

The Haunted Driveway

Dedicated to the Home Haunter

http://www.haunteddriveway.com/tombstone_breaks_open.html

Tombstone Breaks Open

For all beginners who have not worked with compressed air before should read this document first.

[Haunting with Compressed Air](#)



This project involves a hollow tombstone that has a seamless crack that when the pneumatic cylinder is activated the tombstone will break open revealing a creature inside. What's good about this project is that all the mechanics are concealed inside and from the outside it looks like just a regular tombstone. This is a good thing because you can place the tombstone near guest without them realizing that the tombstone breaks open making a bigger scare.

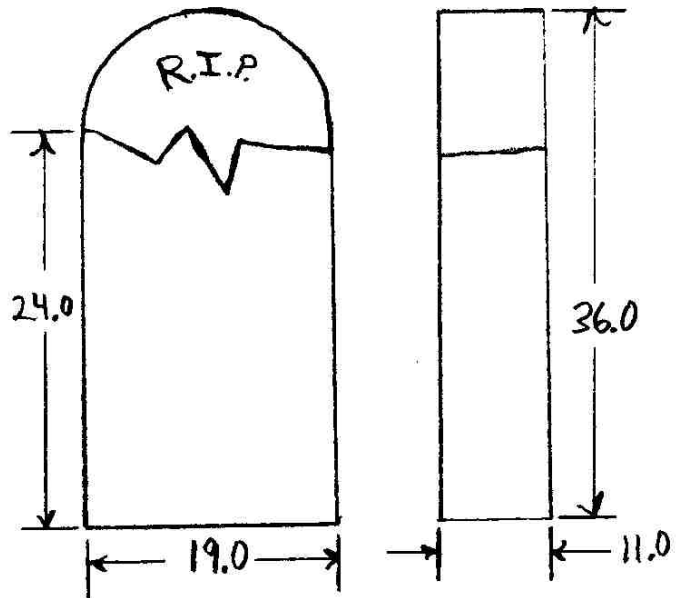
Construction

1. A full sheet of $\frac{1}{4}$ inch plywood about 8 X 4 ft big (will have extra left over)
2. A $\frac{1}{2}$ sheet of $\frac{3}{4}$ inch plywood about 4 X 4 ft big (will have extra left over)
3. Box of $\frac{3}{4}$ inch long wood screws 6 X $\frac{3}{4}$ inch is the size of screw.
4. Box of 1 inch long wood screws 6 X 1 inch is the size screw.
5. Bicycle pump or professional air cylinder with a 18 inch stroke. Stroke is the length of the rod when pulled all the way out from the bicycle pump or cylinder.
5. Two way solenoid valve that can handle 30psi my links page has a few places where you can buy solenoid valves.
6. Pipe fittings for this project will be needed for the bicycle pump and the output to your air compressor. Five barb fittings and one T- barb will be used all the same sizes. (look ahead for what sizes)
7. You will need a valve or use a flow control valve to adjust the speed of the cylinder. The valve should have the same size fittings as all of your pipe fittings to make it easier.
9. Some $\frac{1}{4}$ dia. pipe. You can use the same white color pipe as they use for refrigerator ice makers.
10. $\frac{1}{4}$ inch threaded rod 3 ft long piece.
11. 8 nuts and washers that fit on to the $\frac{1}{4}$ inch threaded rod.
12. 12 inch wide aluminum flashing (this is what you find used in roofing)
13. A 24 inch long kitchen drawer closer.
14. Mask, shirt and 2 hands that you want to use inside the tombstone.

To start off this project we will start cutting the $\frac{1}{4}$ inch plywood into the shapes of a tombstone. The size of the tombstone will be 36 inches tall 11 inches thick and 19 inches wide.

Take a look at the picture showing the dimensions of the tombstone. I found that the easiest way of cutting the crack is to clamp both front and back pieces together and then make only one cut, then both piece will be identical looking.

I ended up using a jigsaw to cut the crack. How high the sides of the tombstone depend on where the crack is placed if you decided to put the crack from a different height then I did. If you do want to put the crack in a different place put it toward the top of the tombstone.



For this project I will give the dimensions of how high the sides of the tombstone and this will work if you cut your crack in the same place. The height dimensions on both the left and right

sides are 24 inches this makes it easier. What really counts is that each side comes up to where the crack ends on each side of the tombstone.

The side pieces are 24 inch long and 10.25 wide but when connected to the front and back pieces are 11 inch wide. You can see in the picture the faint lines that the side pieces are on the inside of the back and front pieces.



Next step is to cut a base that the tombstone will sit on. The base size is 23 inches by 13.5 inches and this is where we will start to construct the tombstone off of.

Before we start with the base we need to cut some 1.5 inch wide strips of the $\frac{3}{4}$ inch plywood. The strips are the entire length of the plywood and from there will cut them into smaller pieces.

Starting with the base you want to put together a rectangle box shape on top of the base in the middle. This box is

where you will screw in all the sides of the tombstone to the base. The sizes of the pieces for the rectangle are the sides 10 inches in length and the front and back 15 inches in length.



Once you have screwed down the rectangle in the middle of the base you need to make up a square block that will go in the center of the rectangle. This is where the bicycle pump will sit on and the size of the square will depend on the size of your feet on your bicycle pump. The size square that I used is 6 inches and this is made up from the $\frac{3}{4}$ inch plywood and then screwed to the center of the base. You can also see in the picture that there are two smaller square blocks on either side of the bicycle pump with eye hooks in them. This is where safety chain will be placed to make sure the pump does not break apart. The sizes of the small blocks are 4 inches.

Now we will work on making supports for each of the four corners. These supports will screw into the corners of the tombstone making a sturdy complete box when we're done.

Using some 1.5 inch wide $\frac{3}{4}$ inch plywood you need to cut four pieces that are 24 inches long. These wood strips will screw into each corner sticking up and this is where you will screw in each side of the tombstone making the each corner strong. Take a look at the picture above to see how these tie into the four corners.



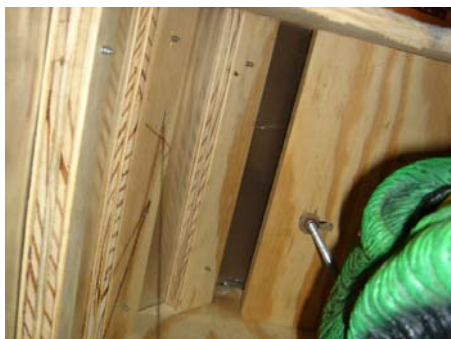
Now we start constructing the top of the tombstone using the top parts that you have cut the crack into.

Taking some 1.5 inch wide $\frac{3}{4}$ inch plywood strips cut 6 pieces that are 10 inches long. These pieces will be used as spacers for the two top pieces of the tombstone. they are drilled in along the top edge giving a smooth surface to attach the strapping later on.



Next cut a piece of wood that is 10 inch long and 8 inches wide this is where the top part of the bicycle pump will attach and this piece is centered at the top. You can notice in the picture there is a gap between the top and the block of wood. This piece need to be screwed in 1 inch down from the top in order for the nut of the thread rod to fit. This top piece will need to have two slots drilled into them and this will allow adjustment of the tombstone top from side to side giving a nice seal will the tombstone opens each time.

The slots that are drilled are 1 inch long and a $\frac{1}{4}$ inch wide and are centered with the rod attached to bicycle pump. you can see in both picture where those slots are for the threaded rod. **Keep in mind that these slots have been drill for the bicycle pump that I used and you may have to make adjustments with you bicycle pump. Do not drill theses two holes until you have mounted your bicycle pump.** Take a look at the picture above and below to see how the strapping forms an arch as it goes around the top and the centered block at the top of the arch.



Next we will modify the bicycle pump by adding thread rod to it to extend the length of the bicycle pump.

Before I explain how to do this you need to keep in mind that the measurements may be a little different if you are using a different type of bicycle pump and most likely you are. I will give the measurements and you will need to adjust your measurements so that they are close to the overall measurement that I used.



You want to end up with is what picture to the side looks like. To start off you need to drill two $\frac{1}{4}$ inch holes through the bicycle pump handle so that the holes are parallel with the rod of the bicycle pump.

The two holes are 2.5 inches apart on each side from the center of the bicycle pump rod. The lengths of the two pieces of rod are 15 inches long and this is attached with some nuts to the handle. There is a nut screwed on each side of the handle making a total of two nuts per rod.

Also you can't see in the picture is a piece of wood, the same 1.5 inch wide strapping piece we have been using. This is what will support the mask inside the tombstone later on. You can go ahead and add this piece now the length is 7 inches long and there are two $\frac{1}{4}$ inch holes drilled so that the holes line up with the threaded rod. You can just line up the piece of wood with the rod and mark it and drill the holes. The piece of wood uses two nuts on each side of the rod to tighten it to the rod (same way as the handle).

You will also notice the chain going through the handle and this is what is attached to those smaller wood blocks with the eye bolts in them. This is to keep the bicycle pump rod from hitting the top of the pump. The chain will be added on before the mask is put on.

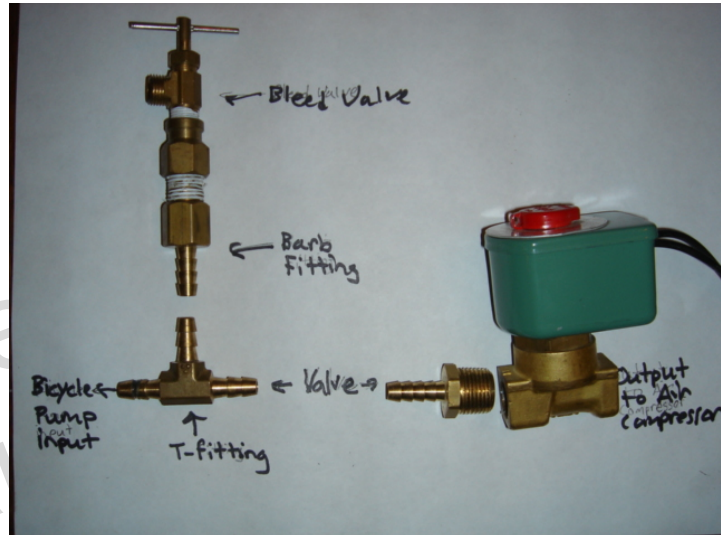
Taking the bicycle pump you need to attach this to the base part. Attachment depends on what your feet look like on your bicycle pump. The feet on mine are made of sheet metal which made it easy to attach to the base part with some bolts. You may have to attach your feet using sheet metal or metal strapping. In the end you want the bicycle pump attached to the square center block that was screwed to the base earlier. You notice in the picture that the pump is not centered from back to front on the wood block this is because



the mask that I used has a big nose on it and I needed to put the pump more toward the back of the tombstone. Take the measurements of your mask to make sure to put the pump in the right place so that the mask does not get clipped when the tombstone closes.

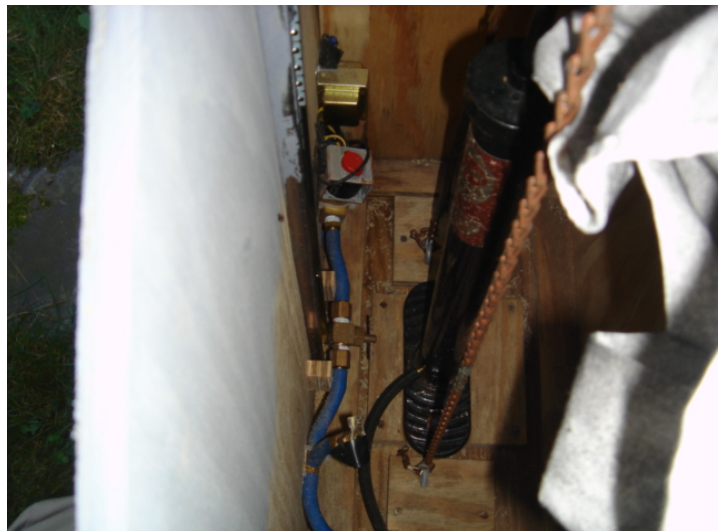
Now we will start working on the control system for the bicycle pump. Start by cutting off the connector at the end of the tube on the pump and replace it with a T-barb fitting. On the two other ends of the T-barb fitting push on a 4 inch piece of white tubing. You can use the same tubing that is used for refrigerator ice makers.

Push on two more barb fittings on the other two ends of the T-barb and then screw in the output of solenoid valve into one of the T-barb ports and a bleed valve into the other. I used a valve with $\frac{1}{4}$ inch fittings your valve may be a different size so make sure you get the fittings that fit your valve. On the input of the valve attached a barb fitting and then a piece of tubing (same kind) that is around 2 feet long and then put a quick disconnect on the end of the tubing. The quick disconnect will plug into your main air line.



Attach the electrical cord to the solenoid valve at this time if you have not done so. Take a look at the picture on the right to see the layout of all the fittings are even though there is no tubing used. The place where it says valve a hand tighten valve will go here to adjust the speed of the bicycle pump. I did not have one to put into the picture. Your solenoid valve may not run at 120 volts like mind did so you will need to put on a power supply to make it work at 120 volts. Best thing to do is to buy a solenoid valve that runs at 120 volts so you don't need to use a power supply. Another picture below showing what the assembly looks like inside the tombstone.

This whole assembly needs to be attached to the inside on the back side of the tombstone. I ended up drilling wholes and using zip ties to attach the assembly to back side. Then I drilled a hole for the quick disconnect so it can come out the back side of the tombstone. You will notice that silver looking bar going up to the top of the tombstone. This is a track assemble used in kitchen draws to allow the drawers to open and close freely. I used one of these inside of

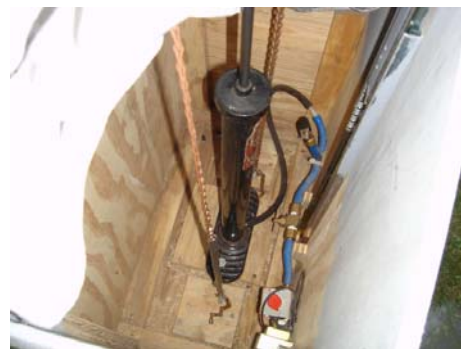


the tombstone so when it opens and closes the top part of the tombstone opens up and closes straight and does not twist which will happen if you do not install one of these kitchen drawer assemblies. Take a look at another picture below of the drawer assemble attached to the back of the tombstone.

You will notice that this drawer assemble is hidden by the head and the shirt the monster is wearing so from the front you will never see it. The size of the drawer assembly you will need is 24 inches long and you can only buy them in pairs. The drawer assembly is screwed in the center on the back side once you have attached the back side of the tombstone. Right now you can go ahead and screw the back and both side to the base part. Do not attach front yet until you have installed the safety chain.



There is a piece of chain that attaches to the handle of the bicycle pump this limits the pump from extending all the way because this can damage the pump. When the bicycle pump extends all the way the internal parts hit the top of the pump which can over time weaken the top. To attach the chain, wrap around the handle then glue in place and then attach to bottom of base with two eye bolts. You can also cut the chain in two pieces and loop it around each end of the handle.



Slide the mask on the threaded rod now. You will need to make two holes in the top of the mask to slide it down to where you have the wood bar that was put in earlier. The wood bar should be 4 inches from the handle of the bicycle pump, but keep in mind that your masks could be a different size so you might need some adjustment.



This wood bar keeps the mask in place. Screw on one nut on each of the threaded rods 1.5 inch down and add two washers as well. Once that is done you can now attach the top piece of the tombstone to the top of the bicycle pump and put washers and nuts on top as well. Adjust the top piece of tombstone by sliding back and forth along the slots made earlier.

This adjustment is to make the top of the tombstone flush with the bottom half so it looks like the tombstone is one piece. Once adjusted, tighten the top nuts and see how the bicycle pump opens and closes the tombstone by manually pulling it open. The weight of the top part of the tombstone will make it come down and sit back on the crack. **It is important to get the top adjusted correctly before moving to the next step.**

On the top part of the tombstone you can now cover with the aluminum flashing. You can attach the flashing using glue or screws. I ended up putting some tape over the screws to give a smooth finish once the paint went on. Next you can attach the front side of the tombstone and from here we are almost done. If you have an old shirt lying around you can dress up your head and this will cover the bicycle pump as well. To attach a shirt to the tombstone you can use some black string and tie it to the top part of the tombstone so that it moves with the mask. Take a look at the above picture to see the black string and the aluminum flashing at the top.

Painting what color your tombstone is up to you. I painted my tombstone the usual gray color and added some black paint to make it look older. I ended up just putting dates on my tombstone that are crossed out making it look like the monster keeps coming back to life.

