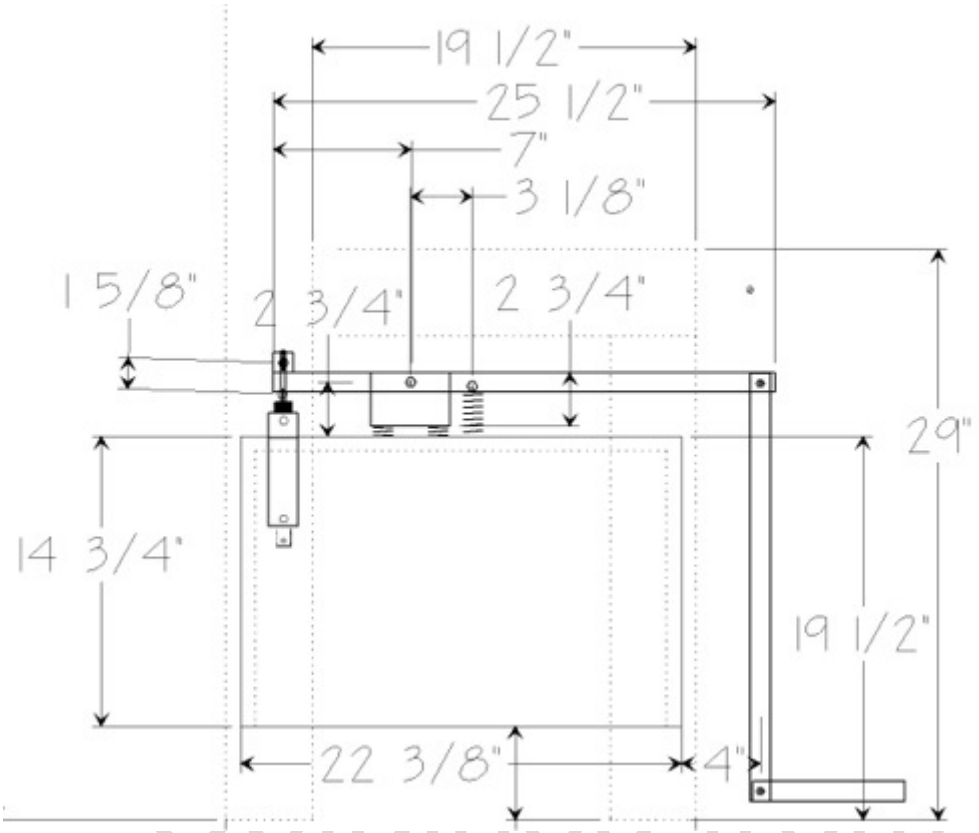


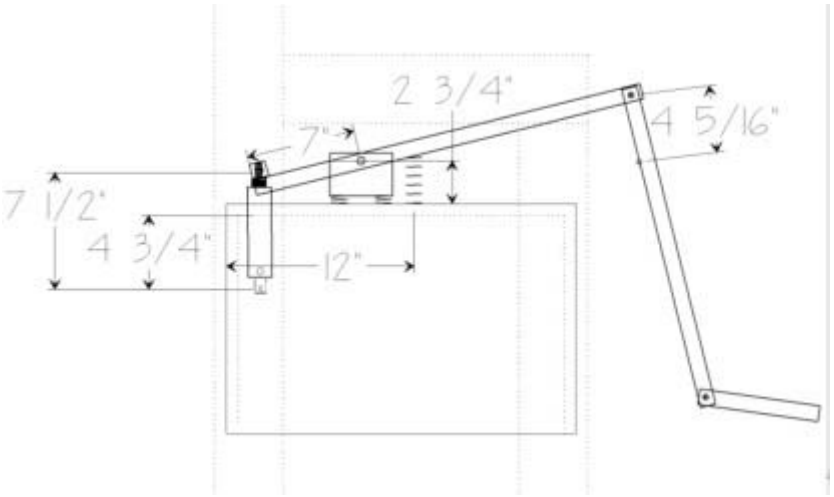


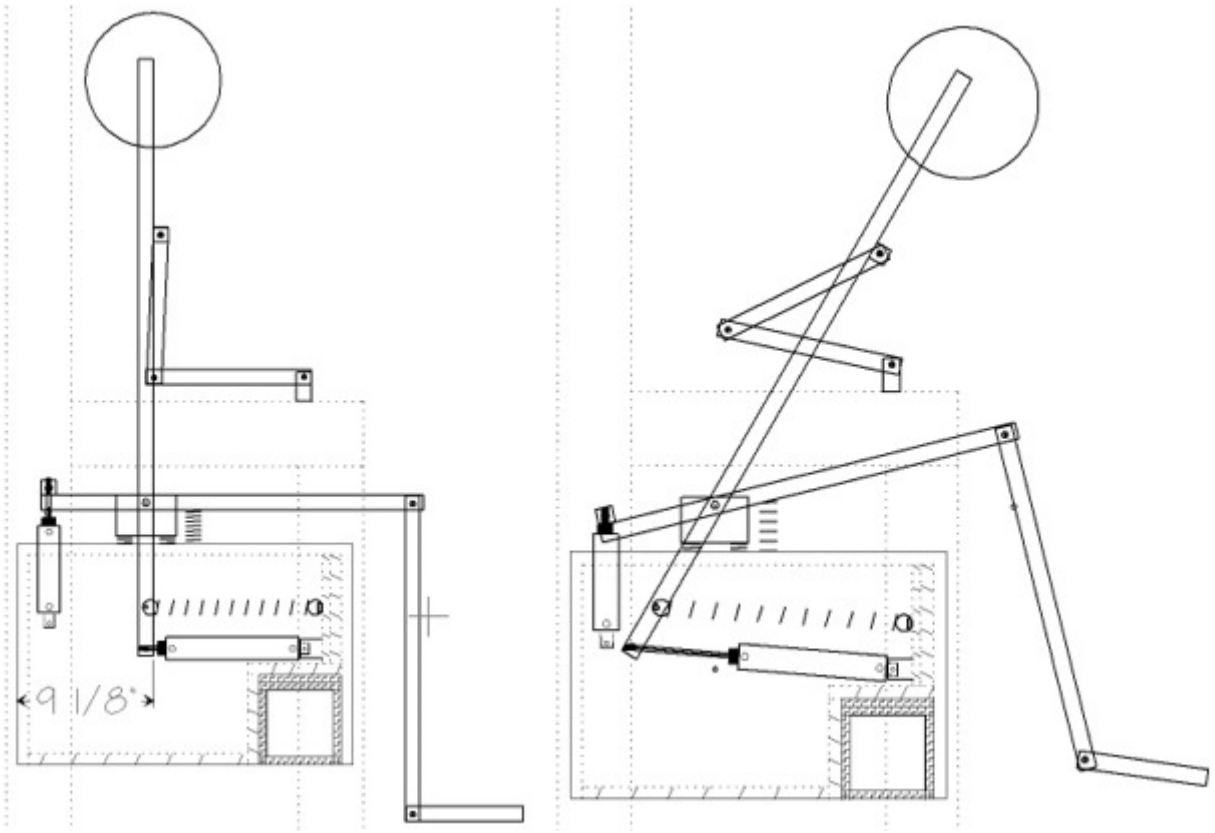


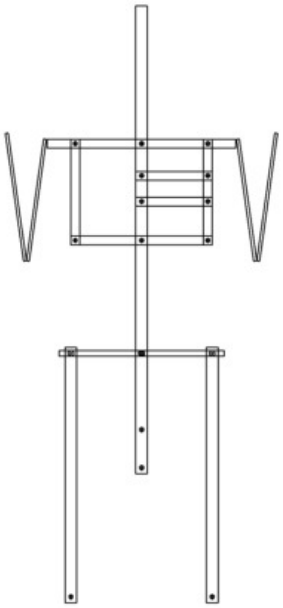




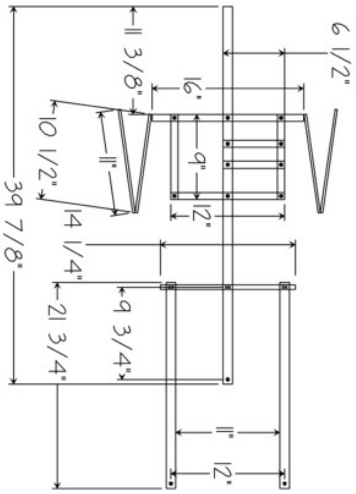








Here is a front elevation draft of our skeleton that will be made out of a combination of steel and aluminum to achieve a very durable, professional grade animatronic while keeping the weight down to reasonable levels.



Not illustrated here is the upper section (that will be horizontal during use) of the leg which will be be 25 1/2" long and is listed on the Skeleton Parts List shown below. The strange looking ribcage assembly has been designed to have a hand drill mounted to it that will spin a weighted cam that will cause the body to shake as mild or violently as we desire based on the speed of the drill and weight of the cam.

SKELETON PARTS LIST;

1) 1/16" X 8" X 12" SHEET ALUMINUM

14' NEEDED OF 1" X 1" X 1/8" SQUARE STEEL TUBE;
2) 13 LEG ASSEMBLY BRACES
1) 41" SPINE
2) 25 1/2" UPPER LEG
2) 21 3/4" LOWER LEG

18" NEEDED OF 3/4" X 3/4" X 1/8" ANGLE STEEL;
1) 18" SHOULDERS

88" NEEDED OF 3/4" X 3/4" X 1/8" ANGLE ALUMINUM;
1) 12" LOWER RIB CAGE
2) 9" SIDES RIB CAGE
2) 6 1/2" DRILL MOUNT
2) 10 1/2" UPPER ARM
2) 11" LOWER ARM

6" NEEDED OF 3/8" SOLID STEEL ROD;
4) 1 3/8" ANKLES / KNEES

14" NEEDED OF 1/2" SOLID STEEL ROD;
1) 14" HIPS

Although I have never actually used anything like this before I am confident that it will work and have decided to build the entire skeleton before doing an actual test run. Using the parts cut out list and the two elevations here, you should have no problem getting all your parts ready for assembly which we will be moving on to next. Even though I own a welder and could easily weld the joints on our skeleton rather than using bolts and locknuts, I chose to use the bolts instead so that those of you wishing to build your own who may not have a welder would still be able to take on this project.

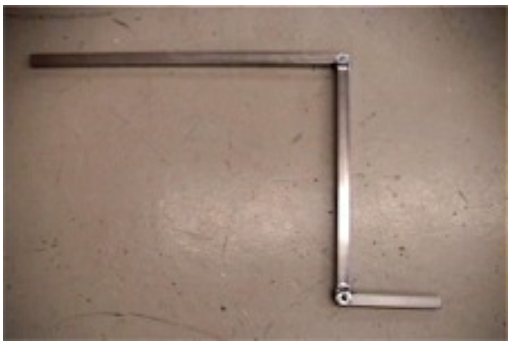
I have an idea of how to create the leg joints for our fit throwing baby and will be going first to that element just to get it established and make sure it is going to work the way I am hoping.

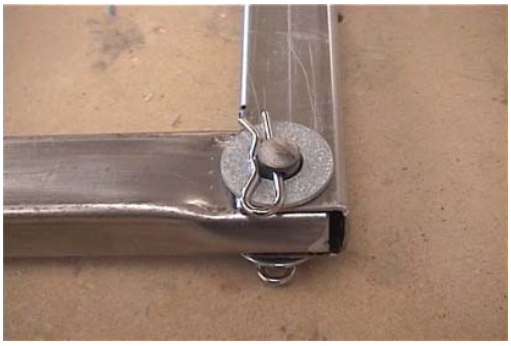
Using 1" square 1/8" wall steel tubing (don't ask me why the steel industry calls square shaped steel "tubing", as I still can't figure it out myself)

Starting with the upper leg section at the "knee" I measure back from the end 1 1/2" and then using a die cutter, slot one surface back to create a clean rectangular opening. Be sure to clean up the edges well with a file and sandpaper smooth for a long wearing joint

Next I place the top of the lower leg that will be the other half of the knee into a steel vise approximately 1" and slightly crush it just enough to slip inside of the upper knee slot. If you look closely you can see the lower pipe end just fits inside the slot to fully cover.

Since my dummy will be fitted with a foam rubber body, I don't want the knees tearing up the foam inside when he stomps his feet. The cover here should all but eliminate it from eating the body. Now I will round the bottom edges of the slotted end and attach the knee together using a hinge pin made with 3/8" steel rod that has been drilled out on each end for the hitch pins that will keep it together.

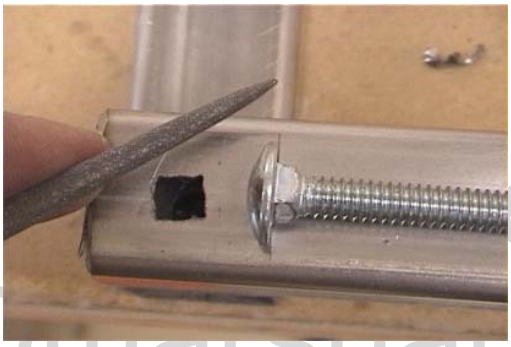




Make sure to measure accurately before drilling the holes to just clear the space of the pipe plus a washer on each side. This will keep the leg from flopping side to side when activated. My hopes were that this joint would keep the lower leg from moving very far outward during use, as I need his feet to hit the floor at a certain spot on the pedestal to create the illusion of an authentic movement. Conversely I also didn't want the lower legs to bend backwards very far either, as this could allow the shoes to get caught under the edge of the seat box.

The limited movement of this joint turned out to work perfectly for my needs on this prop, so I simply created the same type of joint at the bottom of the lower leg to function the same way for the ankles.

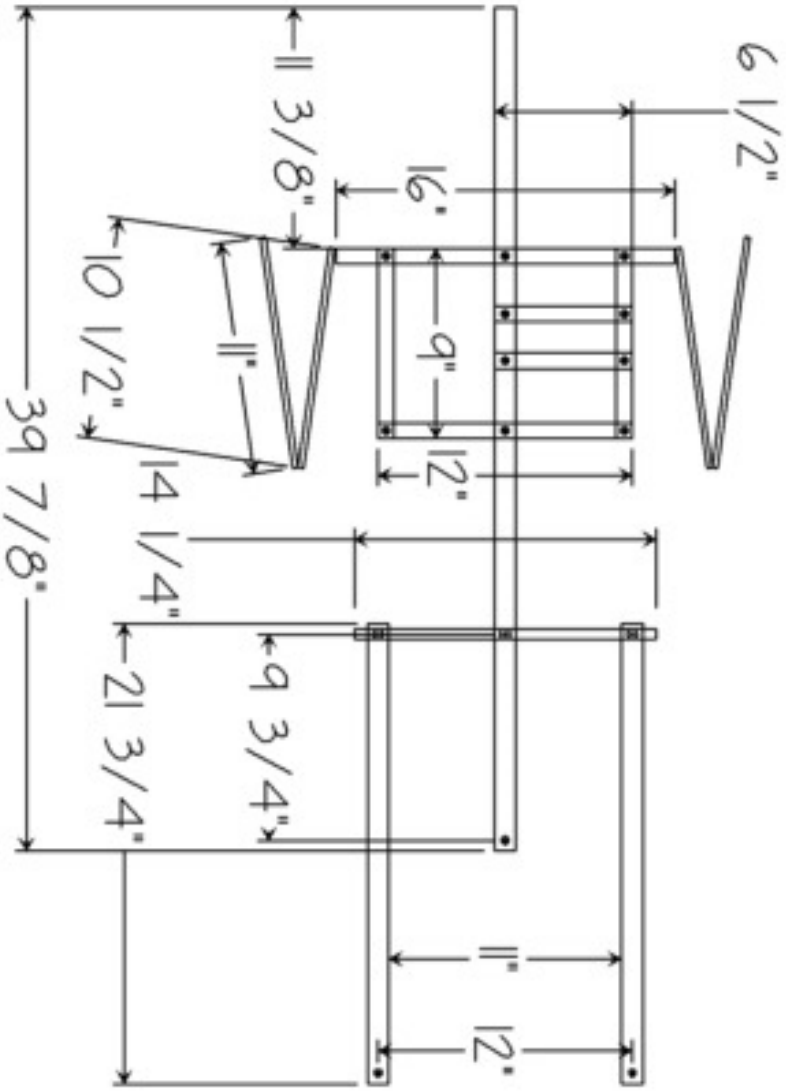
Once I had the knees and ankles working I laid them side by side, feet pointing down and separated them the overall width apart that they will be once attached (11" between). This was not shown in the elevation draft due to my trying to keep the time investment down on this project, but it will be covered here clear enough to hopefully answer all the questions you might have. (***IMPORTANT NOTE***; I would not use these same dimensions on a second dummy for this project! I am showing here all of the documentation it took for me to make my project and how I did it, but I decided once this was completed that one thing that would benefit from change next time would be less distance between the legs. So if you shorten the leg assembly braces from the 13" shown here to 11" you may be a little happier with your completed prop***)



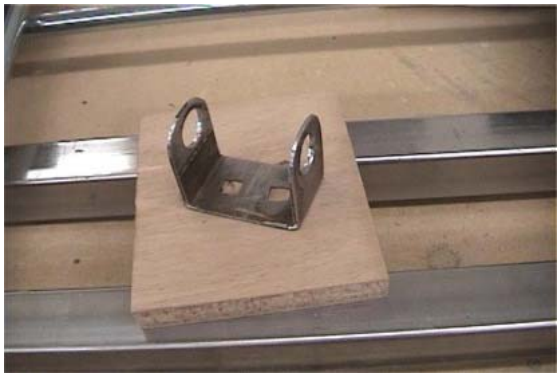
The piece you see laid across the back of the upper leg is the first of two 13" leg assembly braces I used to keep both of his legs parallel to each other during operation. The pipe clamp is there so when I drill the holes at the joints for attachment the pieces can't migrate and cause the assembly to be out of the tolerances I will need for the animations to work. In this shot you see the 1/4" hole I have drilled has been squared off using a small elliptical file, allowing me to use a 2 1/2" carriage bolt as shown.

On the bottom of the lower piece I will use a split washer and a lock nut. This photo is jumping ahead a bit, but it shows you what the underneath side of the leg assembly will look like at the back.

The second leg brace is spaced 3" away from the one on the end. Be sure to measure down the legs to be sure they are square and parallel before drilling your holes. Before this assembly is complete we will need to mount the cylinder clevis and drill holes in the horizontal leg sections for our 1/2" pivot rod. Measure 7" from the back of the leg assembly and mark on center to drill the 1/2" hole in each side. The brackets you see here attached to the pivot rod will be covered in the next few steps.



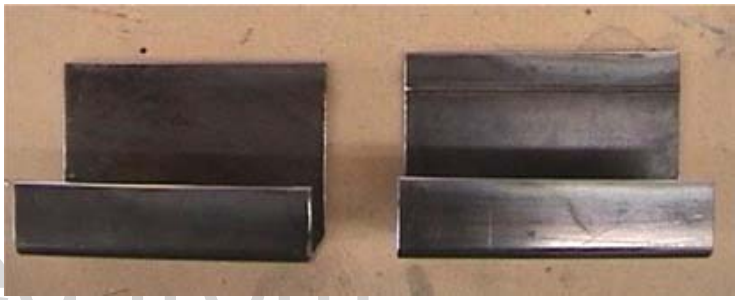
The Electrocution -6-

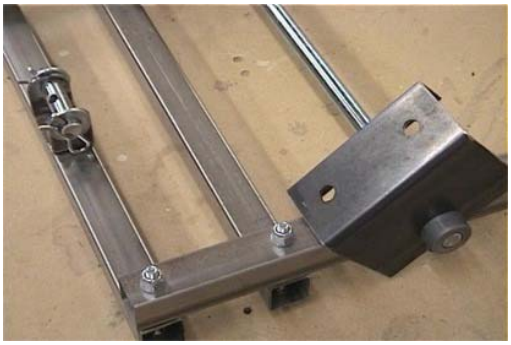


Now that our leg assembly is built, we will need to add a clevis mount to the bottom of the rear brace as shown in the photo above. To achieve this I cut the top off of a 1" X 2" piece of tube steel and then chop off 1" of the larger bottom section. I rounded the top edges and then drilled a 1/2" hole through both pieces now sticking up to hold the 1 1/2" piece of 1/2" solid steel rod I will be attaching my air cylinder to.

In this photo on the right you can also see two 1/4" holes drilled in the bottom of the U, and squared off, allowing us to attach this to the leg brace with 1 1/2" x 1/4" carriage bolts. Now we make our connector pin for the air cylinder from the steel rod and drill a 1/4" hole in the center and then more hitch pin holes on each end as we did for the knee axles. Once again, space them to fit snug to the clevis with one washer on each side to minimize wear as the pin pivots in the mount. Mount this on center to the brace.

Next we turn to the mounting bracket for the skeleton so we have a place to put our leg assembly. I started with a 2" X 4" piece of steel tube that I cut to 4" long. Next I made one cut lengthwise on both sides, revealing two identical mounts that are 2 3/4" tall each. I recommend de-burring all of your steel pieces as you go for safety. Now clamp these two pieces back to back to make sure your hole will be perfectly level and measure 2 3/4" up from the bottom to drill your 1/2" pivot rod hole on center to the bracket. Finish your brackets by drilling two 5 /16" holes through the bottom so they can be bolted to the top of the seat box.





Now cut a 14 1/4" length of 1/2" solid steel rod to slide through the bracket, then through a 1/2" flat washer, then the leg and over to the other leg and bracket. Shown here are some collars I am using on the ends of the rod to keep it nice and snug against the brackets to prevent side to side movement. Hitch pins could have worked here as well, but the ease of using the collars appealed to me. Next we need to get this attached to the chair seat so we can get on to the torso of our condemned creep.

This animation will be rather demanding on the chair that we are bolting him to, so it is important to insulate the concussion of his movements from distressing the wood or the joints. I decided on mounting him to the chair with steel springs to absorb this constant abuse so the chair should stand up to years of use.

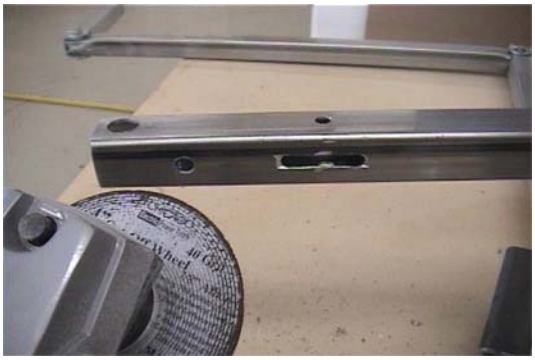
At first I used a lighter weight spring than shown here in the photo and it simply didn't do the job, so I recommend you find a Century spring #C-892 or similar. This is a heavy duty spring that has an inside diameter of 3/4". This comes into play in a moment. We will need to cut off 4 pieces 3/4" long each as shown below. Since our 5 /16" bolts are no where near 3/4" diameter to keep the springs from migrating off of the washer we will be placing between the spring and the wooden seat surface, we will need some sort of spacer. I found that standard 3/8" rubber air hose was not only the right size outside, but would fit snugly around the bolt to keep the springs right in place.

You will need four of these cut to about 1/2", eight 5 /16" flat washers and four lock nuts. The bolts are 5 1/16" as mentioned and 2 1/2" long. Also, something not shown in the photo above are some rubber washers that I decided to use for further insulation of all of the concussion pieces that would be mounted to the chair such as the air rams and of course the skeleton.

Called 5 /16" Tank Bolt Washers and made for your toilet tank connection, you can find these in, you guessed it, the plumbing section of your local hardware store! These will be placed underneath the bottom washer below the spring to keep the steel washer from coming into contact with the wood which would eventually wear through if left in contact. Hopefully with this layer of belted rubber this will never be a wear point on the chair. Remember to also place one of the rubber washers between the flat washer and the wood underneath the seat as well. Here is the spring assembly just before placing the leg assembly down to complete the attachment.

And here is how it will look fully assembled. It is important to note here that you will not be tightening the nut down on the bracket. Just bring the nut down until it is firmly seated so you allow the spring to do it's job to absorb the vibration. No part of this build I feel is more important than this connection, that's why so much time has been spent in it's discussion here.

The Electrocution -7-



The torso of our ill fated friend is built off of a single shaft of 1" X 1" X 1/8" wall tube steel like we used for the leg assembly and is 39 7/8" long. We will be attaching our air cylinder to the bottom of this "spine", 1/2" from the end and then measuring up from there 2 3/4", or 3 1/4" from the end to attach our return spring. I will be using an angle grinder to make a notch for the spring end to pass through the first side of the spine and to a pin I will be locating toward the very back of the tube. If you look closely at the photo you will see the spring slot and also the pin hole already drilled in the side.

Below that you will see where I have marked the place on the side where I will be drilling a 1/2" hole through to insert my air cylinder connecting pin. I have drilled a hole just above this section on the face of the tube which represents where I will stop cutting to make room for the ram's plunger rod. You will also need to slot out the back of this area as

well to allow room for the nuts and rod end. Here is a picture of what it will look like once drilled and attached to the ram.

You can see that once again we have made a connecting pin from the 1/2" solid steel rod and attached it to the tube with hitch pins. Heavy wire would do the same job as the hitch pins.

Next you will measure up from the bottom of the spine again but this time to 9 3/4" up and that is where you will drill a 1/2" hole through the tube from side to side. This is the hinge point the entire torso will pivot from, so be sure this hole is drilled precisely square to the spine. If not, your dummy will be throwing himself forward and off to the left or sitting in the chair crooked or a combination of both. It will be held perfectly centered to the chair with steel 1/2" flat washers and set collars as shown here.

A significant thing to mention here is the connection of the air cylinder to the connecting pin. In the photo on our right you will see a close up from another project I did not long ago. Usually you will have to put a nut on both sides of the pin, unlike this photo where we only have space for the outside nut which has been tightened and then carefully drilled all the way through both the nut and the rod and a heavy wire has been inserted then bent over on each end. This keeps the nut from ever coming loose during use. You can also use safety wire to achieve the same thing as the heavy one I used here. One way or the other I do not recommend just using Locktite alone, since it would eventually still come loose due to the constant concussion while in use.

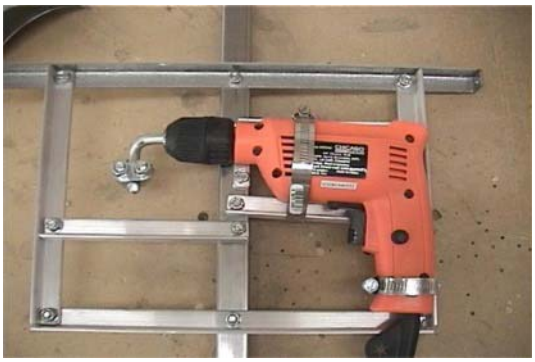
For the rib cage assembly we will be using a combination of 3/4" x 3/4" x 1/8" angle iron and 3/4" x 3/4" x 1/8" aluminum angle. To start we will cut out 18" of the iron and notch one of the surfaces back 3/4" as show in the left photo.

Then using a crescent wrench, bend the lip up on a 90 degree to close in the end.

Do this to both ends and then attach the iron to the front of the spine 11 3/8" from the top. This is the dimension to the top of the angle iron. Use a 1/4" bolt with a lock nut.

Now measure away from the center bolt 5 5 /8" and drill a hole through the back of angle on both sides as shown in the top section of the rib cage (shown here on our left).

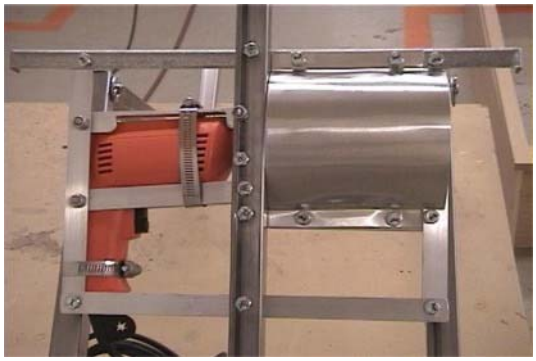
You can see this is where you will be attaching your angle aluminum which is a total size of 9" high and of course 12" wide. On the right side of the cage you will be attaching two 5 7/8" pieces as a mounting platform for your variable speed drill to rest on.



The drill I used for this build was a 3/8" Chicago Electric unit from Harbor Freight Tools, item no #41844-1VGA . It had the features I needed such as a locked-on button as well as a dial on the trigger that allow for a preset speed to be chosen when locked on. Plus if you wait for a sale you can pick these up for a mere $12 apiece! I did a lot of research before taking on this project and know quite well to expect the bearing of the drill to wear out from the out of balance cam we will be running, so not only did I design the drill to be very quickly removed and replaced, but I purchased two drills at the same time to ensure that I would have a spare when the time comes. This mount was meticulously shaved and shaped around this exact drill and to expect to just drop in another brand drill later would be wishful thinking.

Once you have fitted your angle to hold the drill suspended so the chuck doesn't rub against the spine (see the short vertical section in the center of the spine), reinforce the ribcage with another horizontal brace to the left side like is shown. Here we see the attachment which is much more solid than it looks. Two pipe clamps and this is fast to replace and easy as well.

In the chuck you will notice our cam assembly. I call it an assembly because my original idea of simply bending over the end of a 3/8" steel rod wasn't heavy enough to really throw the chest around so I added a U bolt that is called a Clip that is normally used to attach cables. This added weight did the trick, so now it is only a matter of setting the trigger to the on position and turning the speed dial until the right speed is achieved for the most effective shake.



Since I didn't relish the thought of this flying saber tooth claw eating the chest out of my thrashing thug I decided to use 1/16" aluminum sheeting to cover it up. I simply rounded the sheets with my hands and then bent a tab on each end that would allow me to bolt it securely to the rib cage, making sure I was fully clearing the cycle of the cam. Since the drill simply slips into this aluminum sleeve, it will present no challenges when and if the drill will need to be replaced.

The Electrocution -8-

Next we drill a 1/4" hole into the 90 degree tab at both ends of the shoulders.

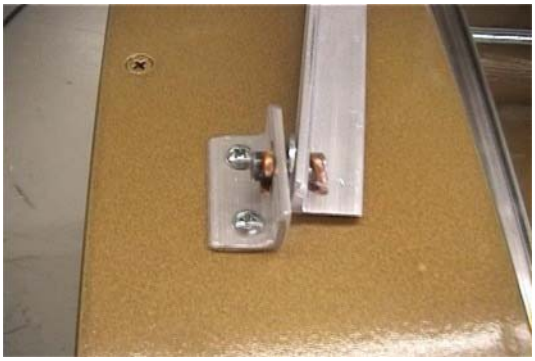
You will need to make six 1/4" hinge pins out of solid steel rod for the arms of our whiner.

The upper arms will be 10 1/2" long, made out of 3/4" x 3/4" angle aluminum as will the lower arms cut to 11".

I know there isn't much difference between the two arm sections, but the skeleton seems to look a little more realistic with this minor difference in length.

Between each hinge point of the arms I placed a short section of 3/8" rubber air line as shown here.

This will keep the aluminum from touching each other during operation and reducing possible joint wear dramatically.



At the ends of the hinge pins I drill a small hole and insert a short section of heavy wire that I simply bend over.

At the connection for the wrist I place a flat washer between the mount and angle to reduce friction as I will be needing to house this mount plate and connection inside the wrist of my big baby, so this needs to be a compact joint.

The mount to the chair is merely a short section of the same angle aluminum as the arms and is screwed down using two 3/4" x #8 pan head screws. This is 4" on center to the hinge pin from the front of the arm rest, centered. In this shot you can see how the skeleton looks now fully bolted down. And luckily the computer draft dimensions work out

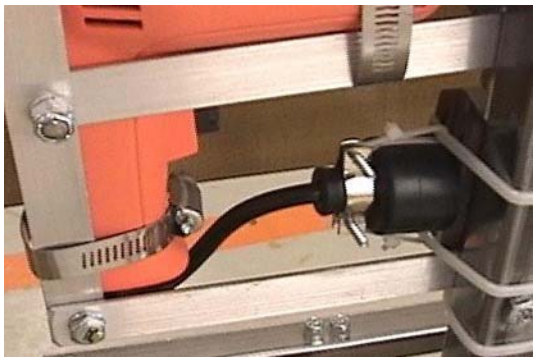
ideally once I put him through his cycle. Success! The rest will be just details.

And let's get started on them now. It's time to deal with his neck to make it more realistic. If you look at anyone's neck where it meets the base of the skull and the shoulders you can see that it is slightly forward of centered.

So to make our guy a little less rigid looking we will need to make a couple of cuts to the spine just above the shoulders. Cut out about 3/4" from the lower front cut as shown here and bend the neck forward to close the gap. Now remove about 1/2" from the cut just above that on the back side. You may have to play with this a little with your angle grinder to get it just right as I did, but the idea is to tilt the neck slight forward as well as moving it's center to the body forward slightly.

This will also give enough clearance for the head not to actually touch the seat back when it fully resets.

Once you get your angle just right, Use a strap of metal on each side of the neck and screw some #8 pan head screws into each of the three sections to solidly brace it's position. I just used a couple of mending plates that were 2" long each and joined them in the middle, but you could do the same thing with a single piece of steel strapping. This turned out to be very solid, so there will be no worry of our flailer's head flying off.



In keeping with the logic of making the drill in the chest of our doomed soul quickly replaceable, I shortened the power cord it came with to just 3" long and then mounted the female 3-outlet end of an extension cord solidly to the spine just above the bottom of the ribcage with heavy zip ties, then I zip tied the power plug of the drill to the outlet.

This will keep this connection secure during its cycle but will make it super easy to make the replacement. If you shorten the cord now on your back up drill and fit it with the same plug end as shown on the first one here, you will be ready at a moment's notice to make the swap. And our drill may well last for years of use with this first unit, but not preparing now may end up with an ugly situation in the middle of a huge turnout to your haunt or at the start of halloween night at some point.

Once we have our guy basically strapped in we need to turn to making sure the air cylinder connections are all in place. One thing that must be done is attaching some return springs to the leg so the feet stomp down very quickly.

Since we are using the cylinder to lift them up, we would be left with just gravity for this action and that's not quite as quick as I think would look right. The springs you see here are readily available from hardware stores.

You will need to cut one of the looped ends off for the attachment system I have decided to use. Directly forward of the primary mounts on the seat, drill a 1/4" hole through the side of each leg and insert a 1/4" x 1 1/2" bolt using a flat washer through the top of the spring.

Make sure you use a lock nut on the other side. Then at the bottom, side a 2" mending plate or similar under the bottom coil of the trimmed end of the spring and then screw the plate down tight to the seat, pinching the spring in place.

You will want your spring length to have some tension on it even when the dummy's feet are touching the pedestal. Once you add boots or shoes to the feet it will lift them up further adding a slight amount of additional tension, giving your stomper more animation.

For the rear connection of the leg assembly to the air cylinder you will connect the cylinder to the connecting pin and drill for the safety wire through the nut and the rod as shown earlier in our how to. When I went to install this one, I found that I needed to send the air into the cylinder at the top, so I had to drill another hole in the seat to allow for room for the air line to pass through next to the 1 1/16" hole needed for the top of the cylinder .

The height of the air cylinder will be set so that your total used throw is no more than about 1 5 /8" to 1 7/8" depending on your tastes.

For the mount that will be centered on the back of the seat box below I made a clevis from a section of tube steel similar to the one shown here on the left. This particular double clevis was made for the connection of the torso air cylinder and it's return spring, but if you can imagine cutting this one in half and drilling two mounting holes in the bottom, you have what the clevis looked like for this leg assembly.

I used 5 /16" steel rod for my connecting pins since this worked with my particular air ram. You can see it hooked up in the photo on the left.

Once again we will be using two rubber washers under this clevis where it meets the wood back as we used on the primary hinge to the seat above. This will take some of the concussion off of the bolts and the wood holes they are resting in.

The Electrocution -9-

As mentioned earlier, the air cylinder I chose for the torso is a 10" air cylinder that is overall about the same length as this 12" spring, making them perfectly compatible for actuation and return. The spring came from Home Depot and the air cylinder is a Bimba brand as mentioned purchased from surplus. Here is a close up look at both.

Here is the double clevis mount we saw in the last set of pictures again. It is made from chopping one surface off of a 5" long section that is now 1 1/2" high and 1 1/2" wide. The two pivot pins are spaced away from each other 2 3/4" with the first hole on the bottom (for the air cylinder connection) is 1/2" away from the end. This will then place the cylinder in a perfectly horizontal position when not engaged if the clevis is raised 1/2" above the raised floor of the seat box. This will be mounted to the front of the box on center. Remember to countersink the bolt nuts on the outside of this connection, as the

front of the seat box needs to be flush so we can mount our decorative aluminum diamondplate over it.

Once again we are placing rubber washers underneath the clevis bracket to insolate the concussion from the wood.

Here is a view inside the seat box from both sides of the chair with the raised floor of course being the front.

The cylinder I wound up using turned out to be a two way that I used an adjustable muffler on the unused port. You can see it in the photo (Left) where the black arrow is pointing.

You can dial how fast the air cylinder will respond to your air input on the other end using these. Without anything there at all, your actuation would only be effected by the air pressure used, gravity and weight.

With it you could cause your crybaby to lean forward very very slowly if you choose, regardless of the amount of air pressure you are working with. You can't buy these at the hardware store! You will likely need to go to your local industrial supply to find them. I wound up at King Bearing where I get some replacement parts to my stationary tools in my woodworking plant.

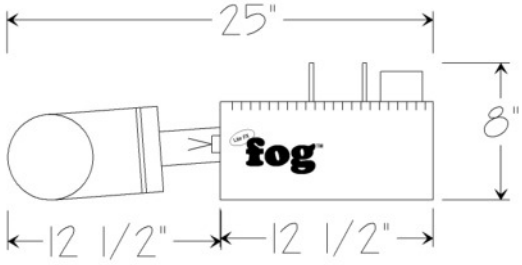
Next we need to set up a place for our powered computer speaker for the voice of our whimpering sissy. I tossed in some walls under the front of the seat where the floor was raised up to keep mine from migrating side to side and then I coated the cavity with contact cement.

The pieces of foam you see on the right is carpet padding that you can always get as much of as you want for free from behind carpet retailers (at least in my area). This roll was new, unused foam that they must have purchased excess of for the last installation job they did.

I coated this with cement as well and glued them inside the speaker cove to insulate it from the concussion and vibrations of the mechanisms.

To hold it in place I used two narrow straps of aluminum bent to the curve of the speaker face and then screwed the right angle ends to the seat box. Make sure to install this AFTER you finish your chair but BEFORE you install your fog pipe through the chair like I didn't do. Make sure you drill holes in the floor of the seat box that is directly above your speaker's inputs for power and sound at this point as well, otherwise you will be making up new curse words when you go to hook up the finished product. Hindsight isn't just 20 / 20, it's cocky about it.

The Electrocution -10-



OKAY! We have moved on to one of the more interesting sections of our project, the Vortex Fog Delivery System™ which I developed at the turn of the century to move fog without using fans so the resulting fog is much thicker than it would be otherwise. This early version of the system shown here is fully sealed which I installed in the pedestal of the prop, making this a fully on-board event.

Later breakthroughs on the Vortex system would have made considerable improvements to this assembly, but this did work well enough. And since it is sealed, there will not be excess truant fog seeping out of the cracks of the pedestal.

In the photo above you can see the elements of our collecting chamber. A 5" ABS clean out T, a reducer fitting from 5" down to the 2" nipple fitting we will install directly to the front of the fogger, two sections of 5" pipe and two end caps. All we need is enough room inside the chamber to allow our fog to change from fluid to gas, so this will be adequate for our needs on the chair.

Here in the photo on the left, you will see the needed items to seal your fogger to the fog routing system; three 1" x 1" L brackets, some #8 x 3/8" sheet metal screws, a 2" ABS slip fitting, some PVC cement primer and a can of PVC cement.

In the close up to our left we see the surface of the slip fitting that will be attached to the fogger has been sanded down on an angle to match the angle we will need to direct our fog downward and into the chamber. If you look close you will also see two notches needed to clear two tiny screw heads on the face of the fogger so our fit will be flush and perfectly sealed.

Next we attach the L brackets to the slip fitting with some screws so they will be flush or just above the bottom edge of the fitting, so we can pull the fitting down tight to the fogger face when the screws are installed.

Then clean the mating edge of the fitting with your primer and also the front of the fogger where they will meet. This will emulsify the surface of the plastic face as well as the fitting so when we apply the cement, we will be bonding to the plastic on a deeper level than just surface only, making sure it is a secure bond. Pre fit the the fitting centered to the nozzle prior to gluing so you are certain of your placement. Then of course glue the two surfaces and attach with screws.

You might want to also check whether the tip of your screws that may stick out past the surface of the fogger face won't puncture anything behind.

Now you are ready to attach the fogger to the clean-out T fitting. You will be gluing these parts together for a sealed fit also, as they will not stay together and sealed with friction only. Also glue the 5" pipe sections into place.

You will need to measure these, but I believe the pipe on the right was 10" long and the left was 12". But the idea is to center the fogger in the pedestal and the expansion chamber will travel from side to side of the box. Leave at least 1 1/2" of excess space on the left side, as we will be using that for a special fitting.

In the photo to your left I have set up a carpenter's square to mark the exact top of my 5" pipes so I can drill holes and thread the pipe wall for 1" PVC fittings I will use to attach the ducting that will run through the chair.

I have measured to the center of where the pipes will be coming up through the top of the pedestal and through the front legs of the chair and used a hole saw to drill my pilot holes in preparation. Next I will need to make a thread tap for this size pipe fitting.

I have screwed a short 1 1/4" pipe nipple into a reducer to hold it (a T fitting works the best as a handle, but I didn't have one of those laying around when I made this tap). Then I sanded the threads down on the fitting across a little over a 1/2" so that the end threads were gone. That tapered back up to full threads at the top 1/5 th of my fitting.

Now I use a die grinder with a super thin 1/16" cut off grinder blade to cut slots across the threads and up just over a 1/2" distance to where the die's threads are full height. I am showing the blade inserted into the pipe fitting the correct way your cut needs to be made with it tilting slightly, as we need for the leading edge of the threads of our cut to be angled forward and sharp so they will cut the plastic and guide the shavings to the inside of the tap so they won't bind up while making our threads.

I put about 4 cuts into this tap. The pilot hole I cut was 1 1/16" which was not quite as large as I really needed to get my 1 1/4" tap to start cutting, so I had to open it up a little with a cylinder grinder (not shown) until the tap would just fit.

Once it did, I turn it down with a crescent wrench until I have buried the tap as deep into the pipe as I could to make sure the threads are fully cut and clean inside the hole. And here you see the 1" PVC threaded fitting (male end) to a slip fitting opposite threaded securely into the holes.

Be sure to use teflon plumber's tape on the threads to make an air tight seal. In this photo on the left, you can see a short galvanized pipe that has been fitted into the bottom of the cap that has been glued into place. This is important if you are using a fogger or fluid that will create unspent glycol residue during operation. This fluid will build up inside the expansion chamber and then eventually create a problem, not to mention will spill out of the whole assembly via the nozzle and face connection of the fogger when the chair and pedestal are tilted backward to move it.

So we install this pipe with a thumb-tight cap on it so we can remove the decorative diamondplate cover on the right side of the pedestal revealing an opening we will cut into the wood side that will allow easy access to this drain pipe. Then it is only a matter of tilting the chair to the side and draining the excess unspent fluid away after use.

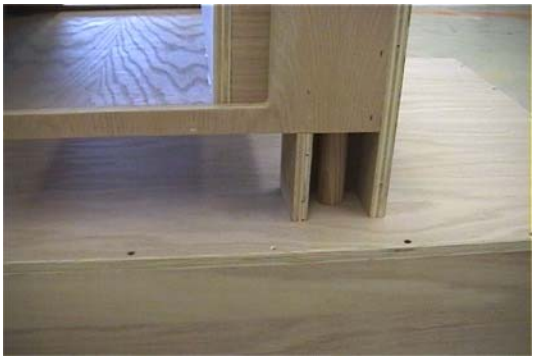
To thread the plastic of the stopper cap for our 1 1/2" length of 1/8" pipe we will need to make another tap as we did a moment ago. Here is the one I made, using a T fitting as a handle as mentioned previous.

And there you have it! You will need to remove the fluid tank from your fogger so you will have a way to remove the tank from the pedestal to replace the spent fluid as shown here. This will be held in place next to the fogger with L brackets once we install our fog assembly.

The Electrocution -11-

In this section we will be fitting a ducting system to our chair to route the fog to the top of the back posts, to the ankles and to the wrists to simulate frying skin and smoking electrical current. To the casual eye it might seem like just making the chair legs hollow and shooting the fog inside the channels at the bottom of the chair would suffice nicely to get the fog to all of those locations by just drilling holes into the wood, allowing the fog to escape at each desired point.

However if we did this, our chair would become destroyed by the fog in little time, as fluid based foggers emit a hot, moist fog from unspent glycol as discussed in the last section. This moisture would expand our wood at the joints and ruin the illusion of it being made out of square, welded steel. So to overcome this peril we will route the fog through smooth walled PVC pipe and then turn the fog out at each point using a T fitting or elbow that will be pressed tightly against the wood to basically seal off the chance of fog going back inside the chair's channels.



So we will need to determine where our fog ducting will go through the top of the pedestal in order to be perfectly centered to the front chair leg channels. To do this I use a 1 1/4" diameter dowel that I dropped down through the hole in the seat box floor to make my mark. While I am at it, I drill the holes lining up with the back legs of the chair as well, since I will need to use those openings for my air lines and electrical cords as mentioned earlier.

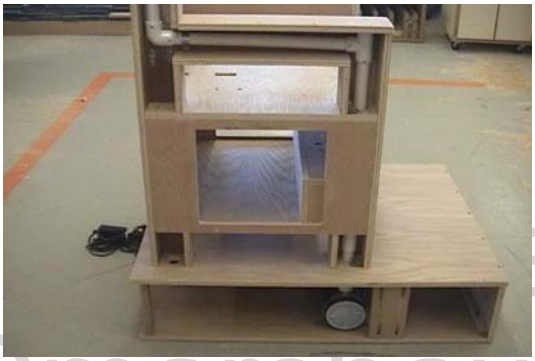
Once I slide the chair aside I can drill these holes using a 1 5 /8" diameter hole saw.

Taking a close look now inside the front leg section below the seat box I have determined to have a turn out (T fitting) at the ankle level to spew the fog out toward our baking boy's feet.

I used a 1 3/4" forstner bit (shown on your right) that drills a flat, blunt hole through wood as shown here to countersink the wood to accept the bump out of the T fitting. I will be using the same technique at the top of the front legs under the front of the arm rest right under the back of smokey's hand (shown on the left).

Now it is time to position our fogger assembly inside the pedestal so the fittings line up to the front chair legs. I use metal plumber's tape to clamp the expansion chamber in place and use a single L bracket screwed directly to the back of my fogger in a location that wouldn't harm the fogger.

As you can see, the drain pipe winds up just recessed from the bottom of the floor where the side of the pedestal will be attached. Don't forget your access opening to the drain plug! 3" square opening should suffice.



This is the other side of the chair where you can see the fittings already in place going to the wrist and then back to the back posts. All of these fittings can be screwed together using 1/2" x #8 sheet metal screws instead of glue in case you need to adjust them for any reason.

At the top of the back you can see how I am securing the pipe to the inside of the channel using conduit clamps that have been bent to the right form. On the front of this 90 degree elbow is a plug that I drill out one small hole in the middle of (this will all be covered with our "heat sink", so don't worry about the plug being visible). Once I tested the fog system, I wound up drilling the right hole a bit larger than the one in the left back, so start small with your test holes.

Now I need to make a pair of ducts that will be outside the leg of the chair at the ankle to direct the fog forward instead of to the underneath of the chair, as I didn't want to have the fog just coming out of the center of the chair leg, inches away from the ankle.

I decided on using a 2" PVC elbow that I cut the top off of. In the photo here you will see how I managed to do this without cutting my fingers off. I fitted a stick inside the opposite end to hold on to and then used a chop saw to nip the lid off. I then used two counter-sunk screws to attach solid to the chair.

Inside at the back of the duct is the 1/4" hole drilled through the thin outer layer of wood and the PVC plug just behind it to allow a small amount of fog to exit. It worked beautifully and they were invisible to the eye once the paint was applied to the chair.

At the top of the seat back I needed something to look like a heat vent or heat sink and while perusing the isles of the local Home Depot I spotted this chimney hood. After some cutting to the bottom section to make it slip down over the top of the post, it fit like they were made to be there.

Next I needed a way to attach some VERY heavy 4" diameter insulators solidly to the post in such a way that they wouldn't just tear right off under their own weight of 15 lbs apiece.

I decided on a 4 1/2" section of 2" x 4" tube steel that I would attach with lag bolts and then I could bolt the insulator to the top.

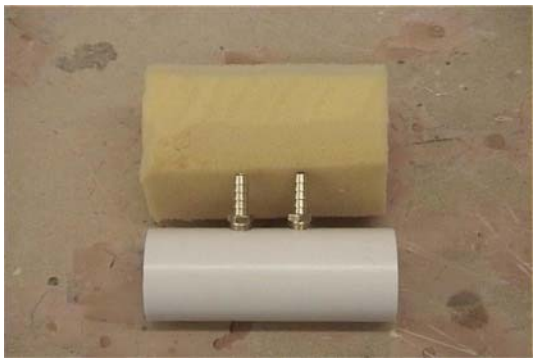
Since they looked like nothing more than pieces of rectangular pipe in this capacity, I used some extra chunks of 1 1/2" flex conduit to fill in the sides to give it an insulator effect. This turned out to be an extremely solid mount assembly.

To the two bolts on top of the insulators I screwed some flex conduit connectors that I had ground down on angles so they would send off my decorative conduit in different directions, so that it looked authentic when attached.

The overall height of this assembly went up to 95", just 1" below a normal ceiling. The conduit was then routed down the front of the back posts to the side of the arm rests and then down the front of the front legs of the chair. Finally finishing off to the ankle level with right-angle flex conduit fittings. The medallion you see them connected to for a solid fitting is actually a stack of four metal reducers used in power boxes and is attached using 1/4" lag bolts.

The Electrocution -12-

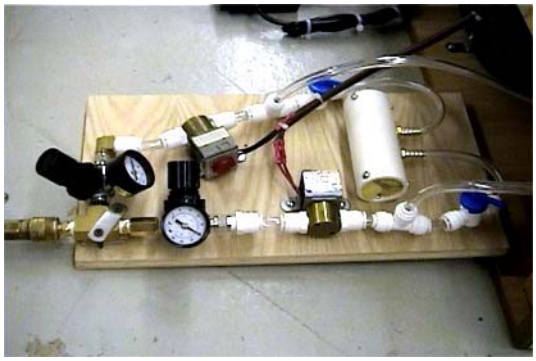
I have decided to use some inexpensive single position single action air valves for actuating the two air rams this prop takes. Because of this I will need a way to bleed off the air when the rams reset.



In the picture here you will see a short length of 2" PVC pipe that I will be using as a muffler for that bleed off. In one side I will drill and tap two 1/4" holes for air line slip fittings as shown already installed after tapping the threads with the tap we made in the previous section.

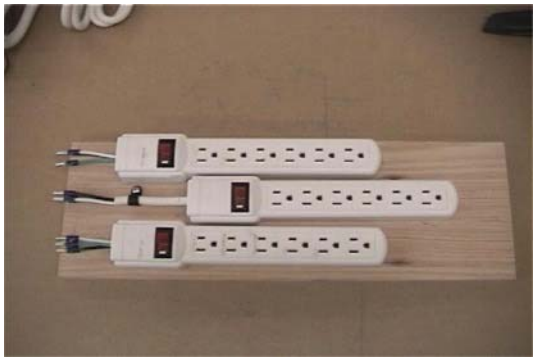
Then the chunk of foam rubber shown above will be inserted inside the pipe and finally two 1" long screws will be inserted into each end of the pipe to keep the foam from slipping back out.

The two fittings are needed since if I put a Y from the two air lines going into the muffler, it would effect the back pressure to each of the rams depending on where the other was at in it's cycle.

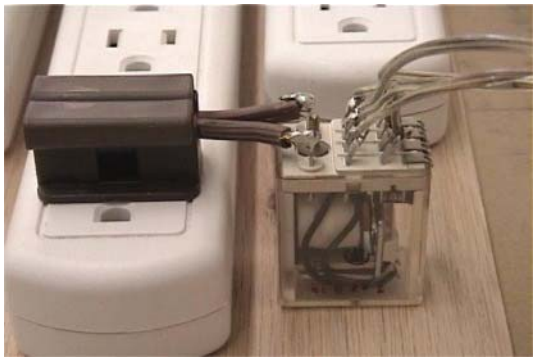


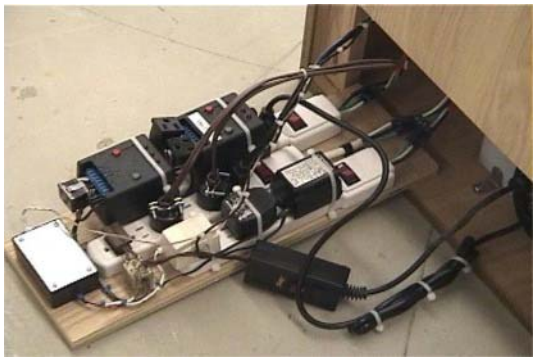
In the assembly shown here on a removable board (so I can get to all the components for maintenance), you will see I have installed dedicated air regulators.

Each one then goes to it's own air valve, then to a T fitting to feed each air cylinder and the other line goes to an inline air valve before finishing it's run going to the muffler. The regulators will work in tandem with the inline valve to determine how fast the air cylinder will actuate and then reset. You can find out much more about this assembly by going to the how to Air Trigger where you can learn how you can use something as simple and inexpensive as a washing machine water valve to trigger your props.



For the electrical needs of the chair I have decided on a bank of three power strips tucked in tight side by side that will fit between the fog juice bottle inside the pedestal and the wall. This will be removable just like the air assembly on the opposite side of the fogger. I will be running the electricity into the right chair back post through flexible





conduit, so this is the logical placement. These are held in place with screws that each strip locks into in the back.

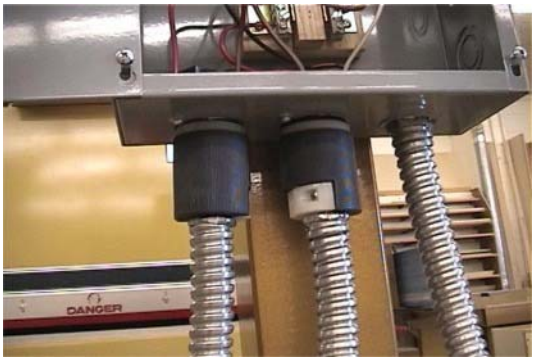
Once I have placed all my power supplies and timers on board I will drill holes through the 3/4" wood base they are attached to and zip tie them all in place. In the close up you can see I have snipped the cord off of each and fitted bullet connectors. I will be fitting the incoming electrical cords with the female counterparts so this entire assembly can be removed from the chair completely if needed later on. Plus, the cords will then be small enough at the ends that they can be removed from the conduit housing if something happens to damage the conduit. One of these strips will be on one power leg and the other two will be on another that will have constant power going to them to keep the fogger hot, the speaker power on etc.

As shown in the build for the Lynching, I will be using a 110 volt relay to trigger different elements of our animations. Each leg of this goodie is isolated from the other, half are normally

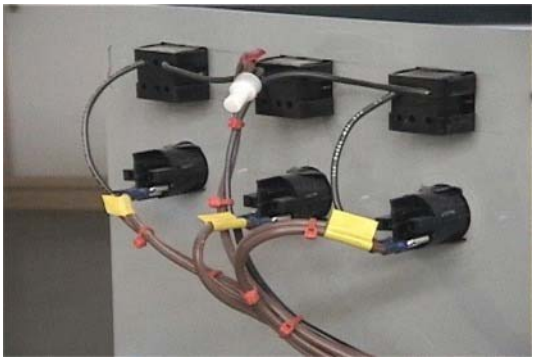
On and the others are normally Off. You can pick and choose what type of connection your need this way which can be helpful. These lines will be triggering different elements at the same time, as I am feeding power to the relay with the manual press of a button. It could just as easily be automated using a beam-break or motion activation, but since this is such an elaborate event, I wanted to retain it's activation to a live actor.

In the photo above, of the completed electrical assembly you will see two VariPET timers from Cowlacious Designs, a 20 second sound recorder device from Radio Shack, item # 276-1323 that has been mounted inside a protective box and some miscellaneous power supplies to run the speakers, the recorder and the timers. Also if you look close you will see a line coming from the relay to the hand control of the fog machine. Inside the hand control box I have soldered the wires on to each side of the button so when they are connected, the fogger is engaged, sending fog out to the ducting.

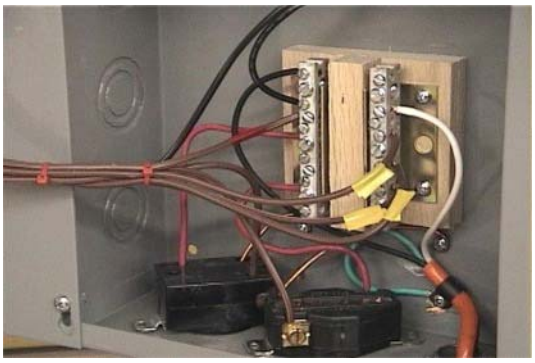
Here is a shot at the outside port I used to bring the power into the chair. This is a 1/4" thick steel plate that I have mounted flex conduit connectors to and then bolted to the chair with 1/4" lag bolts. The other end of these two power cords were fitted with turn-locking fittings you would find on high powered machinery such as a welder.



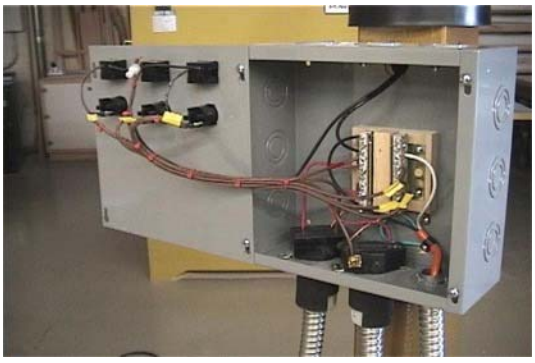
You can see the power outlets feeding them are mounted to the bottom of a small utility box that I decided to use as the executioner's power panel. The third leg on the right is the incoming power to the box and is mounted directly and hard wired in.



The cover of the panel was fitted with three power buttons that look industrial keeping with the theme of the prop. Above each are different colored warning lights I have decided to use to illustrate different stages of use similar to a rocket launch.



Looking inside the box you will see a piece of plywood was used to mount some 110V gang connectors to that will serve to make this steel box a power panel for the chair.

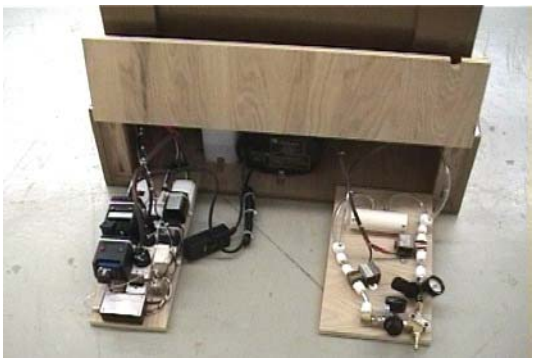


The box was mounted to a stand that I quickly slapped together and then mounted a 110 V police rotating light. When the first button is pushed (on the far right), the green light is illuminated to show that power is now going to the chair, warming up the fogger and turning on the transformers.

The next one in the middle will trigger both the yellow warning light on the panel and the red police light on the post. It is during this time the actor would announce the death sentence with the light flashing, building anticipation.

When the final button is pressed it lights up the final warning light which is red and also sets off the sound of frying skin and our brave criminal screaming like a little girl. Also the fog is triggered as is the chest vibrating, and the two PET timers which then send the legs and torso through their motions which match the same 20 seconds that our sound device cycles.

At which time the executioner presses the red button once again to remove all animations. Since it is set up to be manually triggered, everything except the PET timers can be triggered at any time with this button. The timers however are set to remain off for at least 45 seconds, giving the fogger a chance to re-heat back up for another cycle.



Here you can see what the rear of the chair and pedestal look like with the panel assemblies slid back and the hinged door up. At the top of the door notice the notch that will allow a 3/8" air line to pass through while the door is closed. For more info on setting up the use of sound and timers, go to Motion Trigger.

The Electrocution -13-

For a body form I decided to go with Ghost Ride Production's full size body with attached extremities. They have the option of having a wire skeleton inside or not and since we will be hollowing it out to fit over our animatronic skeleton, the wire would only get in the way so I ordered it without. When he arrived, the extremities were all painted out with incredible detail. I was more than just impressed with this product.

Moving on, once I fitted him to the skeleton I reinforced him at all the stress points with duct tape and then zip tied him securely in place. While I was at it I made a "trap door" that could be opened easily in the back

where the drill is mounted and then re-closed with a little duct tape.

I wanted to bring some more realism to our frantic friend so I made him a see-through skull cap and head cage made from aluminum and leather.

At the top of the cap I mounted some coiled wire to accentuate the idea of the electricity being applied directly to his noggin.

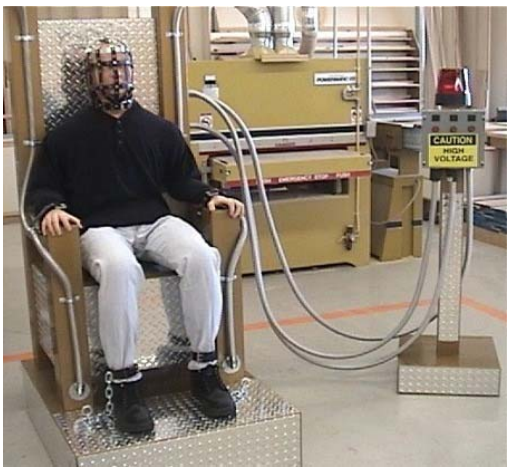
In this photo you can see that I have already applied the 1/16" diamondplate skin to certain areas of the chair. I thought that it added a lot to the final looks of the prop.

At the feet I made some restraints out of a couple of wide leather belts and then mounted it to some heavy chain that was eye bolted to the pedestal which allows him to pick up his feet while thrashing. When he stomps his feet the chain adds a lot to the overall sounds going on.

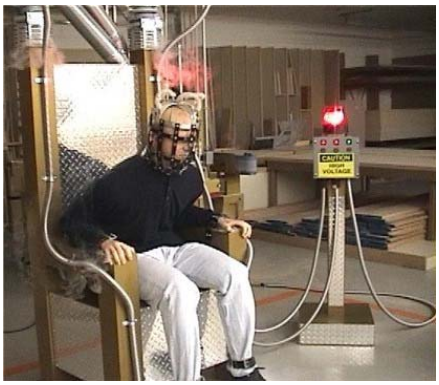
Here are some shots of how the hands turned out. When I hollowed the form the wrist fit perfectly over the mount on the arm rest and the lashing straps made this joint seamless. The body form was shipped without a wire skeleton, but the feet and hands and head were all reinforced with wire which made the fingers fully poseable. The gripping or clutching effect added a nice touch.

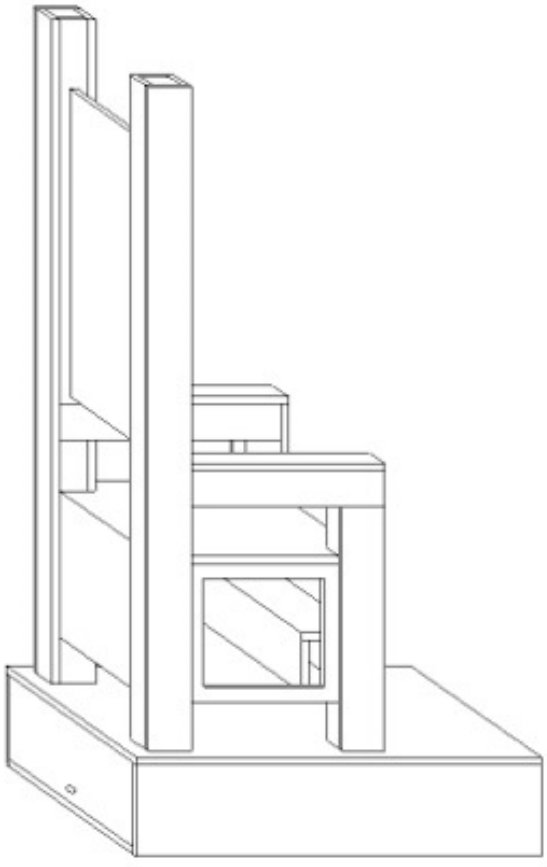
And there it is! Next let's take a look at our doomed and tortured soul in the throws of death.

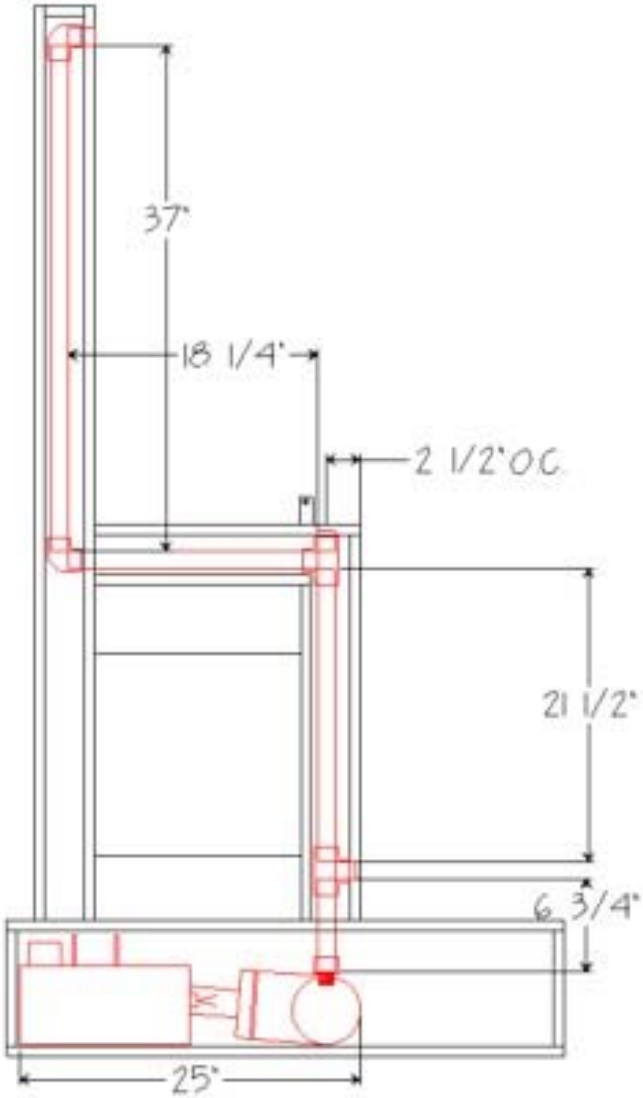
The Electrocution was completed in time to make an appearance at Haunt X VIII where he got plenty of attention, the big cry baby.

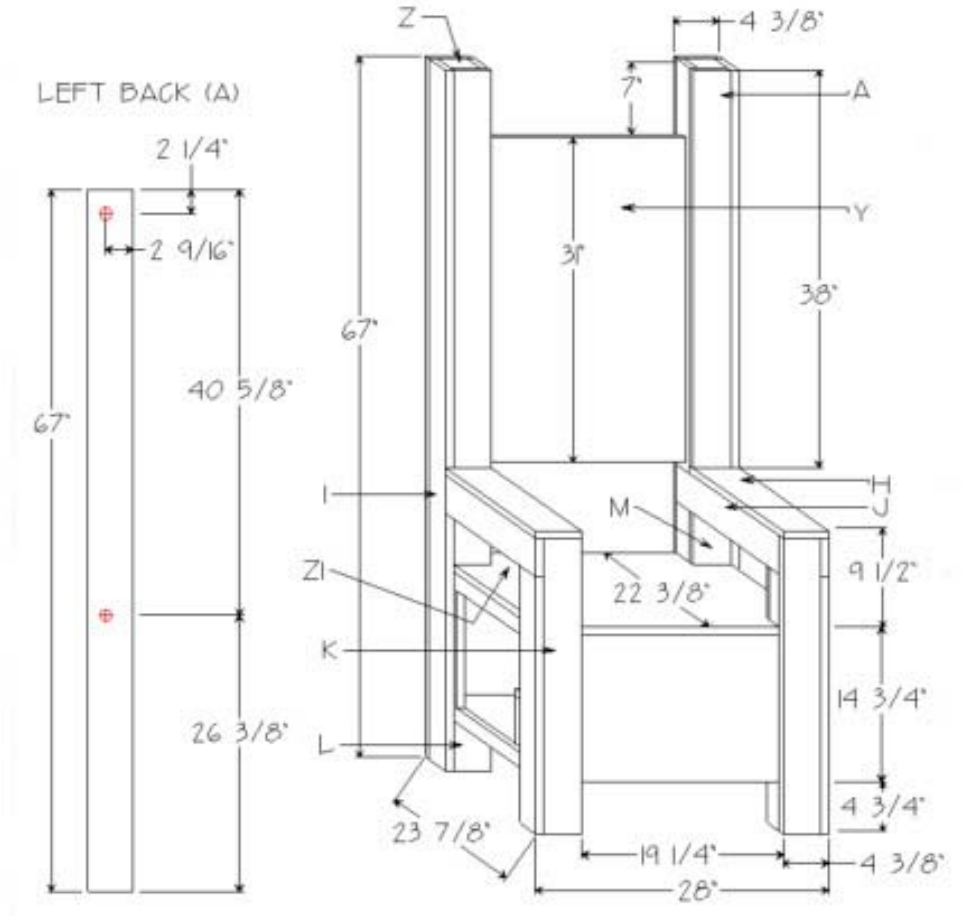


I love how he looked when it was all over but was also glad this particular project was put to bed! Although I did learn a lot along the way and he was a very challenging project.








LEFT BACK (A)
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Z
4 3/8"
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A
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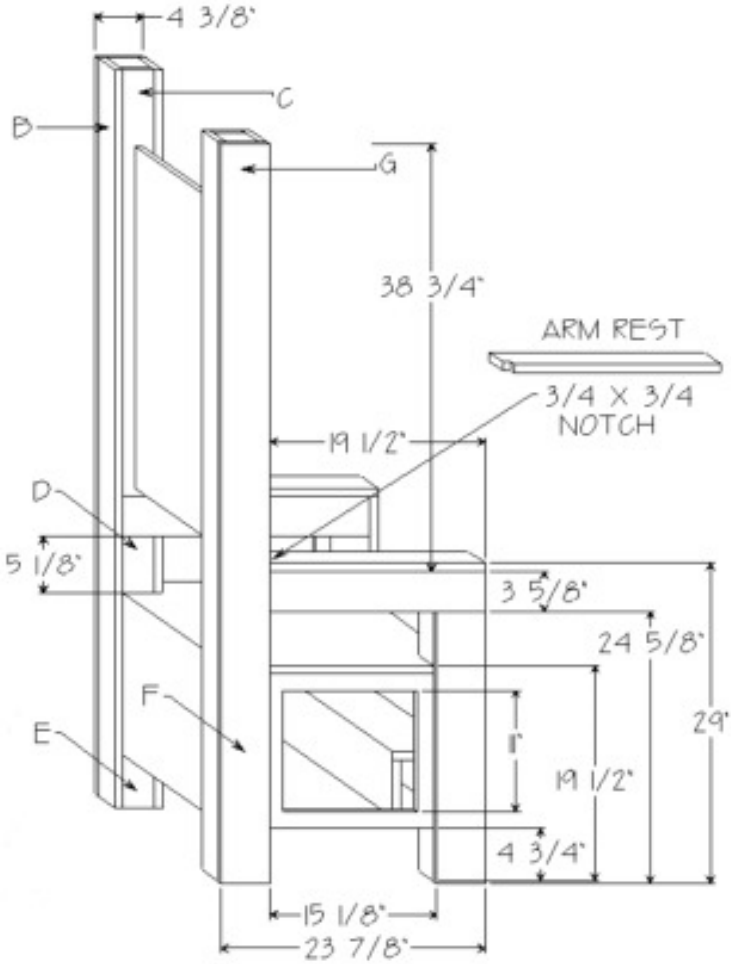
4 3/8"
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ARM REST
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