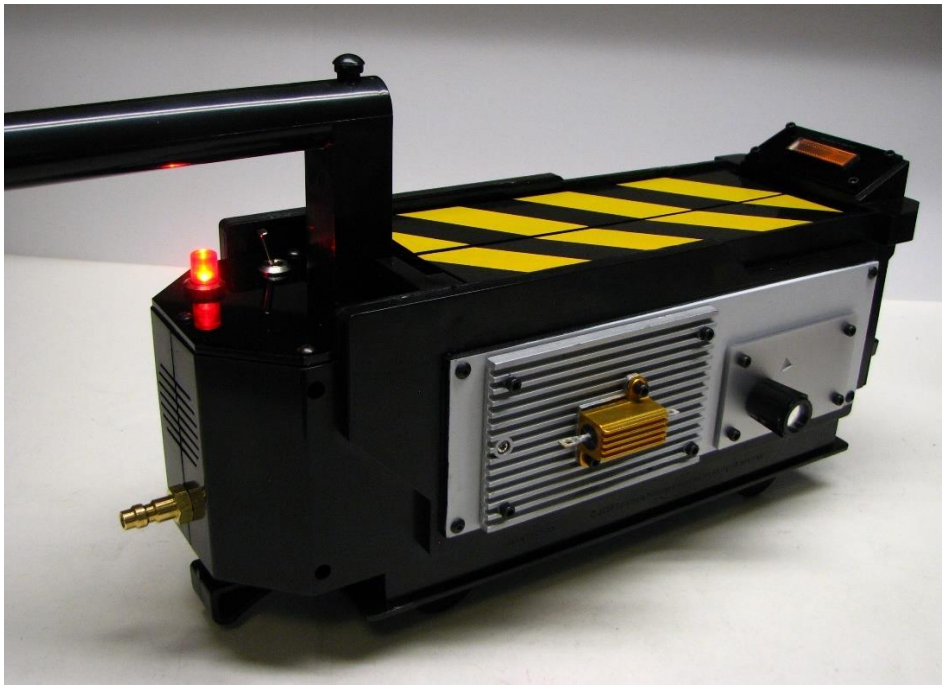
Introduction

Congratulations on purchasing the Spirit Ghost Trap Cosmetic Upgrade kit that makes your trap look much more like the screen used ghost traps from the Ghostbusters movies.

No painting was done, and no decals were applied so this is the plain Spirit Halloween Ghost Trap (not included) with just this Cosmetic Upgrade set of parts installed:

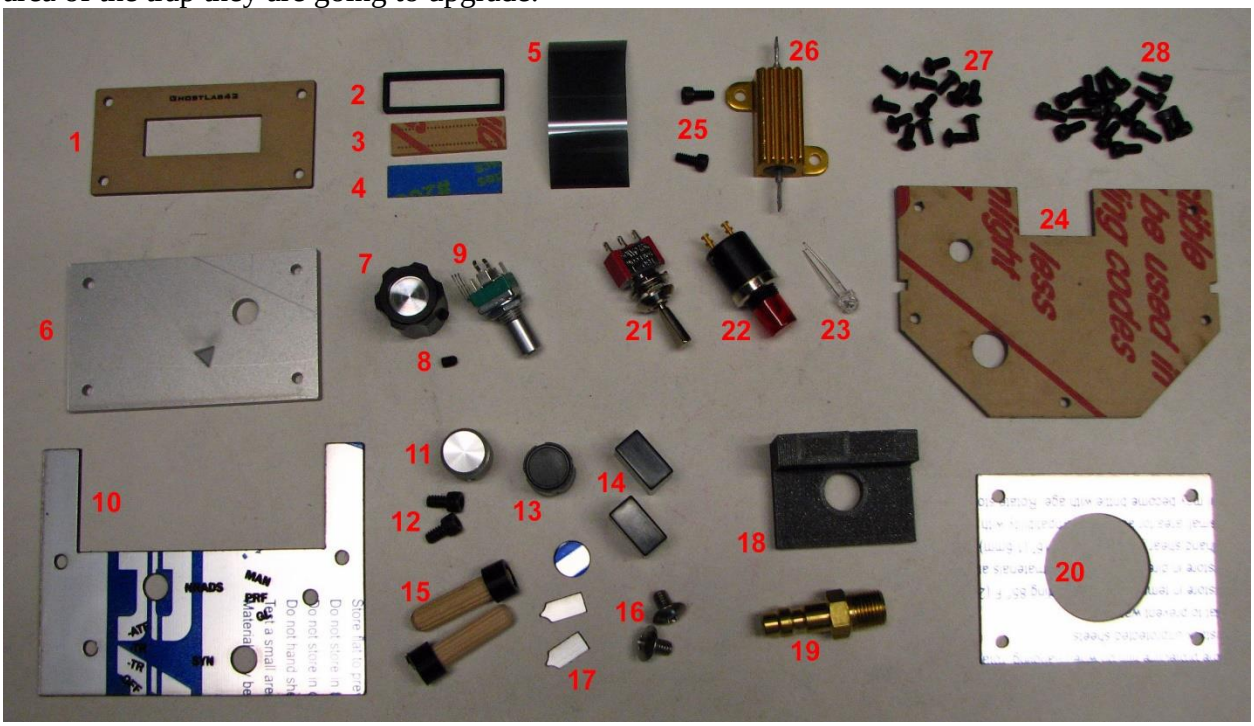


Here is a reference photo of the screen used pack:



Installation in the Spirit Halloween Pack

Parts Identification:
There are many parts in different bags. Here are the parts laid out somewhat grouped by what area of the trap they are going to upgrade:



Display:

1) Black acrylic cover plate
2) Bezel frame
3) Clear acrylic with etched features
4) Lenticular material
5) Darkening material that goes under the bezel on the white diffusor

Side selector panel

6) Grey acrylic panel with etched triangle indicator that will hold the potentiometer #9 and knob #7
7) Aluminum knob with long set screw
8) Short set screw for aluminum knob
9) Potentiometer with detents

Front selectors panel

10) Brushed aluminum panel with etched to black labels that will hold 4 knobs: #11, #13 and #14
11) Aluminum round knob
12) Panel mounting socket head screws, larger size than the socket head screws #25 and #28
13) Black plastic round knob

14) Two rectangular knobs
15) Wood dowels with retainer rings for the round knobs
16) Two mounting screws for the two rectangular knobs, #14
17) Three rushed aluminum accent plates, one for the black round knob #13, and one for each of the black rectangular knobs #14

Hose connector

18) Brass hose connector
19) 3D printed mounting fixture for use with the brass hose connector #18

Another side panel

20) Side plate for large black plastic molded in knob

Top panel

21) SPDT ON-OFF-ON toggle switch with mounting hardware including a fancy nut
22) Power indicator light with clear Red lens and a fancy mounting nut
23) Red LED to improve brightness of the indicator #22
24) Black acrylic top panel that will hold the toggle switch #21 and indicator #22

Battery cover resistor

25) Two socket head mounting screws for the resistor #26, same size as #28
26) Real Dale power resistor to replace the short molded in resistor on the battery cover

Lots of screws!

27) Thirteen **button head** screws for mounting panels and replacing molded in screw heads



28) Seventeen **socket head** screws for mounting panels and replacing molded in screw heads



Recommended tools and supplies:

Philips screwdriver small to medium head
    Not worn, since the Spirit Trap's main housing screws are easy to strip
Allen wrenches (Hex Wrenches)
    1/16", 3/32" and 7/64"
Drill bits
    3/32", 7/64", maybe an 1/8", and 1/4"
Needle nose pliers
Small crescent wrench
Rotary power tool (such as a Dremel) with sanding bits
Hacksaw
Various small files
Scissors
Razor blade, X-acto knife or box cutter

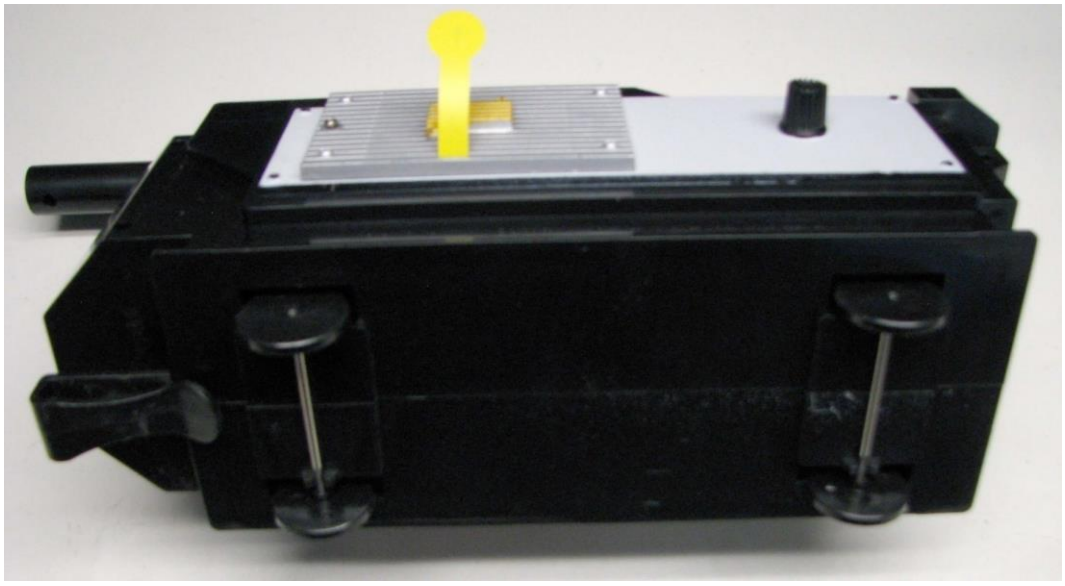
Glue, to hold acrylic parts together
Hot glue gun with a glue stick

Tape to hold things in place
Silver sharpie to mark things where you want to grind away portions

Red acrylic paint, or a Red paint marker if you want to go for Red lettering on the front panel

Taking the Trap Apart:

First pop off the two sets of wheels. They are held on by friction clips, so you can grab one wheel and pop that one side out just a little (enough to clear the retention clip) and then pull on the other wheel and pop out the other side.



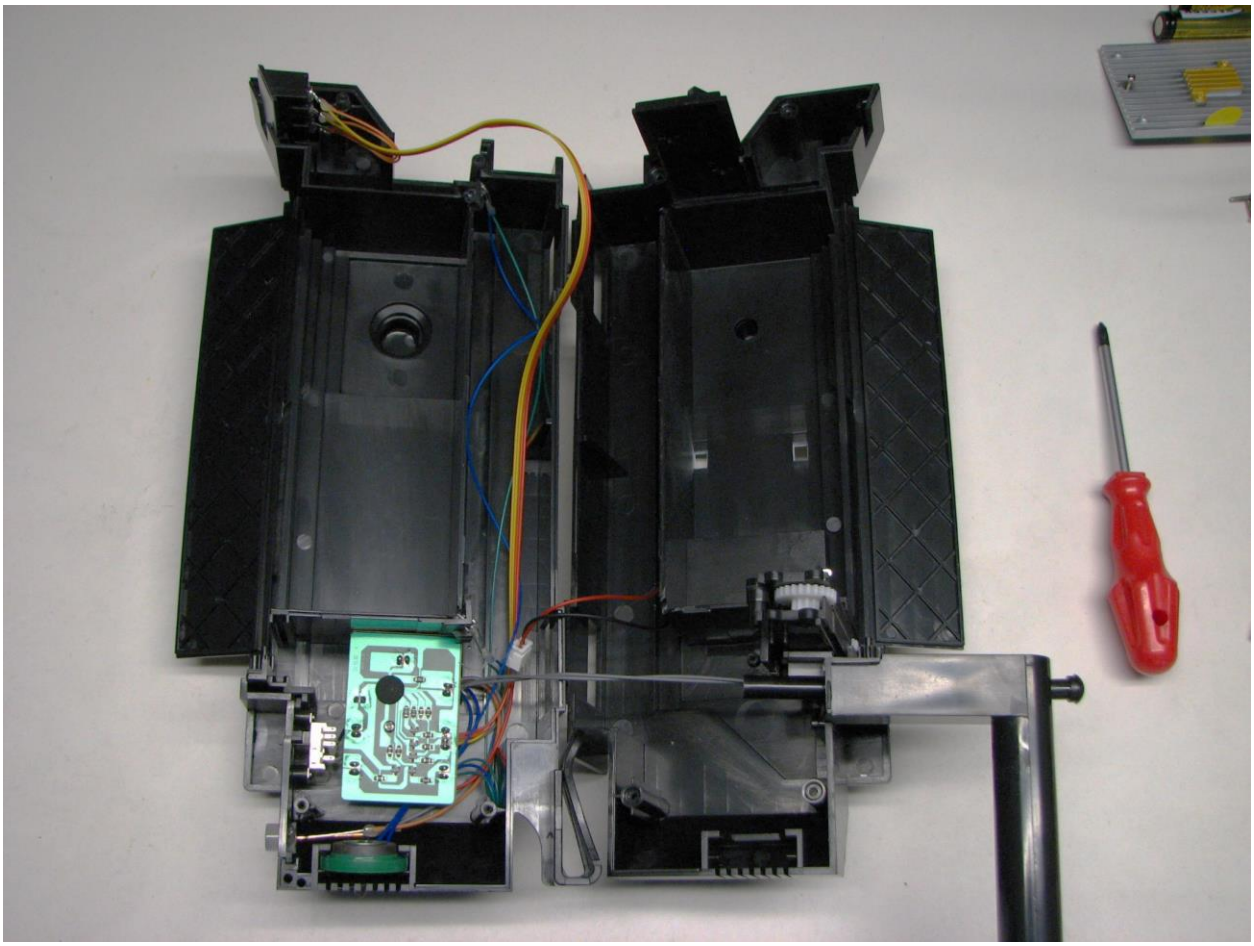
Next, remove the battery cover and the batteries. The cover is held in place by a single Philips head screw.



Then remove the 4 longer Philips head screws that hold the two halves together. These screws are easy to strip, so use a good Philips head screwdriver and a good amount of force pushing on the screw driver to make sure you are less likely to strip the head of the screw.

Once the screws are removed you can separate the two halves. The Handle is held by each half, so take care to keep it with the gear mechanism that also spans both halves. The power switch

and indicator LED are also on a panel that can fall out, so either tape that or hold while separating if you want to keep it in place. Here I kept it on the battery side half:



Next I removed several pieces: The circuit board, the handle, the gear box, the speaker, the power switch and indicator panel and the circuit board.

The circuit board is held in by a single Philips head screw. In this trap, the battery pack had a connector that allowed you to unplug it from a cable that goes to the circuit board. I have had other traps that did not have this, so you may not have that option. Then just unscrew the screw until the board is free. It has a lot of connections on it. No need to move it all of the way out until you free some other parts.

The handle is actually 3 pieces: the main handle, the plunger that moves up and down to open the flaps, and a tiny white piece that goes way up inside the handle between the plunger and the button on the handle.

I tried to keep those three parts together by taping the plunger, but when playing around and final assembly the taped had to be moved off and it fell apart and took me a long time to find the tint white piece, so you may just take them apart now and do not loose that tiny white piece!

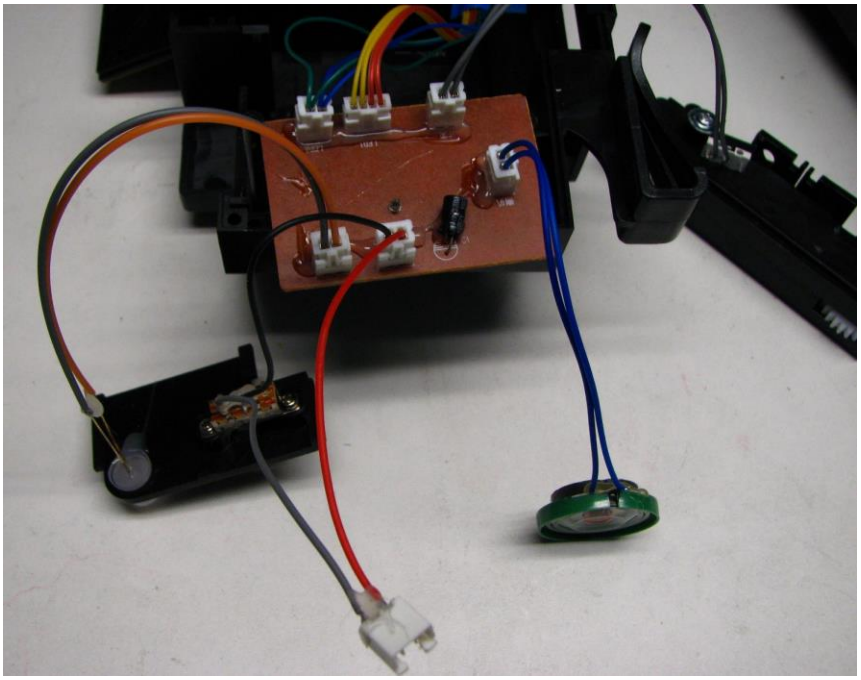
The handle and the gear box can slide out at the same time. Just lift them up together and be careful about the plunger coming out of the handle!



The speaker may be in either half, and on this trap it was *almost* hot glued in the side with the switch and power indicator. It almost fell out. Not sure if your trap will make this more difficult or not.

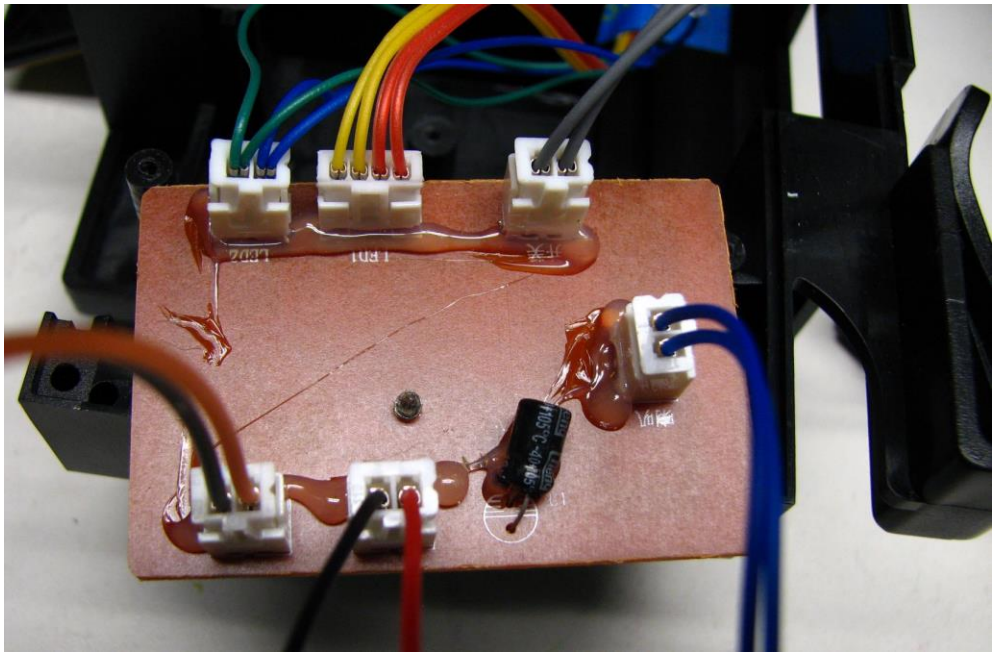
The power switch and indicator also just lift up and slide out of the retention slots.

Now you should be able to flip the circuit board over and move it and several of the attached parts out of the trap:



See the Appendix at the end of this document for photos of the Walmart / Rubies / Imagine Ghost Trap that uses a different electronics board, but the Walmart Trap teardown and mods are nearly identical to this Spirit Ghost Trap.

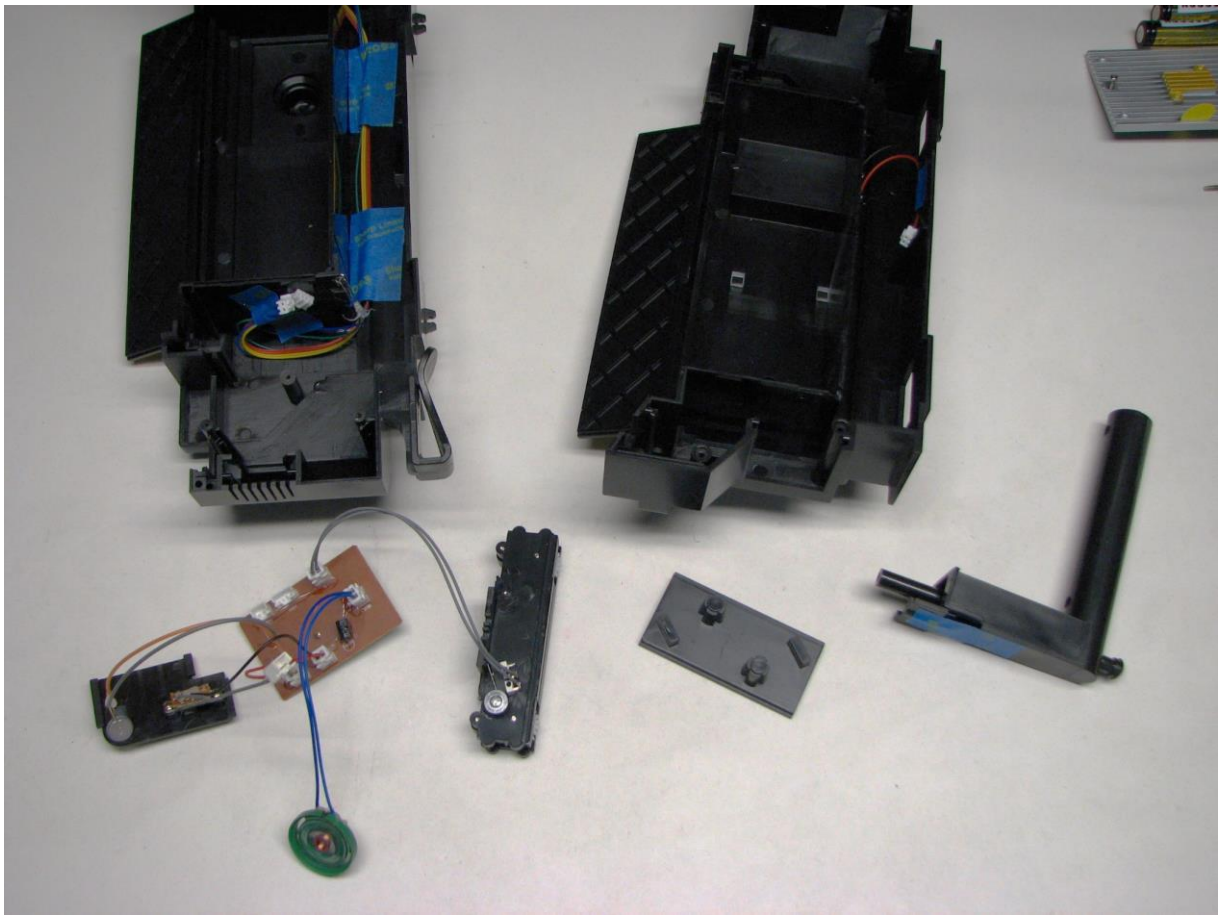
Here is a closeup of the connections so you can be sure and get them back in the correct spots when we go to put it back together:



You can now unplug a couple of the connections in the upper left (Blue/Green 2-pin connector and the Yellow/Orange 4 pin connector) to free the board from the trap.

Also remove the front panel with the molded-in 4 switches. This is one of just a few pieces that will not be re-used.

I also taped down the wire ends inside the trap halves so that they would not interfere when putting the trap halves together. I used painter's tape which worked OK but was not sticky enough to last very long. I would use some other tape next time so that I would not have to keep messing with reapplying it.



Also remove the front panel with the molded-in 4 switches. This is one of just a few pieces that will not be re-used.

I also taped down the wire ends inside the trap halves so that they would not interfere when putting the trap halves together. I used painter's tape which worked OK but was not sticky enough to last very long. I would use some other tape next time so that I would not have to keep messing with reapplying it. This makes working on each half much easier.

No need to remove the 3-LED display on the top front of the trap. It can stay in the side with the taped down wires and does not need to be removed.

Trap Large-Knob-Side Upgrade:

This is the easiest side to upgrade, so let's start here!



If you wish to cleanup the paint before starting, now is the time to do it. The two halves are separated and most of the parts that get in the way have been removed. There is some grinding involved, so if you want to do some of the mods first and then paint, that also works and allows you to touch up and things you may scratch or grind that were not intentional.

I did not do any pre or post painting for this install so you could see a plain trap being upgraded. The original painting is not always very precise, but if you make it all perfect you will probably want to distress it anyway later so may hide a lot of the imperfections anyway.

We are going to replace the 8 molded in screw heads (the 4 around the large knob and the 4 around the larger light colored main side plate) with real screws.

The four around the large knob on the smaller plate are not in the ideal position so they need to be grinded flat. This plate will be covered, so we need this very flat and if you grind a little too wide of an are it will not show.

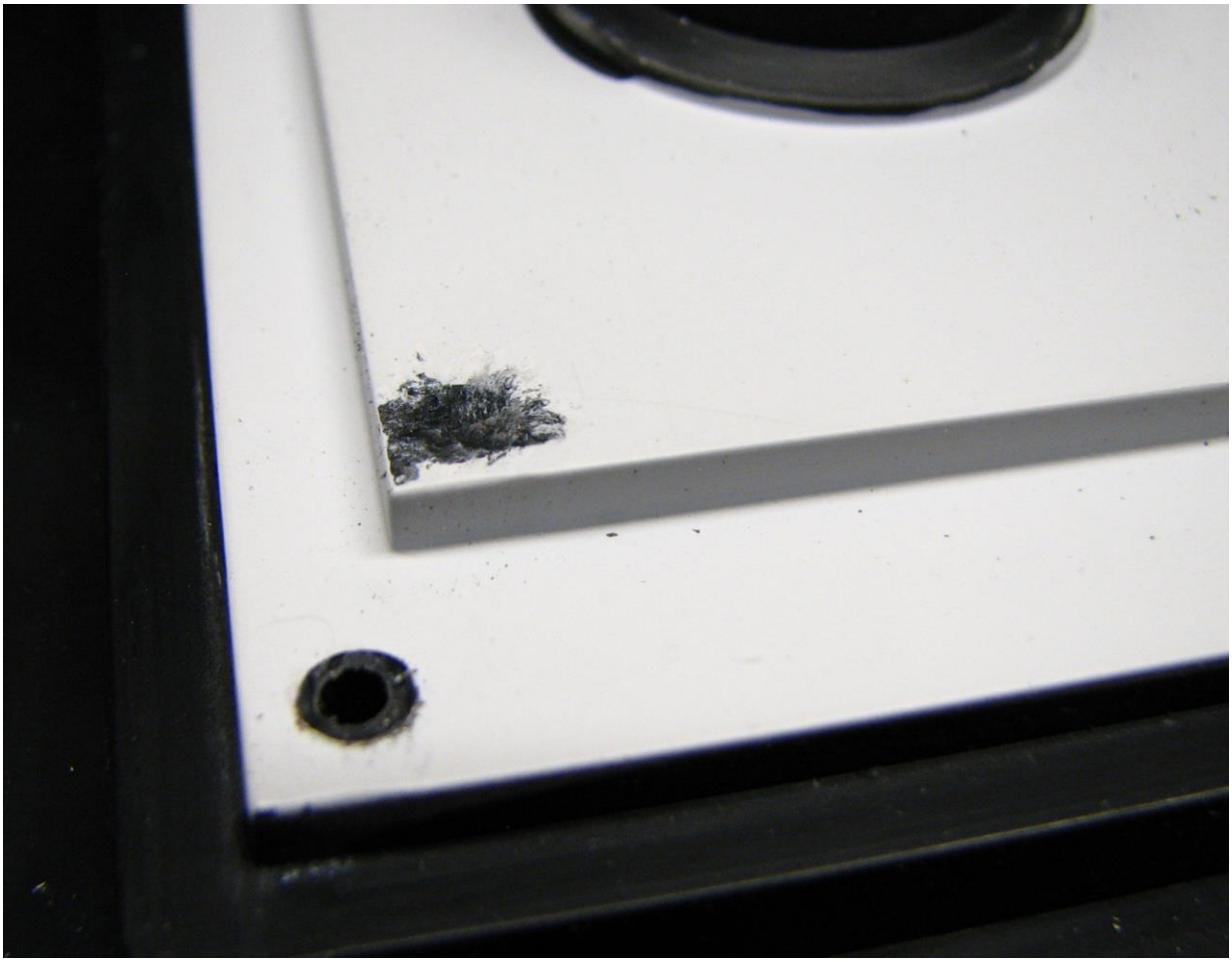
The Four around the outside edge will just be replaced with actual screws. This means do not overgrind!

Drilling Grinding Drilling Order Note:
We will also need some holes in these four centered on the current screw heads. What worked best for me was to drill the hole first before grinding since it was easy to find the center. Grind the plastic screw head down and then a quick re-drilling to clean out the hole after the grinding is all done.
Drilling only after grinding also works, but for me it was a bit more difficult to get the hole centered.

Use a 3/32” drill bit

For the outside four screws, almost everything will show so take a lot of time and carefully grind down those plastic screw heads. I use a Dremel with a very small sanding/grinding bit that is somewhat round on the end so does not remove much material and also in a very small area. The grinding portion is about the same size as the screw head, but since it is a bit convex (rounded) it will grind away a portion smaller than the screw head. I also use a bright light from the side so I can see how much of the screw head is left and repeatedly grind a little off until the edge is barely visible.

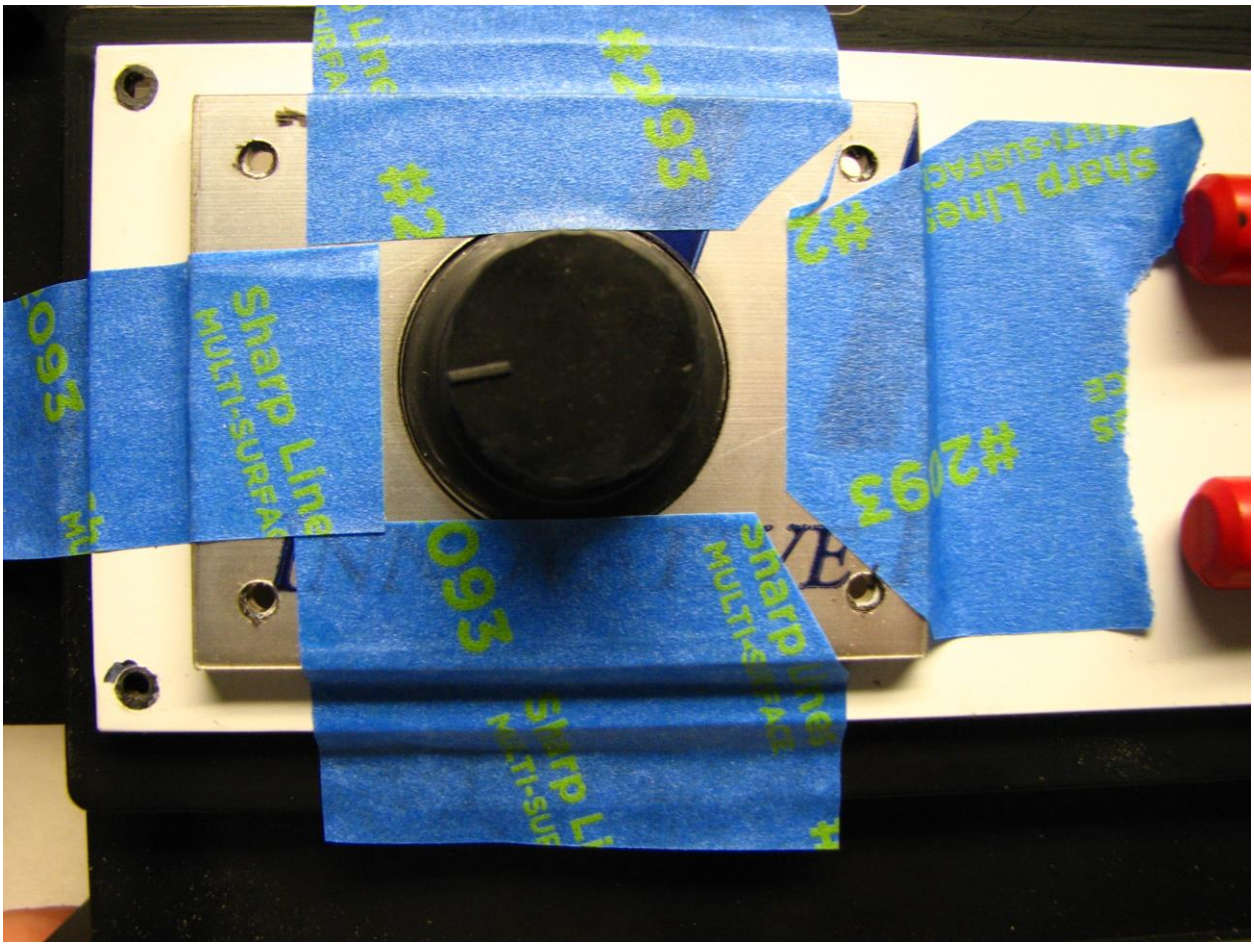
Drilled the outer four holes, ground down all 8 screw heads and then re-drilled the outer four. Here is a closeup comparing the two types of grindings:



Next is to mount the brushed aluminum / acrylic panel # 20.

First try a test fit to make sure it easily presses down flat onto the plate that you ground off the screw heads. If the screw heads are not flat, this thin plat will not look as good and may have some waviness and gaps around the edges. I leave the plastic covering on as long as possible so the aluminum does not get scratched.

Use a 3/32" drill bit
I taped down the plate to hold it in position, then drilled the four holes in the center of each of the panel's four holes. Here is a picture before I drilled the four holes:

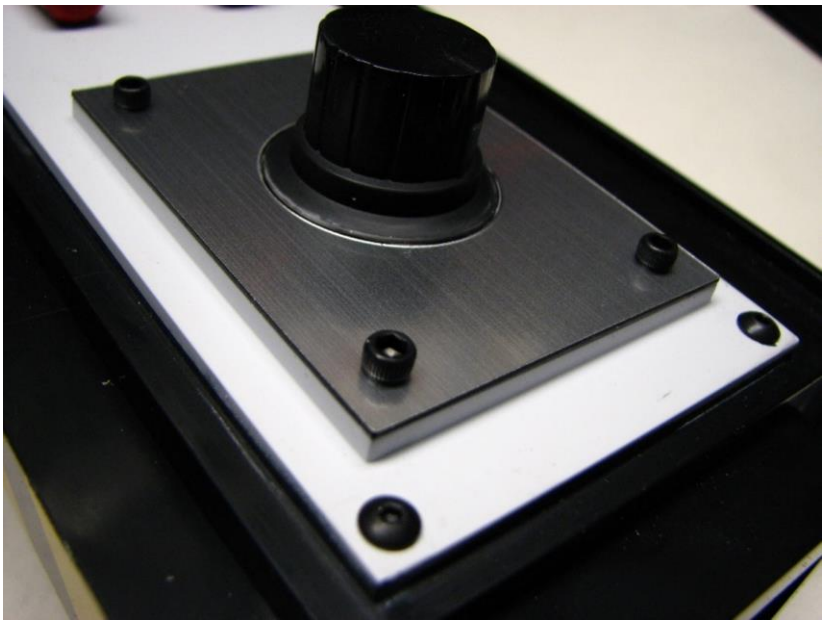


Use a 1/16" hex key/wrench
Grab 4 of the #27 button head screws (rounded top) and using the hex wrench install the screws into the outside 4 corners of the larger main panel. Screw them all of the way in, but not too tight since this is plastic and you could strip the hole. If that happens, add some glue since these are for decoration only. Just makes it harder if you want to paint later! If some plastic gets squished out while tightening, just remove the screw, use a fingernail to remove the excess plastic from around the hole and then re-install the screw.

Use a 3/32" hex key/wrench

Grab 4 of the #28 socket head screws (taller cylindric head with knurled sides) and use the hex wrench to install the screws into the outside 4 corners of the added aluminum panel #20. Screw them all of the way in, but not too tight since this is plastic and you could strip the hole. The thin aluminum panel can bow and bend if the screws are in too tight and/or not aligned well to the center of the holes in the panel. If needed, use a drill bit to enlarge one hole and then try mounting again. It is important to get the aluminum panel #20 to lie flat on the side of the trap.

I did not glue this panel on, but you could do that if you wish. also leave the plastic coating on until I am happy with how the plate is mounting. Once it is great, I remove the screws, peal off the protective layer, and then put the screws back in. Now the panel should look like this and this side of the trap is now complete!



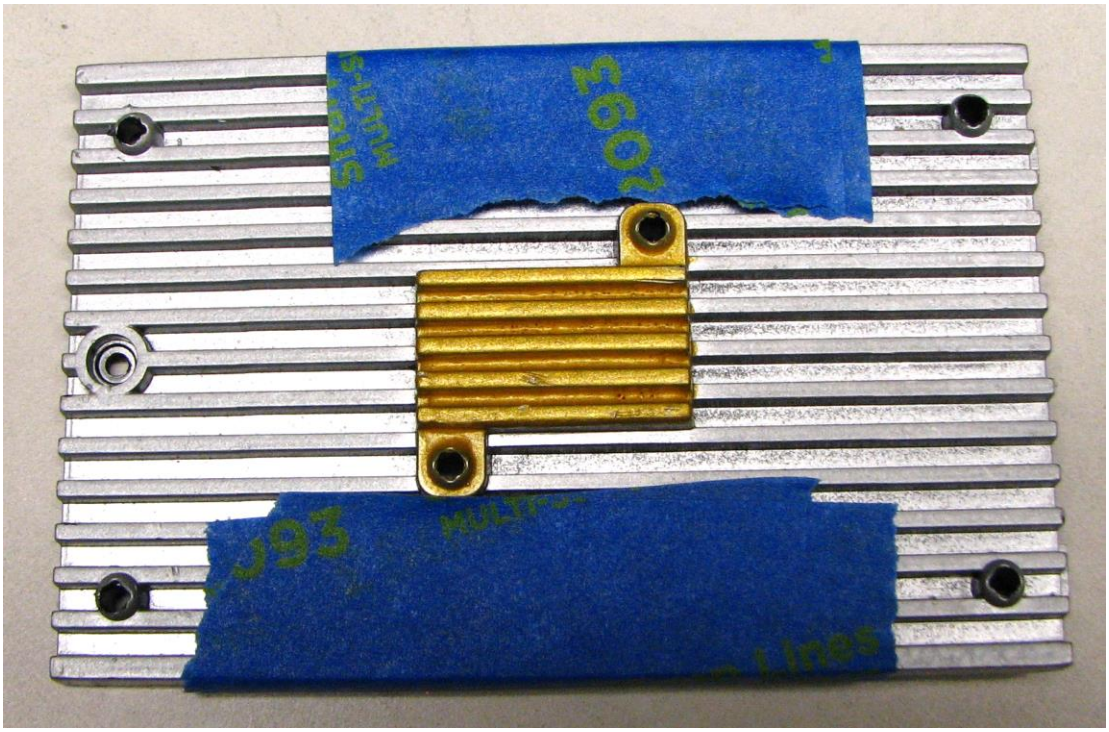


Trap Battery-Pack-Side Upgrade:

Battery Door upgrade:
The door gets to have a real Dale power resistor!

Remove the screw that holds the door so it doesn't get lost with all of the grinding and drilling that will be done to this door.

I taped off the two sides with two layers of tape. I did not do that on my first door that I worked on and the grinding bit was short enough that the tightening portion of the Dremel sanded away the silver paint on the edges… Touch-up was needed! So here is the next door to be modified:



Use a 3/32" drill bit
I drilled, then grinded down grinded down the four outer plastic screw heads, then drilled them again just to clean out the cruft from sanding.

The two plastic screw heads molded into the gold resistor can be done a couple of different ways:

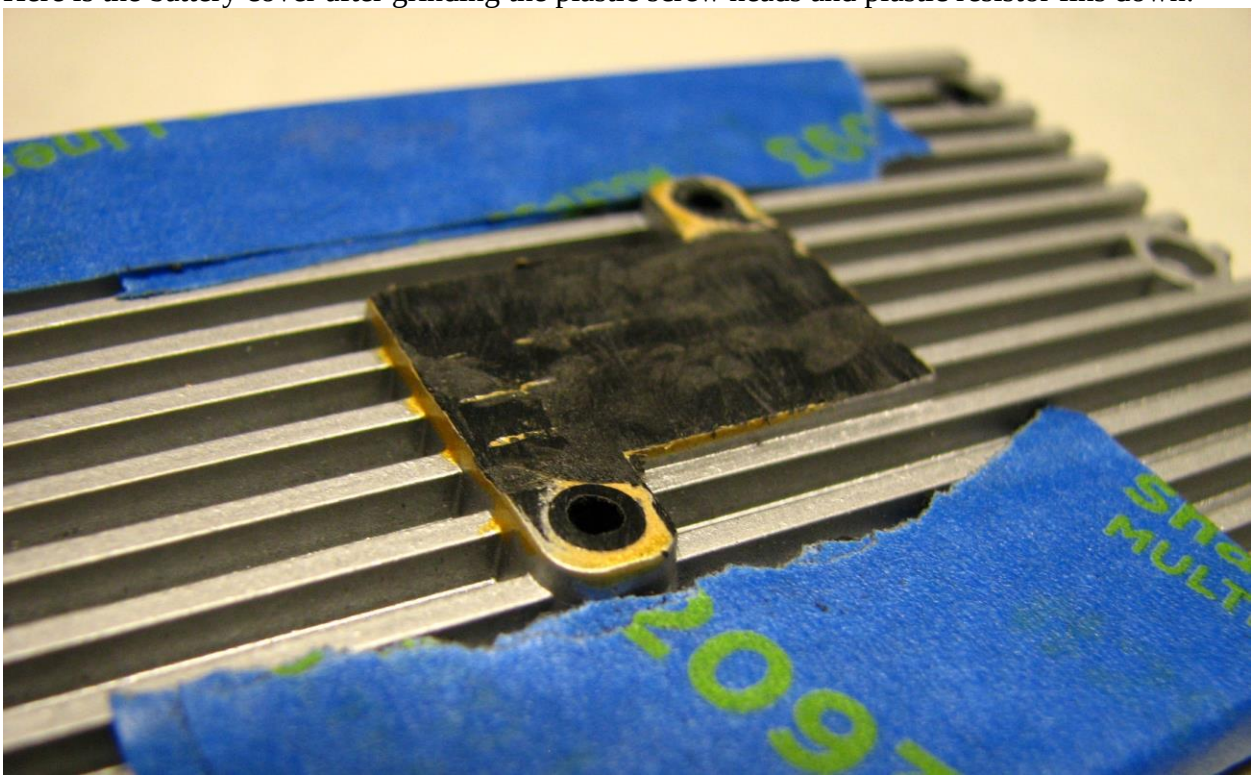
1) Drill/grind/drill just like the other screws. The whole are not quite the same as on the Dale resistor so you would need to modify the dale resistor
2) Just sand the heads down flat and drill them out later when mounting the Dale resistor. The Dale resistor has slightly narrower holes so it does not match where these plastic screw heads are located.

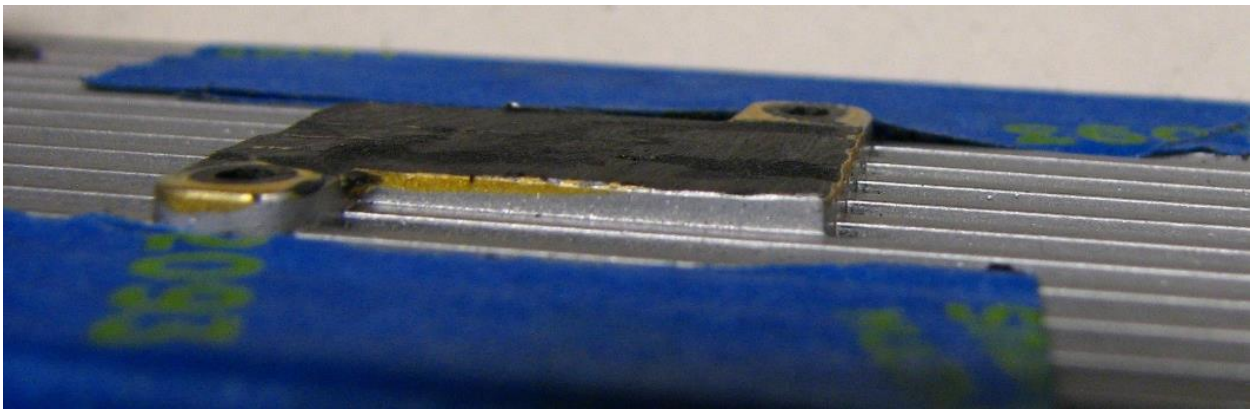
Both methods will look good. I will probably choose method #2 for future builds.

I did this trap by first drilling the holes, so had to later modify the Dale resistor. Not really something I chose to do, I just got drill-happy and drilled out all 6 holes before I though about mounting the Dale resistor!

Grinding down the door's gold painted plastic resistor. To get the real Dale resistor #26 to mount well, grind the fins of the molded plastic resistor down level with the tabs that stick out and used to have the molded plastic screw heads on them. You could go much lower, but I did not take the time to do that on this build. Not sure it is noticeable and would certainly be more work to grind it all of the way down including the mounting tabs to the level of the silver painted fins of the battery plate. Not sure if the mounting screws would interfere with the battery, so you may also have to grind down the screws if you remove more of the plastic resistor.

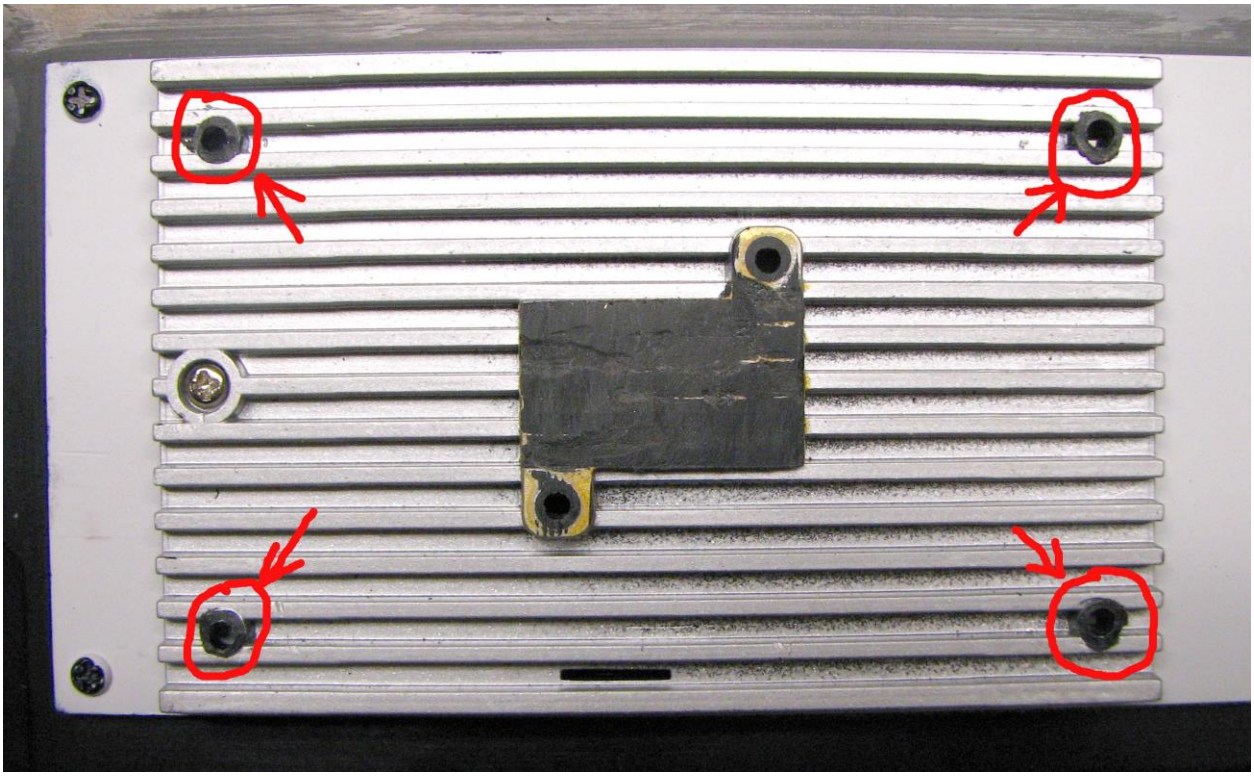
Here is the battery cover after grinding the plastic screw heads and plastic resistor fins down:





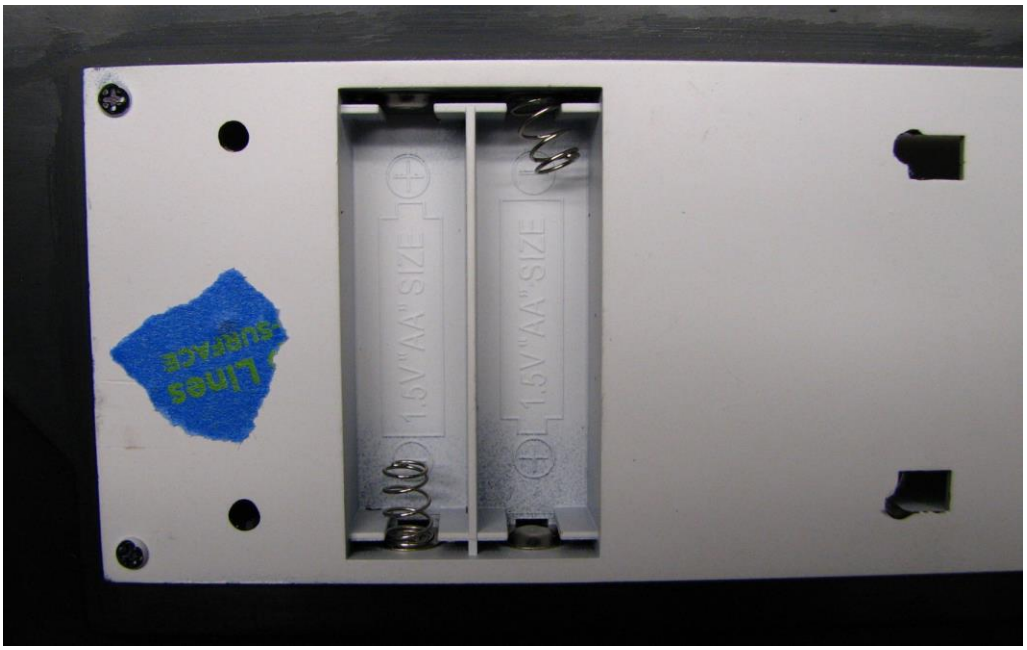
Next, place the cover back on the trap side and use the original screw to secure it in place (make sure there are no batteries in the battery compartment so we do not accidentally drill into them!):

Use a 3/32" drill bit
Drill out the four outer corners of the battery plate to mark where the screw will stick out and interfere with the panel underneath the battery plate.

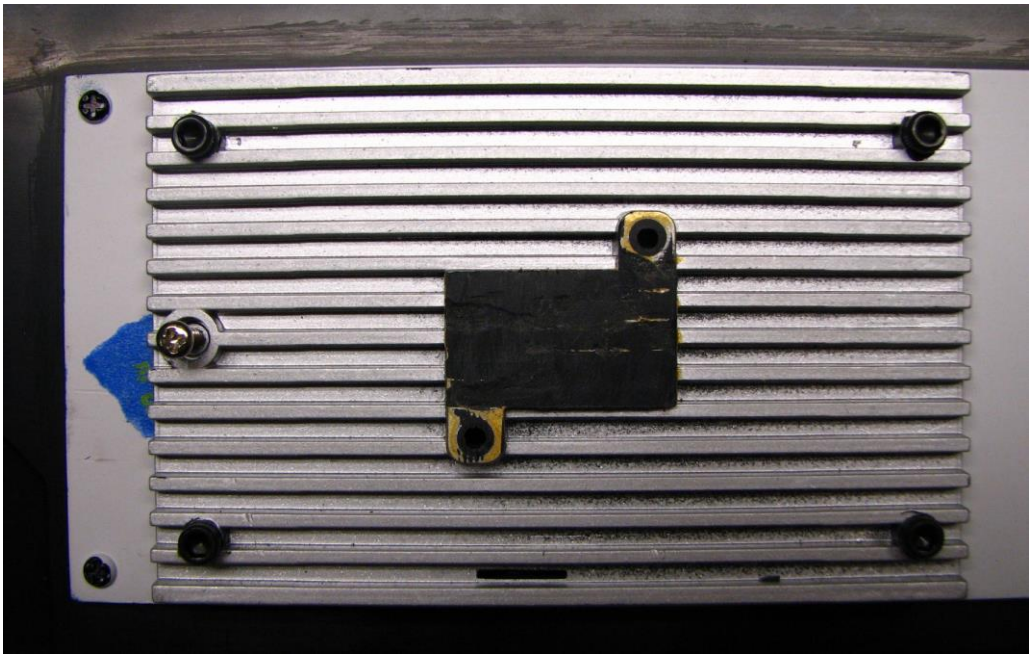


This will leave holes that we need to make larger underneath this battery plate.

We need to make these holes larger so that the ends of the screws do not prevent the battery lid from closing. I ended up using a 7/64" and reaming out the hole a bit. You could also use a 1/8" and it should be close to what was needed. I also covered the one hole I did not want to accidentally drill with blue painters tape.



Use a 3/32" hex key/wrench
Grab 4 of the #28 socket head screws and mount them in the four outer corners of the battery cover. Then test fit the lid and see if any hole needs to be moved in some direction a bit to allow easy lid opening and closing. This can take a few rounds of drill-test fit to get working well.



Use a 3/32” hex key/wrench

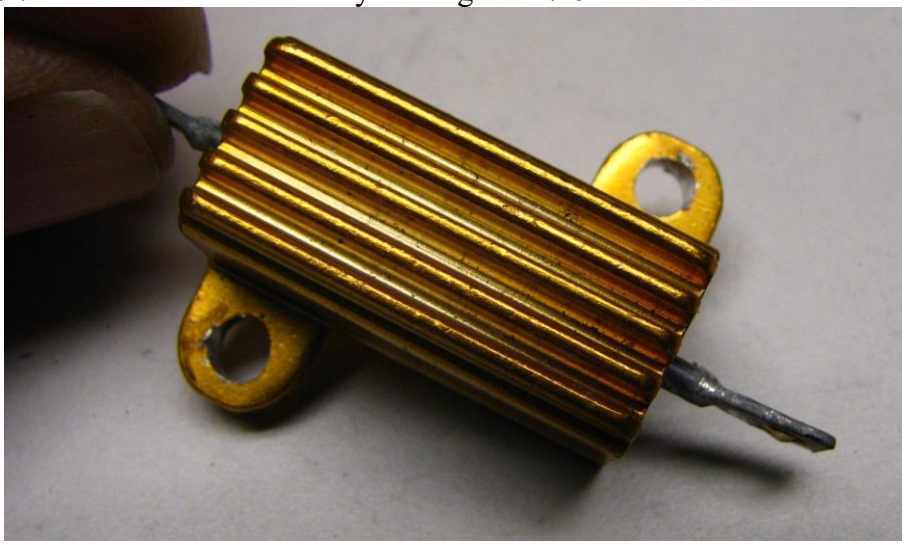
Next mount the Dale resistor. The resistor was packaged with two socket head screws #25. They are the same as screws #28, so if you put all of those together, just grab two from the pile.

If you did not drill the resistor mounting holes,

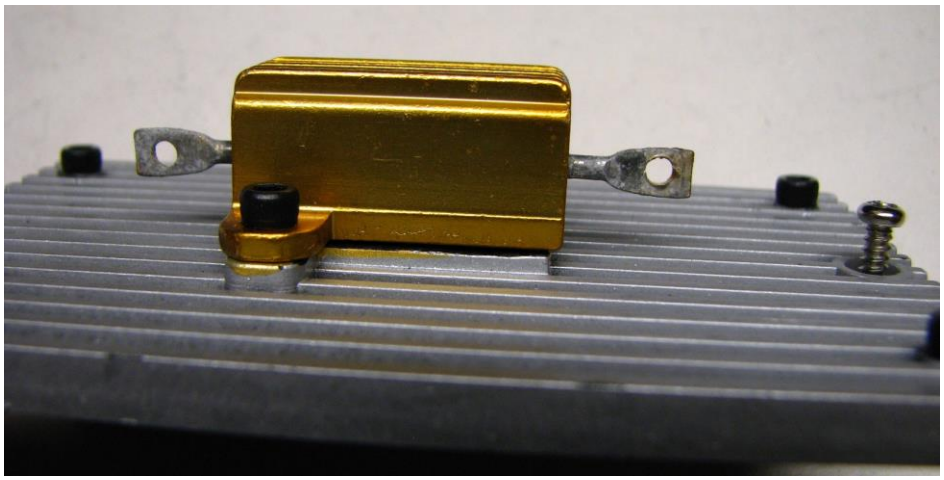
hold the resistor in place and drill out the holes in the plastic case with a 3/32” drill bit. Make sure the batteries are not installed so you do not accidentally drill into them. It works best if you only drill one, then screw in the mounting screw #25, reposition the resistor and then drill a second mounting hole into the battery cover. Then install the other socket head screw #25.

If you drilled the holes in the battery cover’s lid first,

hold the Dale resistor in place and see how far the holes need to be moved in the Dale resistor. Here is one I modified by drilling with 7/64” drill bit…



Either way you drill, it should look like this when mounted. You can see the remnants of the plastic resistor underneath the real Dale power resistor #26.

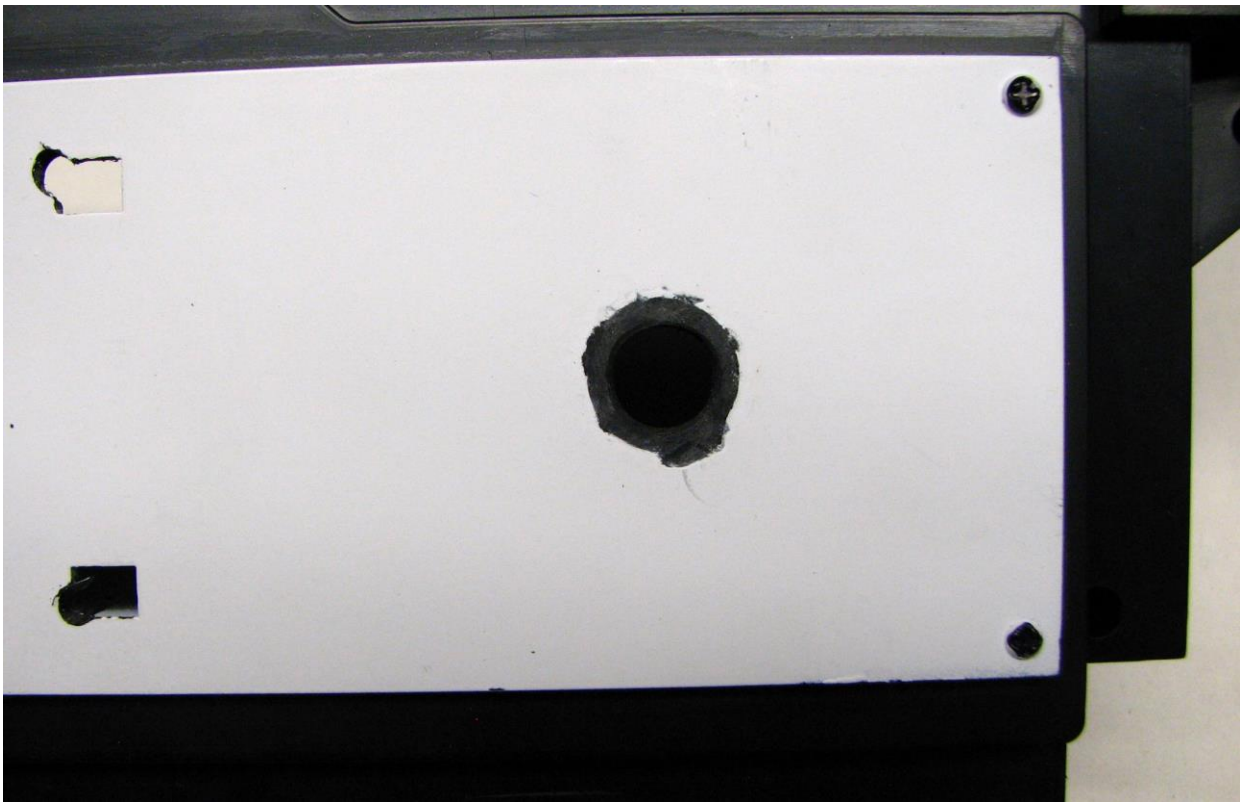


Preparing for panel #6.

Remove the battery panel so it does not get damaged while modifying the cover for the mounting of panel#6.

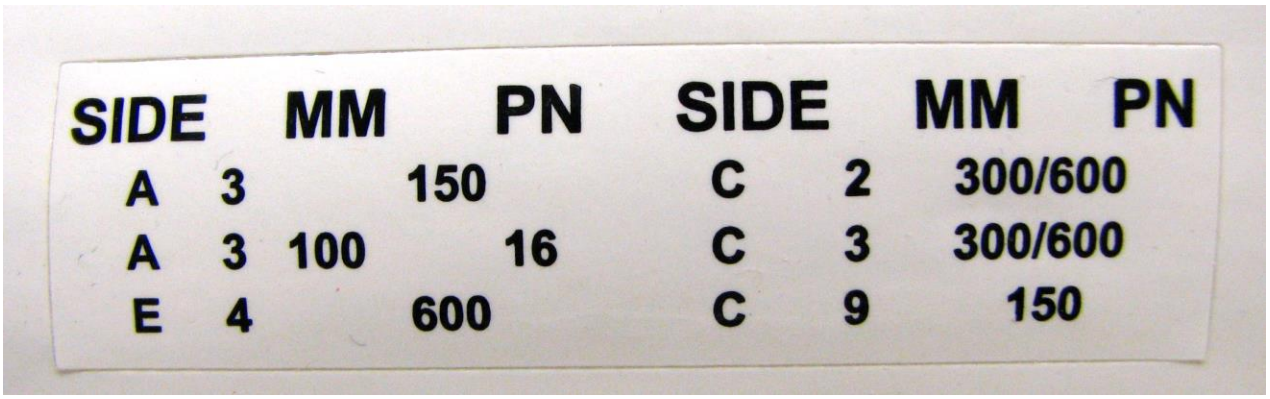
Cut off the small knob and grind it down flat so panel #6 can be mounted flat on the main side panel of the trap. I cut it off about an 1/8" from the panel and then grind it down flat with my Dremel and a sanding/grinding bit. Most of this will be covered, so you do not have to worry about sanding a bit extra of the surface. The main thing is to get it flat so that panel #6 will sit flat against where the knob used to be!

Here is the side of the trap after I cut off and sanded down the molded in plastic knob:

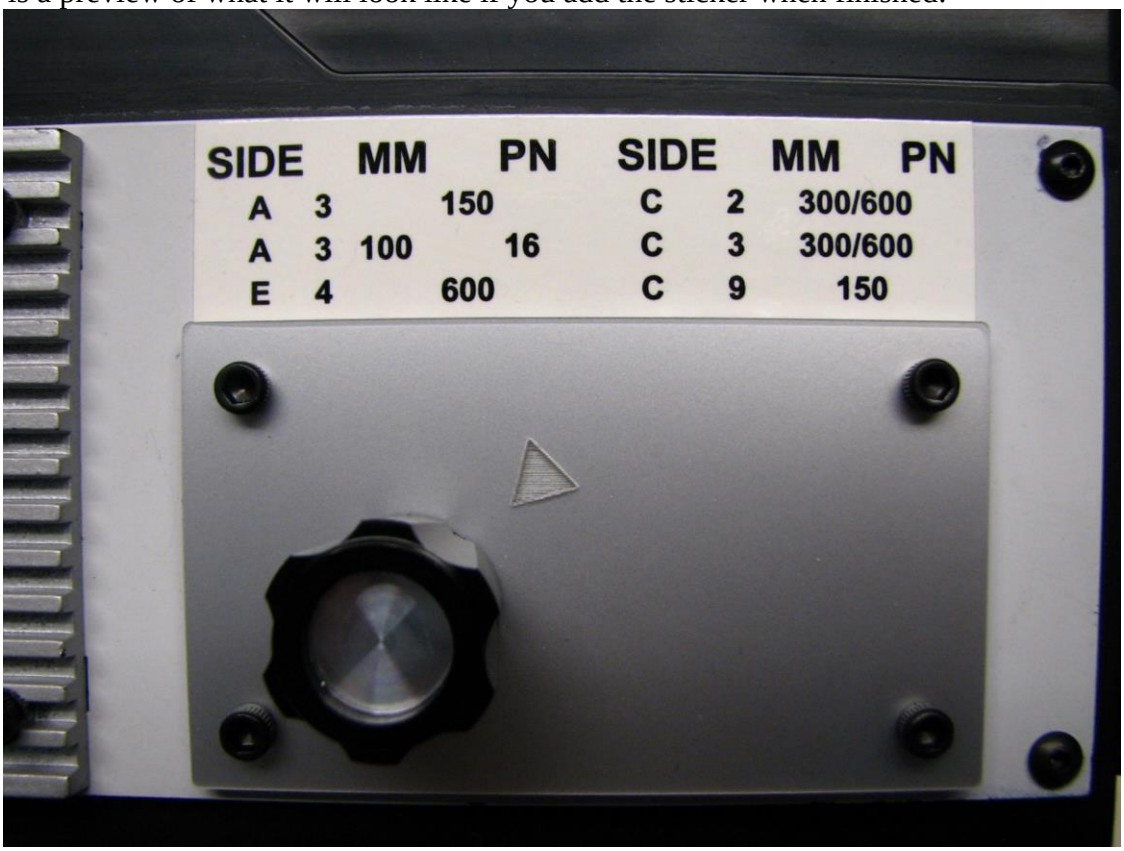


Mounting panel #6:
Make sure the battery cover is re-attached and then we move on to adding plate #6 along with the potentiometer #9, and the knob and set screw #7 and #8. The battery cover is attached so you can properly align plate #6.

Set the plate on the trap's side panel and then hold in place with tape. The panel #6 should be very close to the bottom edge or even kept level with the bottom of the battery panel so that it leaves room for the sticker that came with the trap to fit above panel #6:



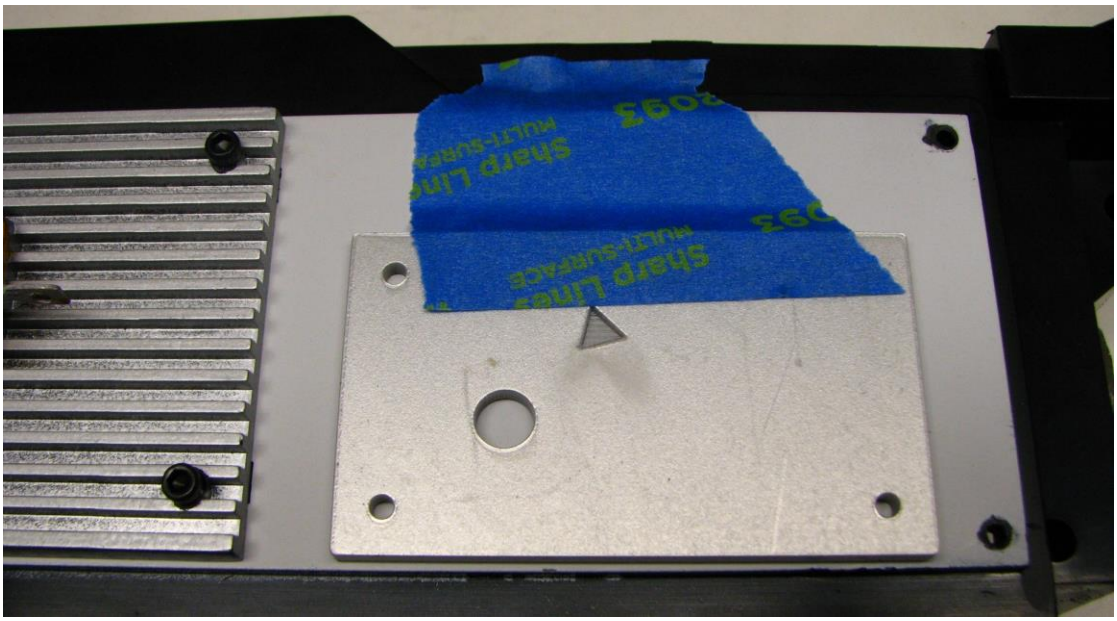
Here is a preview of what it will look like if you add the sticker when finished:



Use a 3/32” drill bit and a 3/32” hex key/wrench

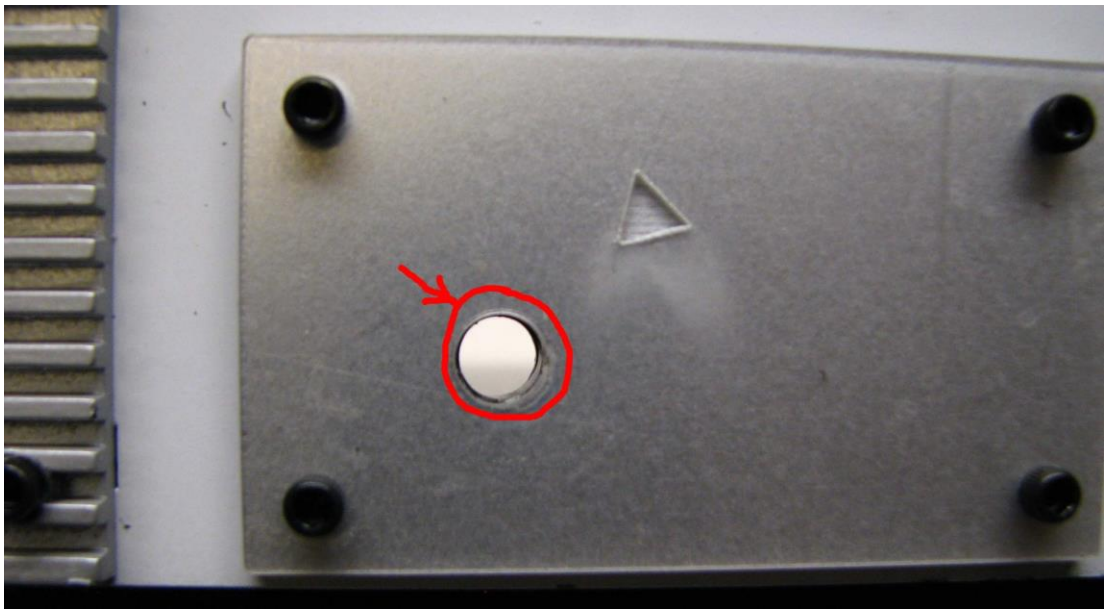
Back to building, here is panel #6 held in place and ready for drilling the four mounting screw holes. I still like to drill one hole (upper left), mount a socket head screw #28, then drill the opposite corner hole (lower right) and mount that screw, then drill out the remaining two corners and install their screws.

Make sure that the plate is sitting flat against the trap and that the etched white triangle is oriented as shown above.



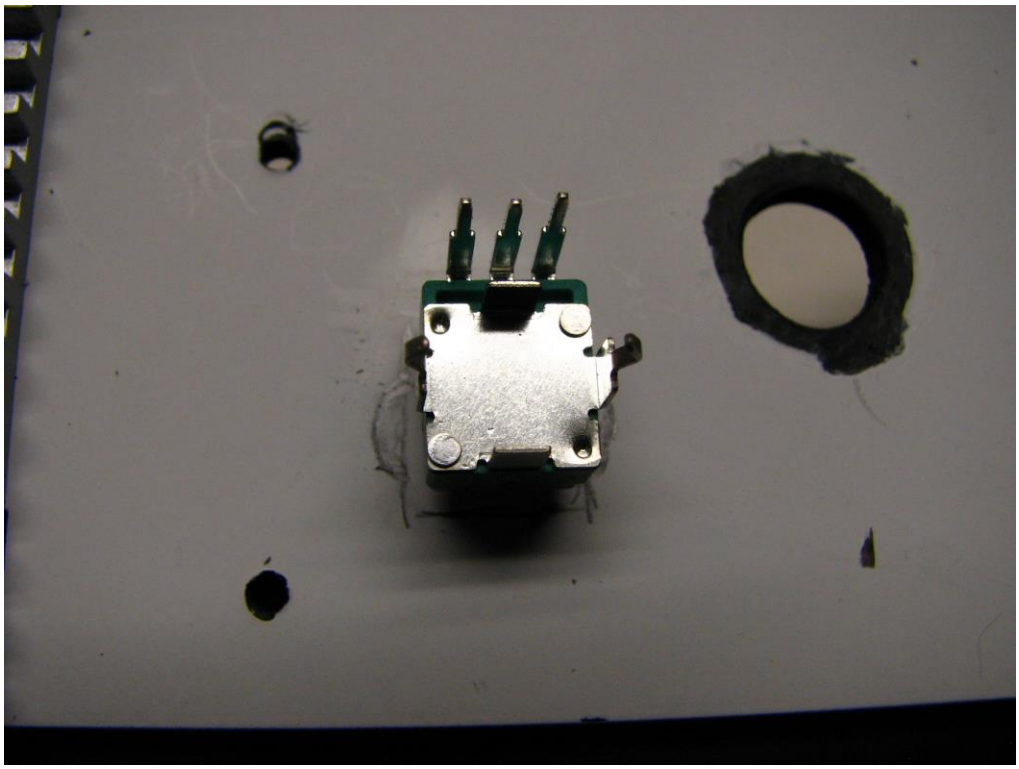
Use a 1/4” drill bit

Now drill out the center-ish hole where the potentiometer is going to be mounted while panel #6 is securely mounted:



And then remove panel #6 since there will be a lot of grinding through behind this panel to make room for the potentiometer.

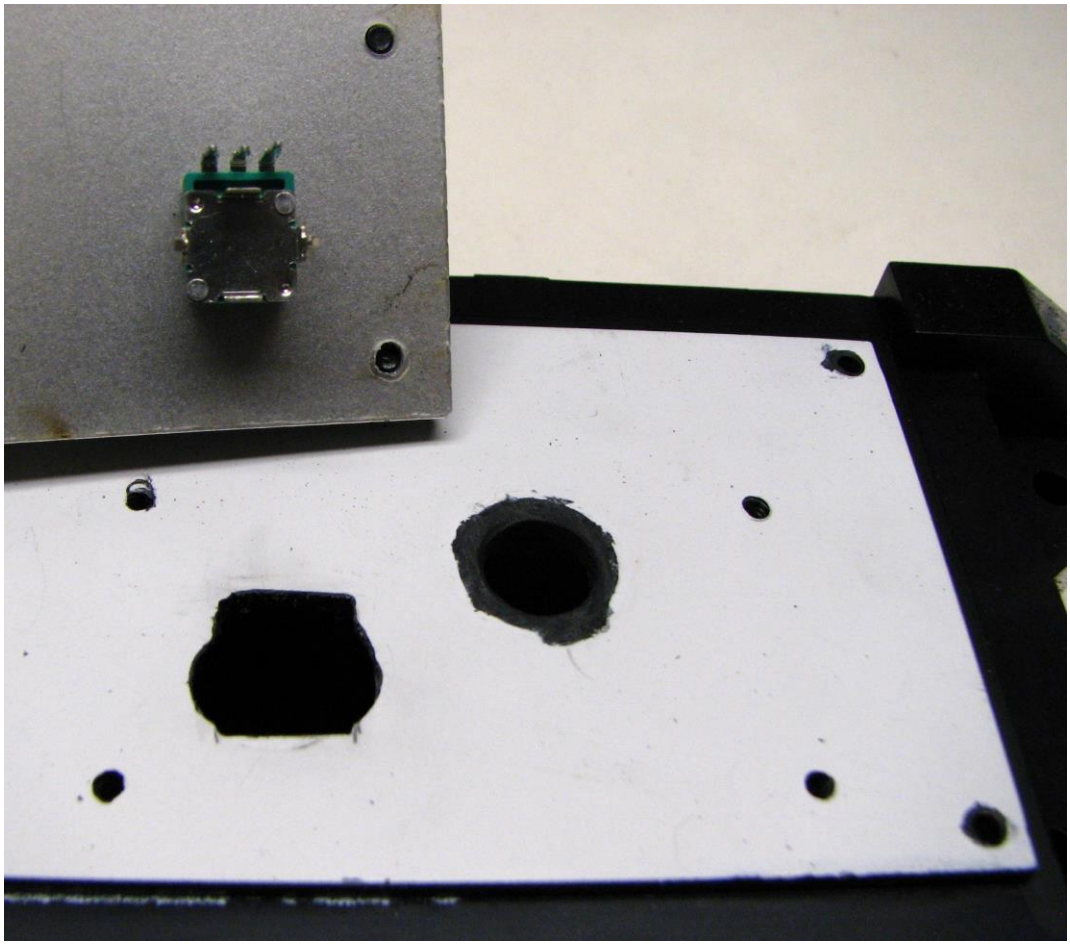
To mark a hole we need to grind out, take potentiometer # 9 and mount it backwards on the side panel of the trap. The 3 wire leads will be facing the top of the trap and the shaft sticking completely into the hole. Draw an outline for the switch so that it can easily pass through the trap's original panel.



Grind out this outlined hole. Then peel off the protective layers from both sides of panel #6 and mount the switch in the correct orientation to panel #6 with the leads facing upward and the shaft sticking through to the side with the etched triangle. Just the flat washer and the dress nut on the outside and nothing on the back side of panel #6:

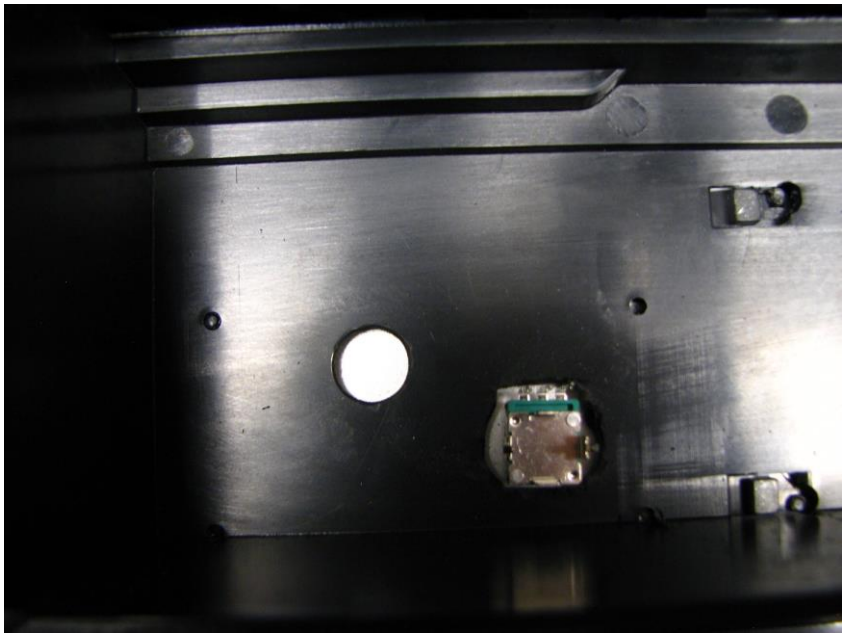


Here is the back side of panel #6 and the finished hole in the side panel of the trap (forgot to peel off the back side protective layer so had to remove the switch, peel it off and then remount the switch):



Now test fit the plate and widen the hole as necessary. Make sure the plate sits flat and no flashing around the hole is interfering with panel #6 sitting flat. You may have to screw in all 4 socket head screws to make sure the fit is perfect.

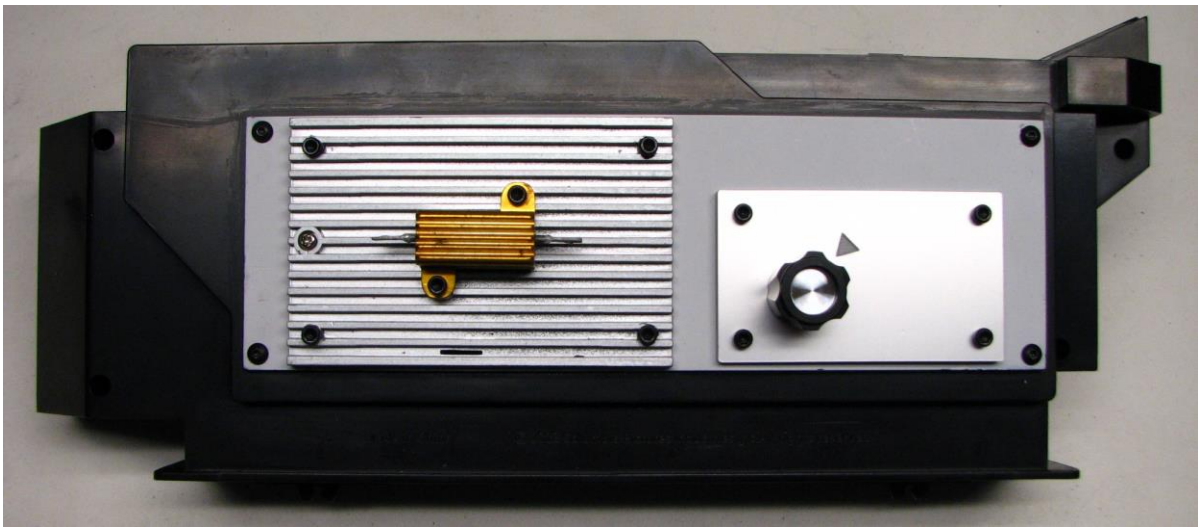
And here is a view of hole from inside the trap with the plate mounted:



Mount the knob
Use a 1/16" hex key/wrench
Knob #7 comes with a longer set screw designed for a "D" shaft and this potentiometer this needs to be replaced with the shorter setscrew #8 that is in the bag with the knob. This is needed because the potentiometer included has a round shaft, not a "D" style shaft.

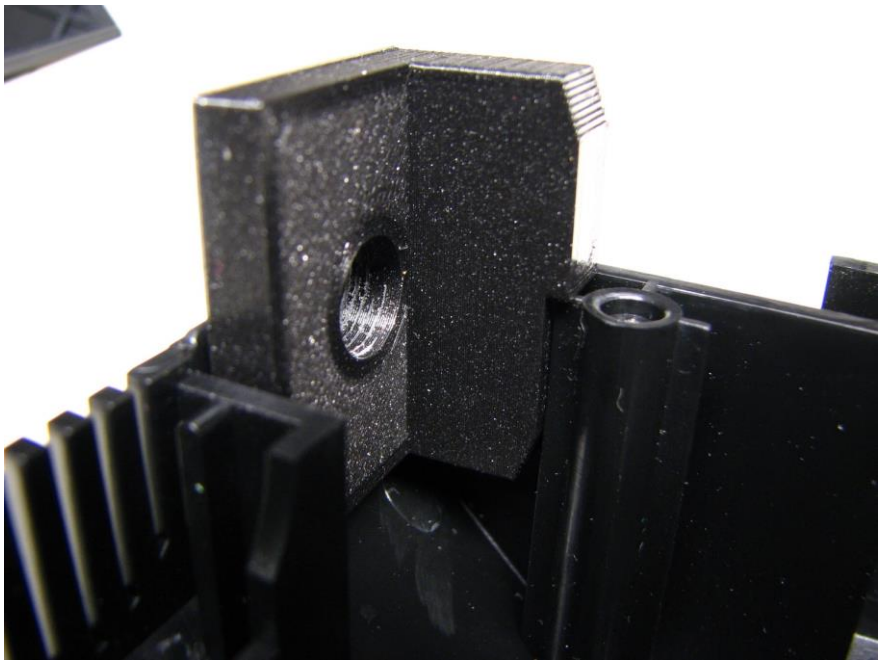
Place the knob on the shaft and tighten the set screw. Almost done with this side!

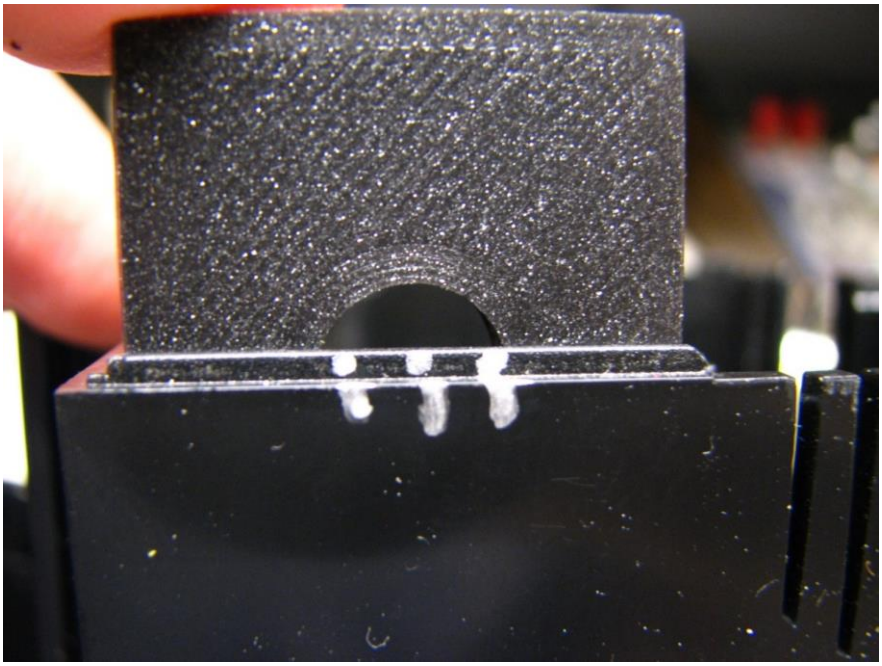
Use a 3/32" drill bit and a 1/16" hex key/wrench
Drill-grind-drill the four remaining molded plastic screw heads, then install 4 button head screws #27. Re-attach the battery panel and this side is done!



Trap Hose Connector Install:

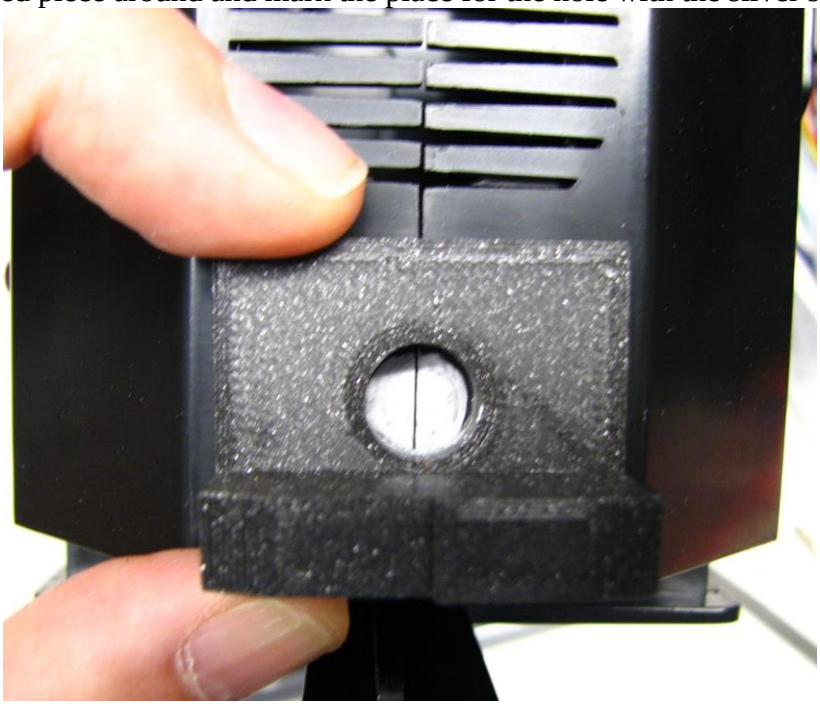
On one side of the trap, set the 3D printed hose support in place and mark the center and both sides of the hole:

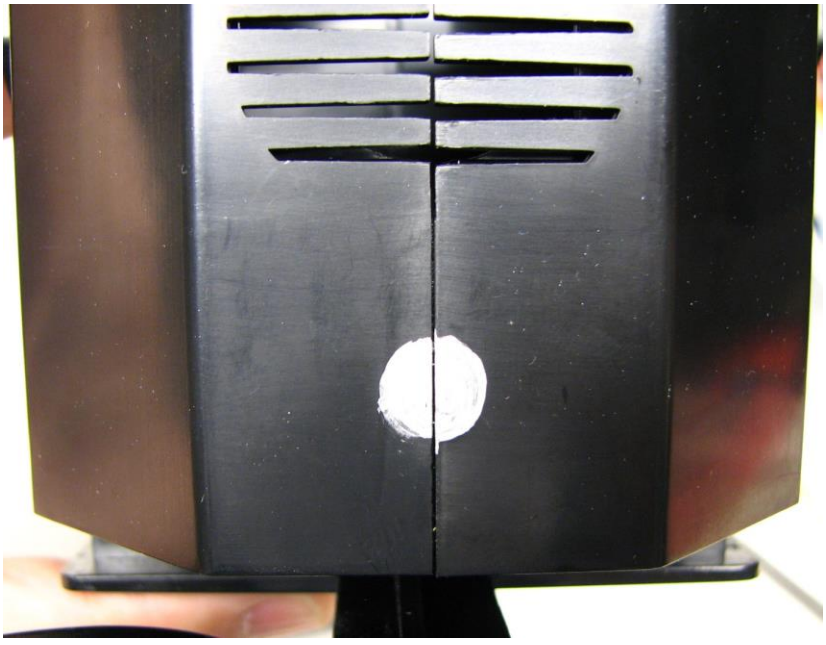




Then remove the 3D printed support piece and put the two trap halves together. You can either tape, clamp, screw the pieces together since we will be opening this up again multiple times.

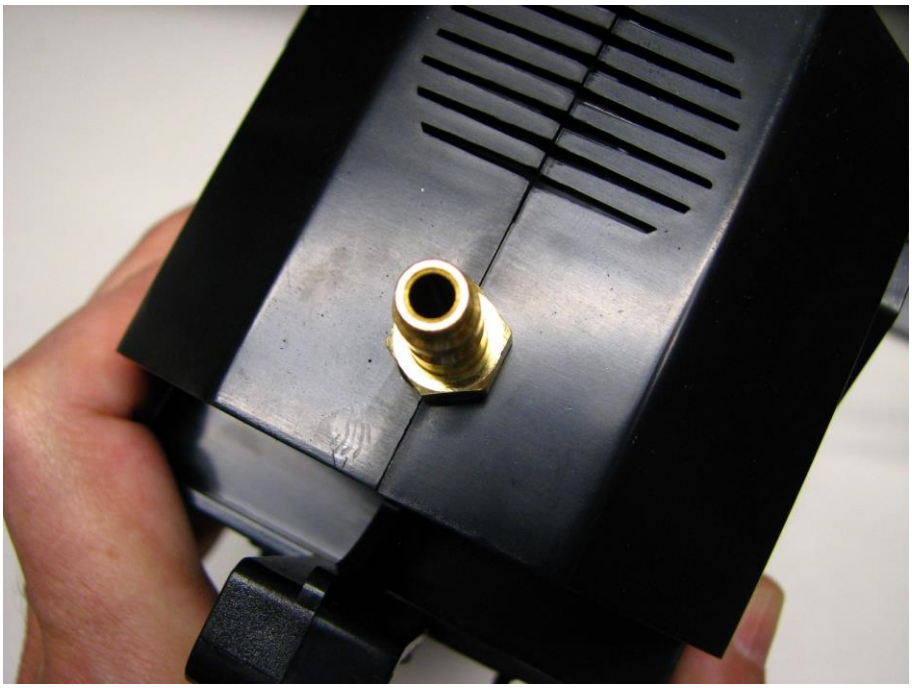
Flip the 3D printed piece around and mark the place for the hole with the silver sharpie:



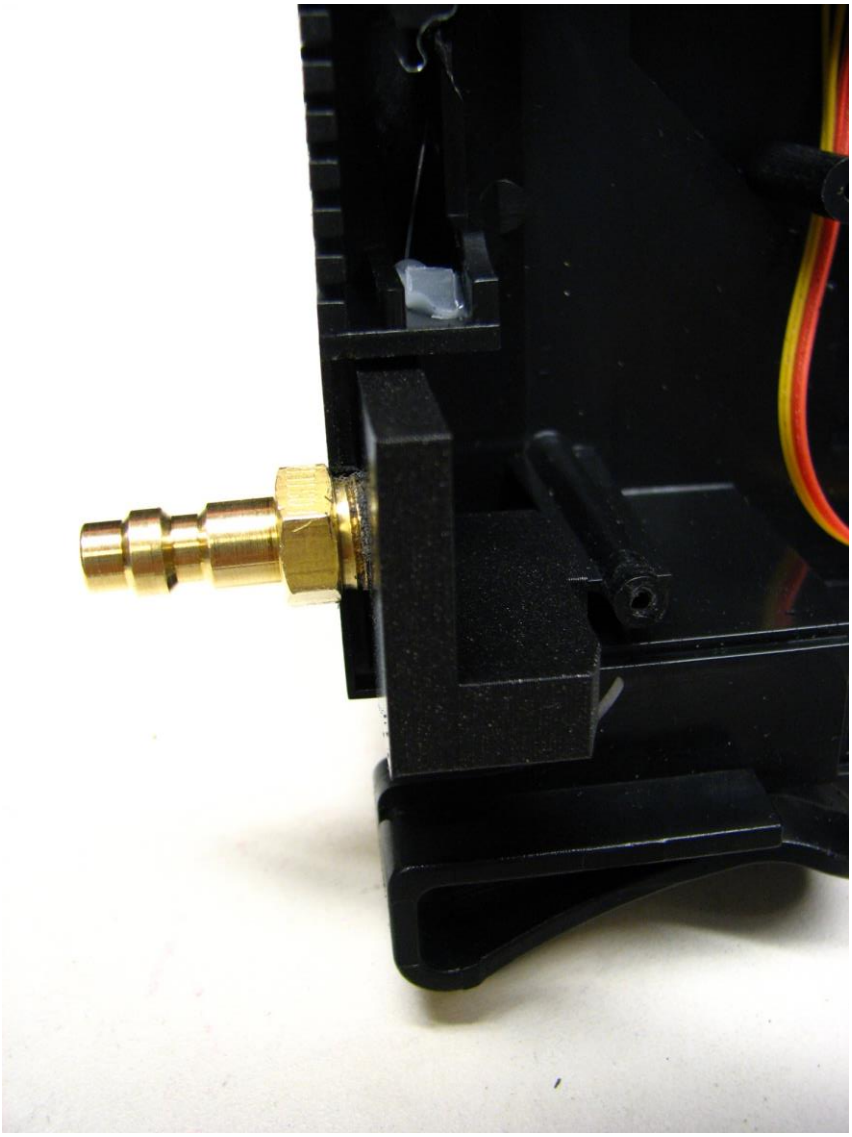


Then grind out the hole slowly. Do not grind the entire hole out at once and then repeatedly use the hose connector #19 to test fit the hole and grind away a little more until it barely fits through the hole without catching on the threads of the hose connector.





Now thread the hose connector #19 into the 3D support part #18 and open up the trap again. Do a test fit on each side:



And then slide the two halves together to make sure it can completely close without a gap between the two sides where they meet next to the hose connector #19.

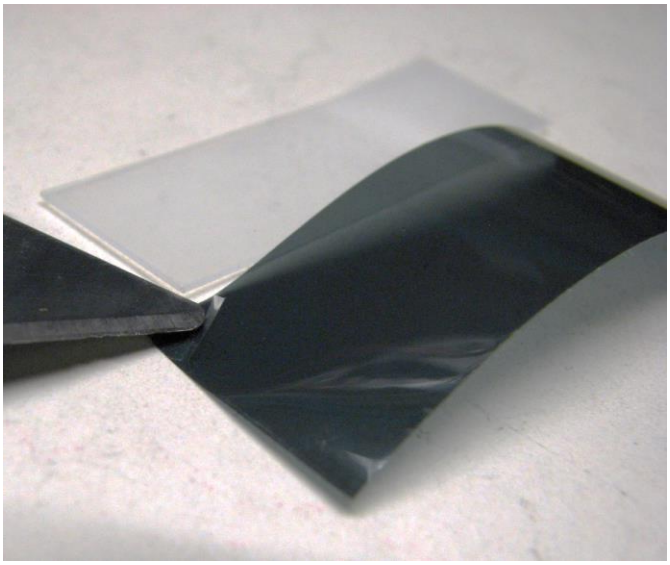
Do not clamp, tape or screw the two halves together since we need them apart for the next steps.

Trap Front Display Panel Upgrade Part 1:

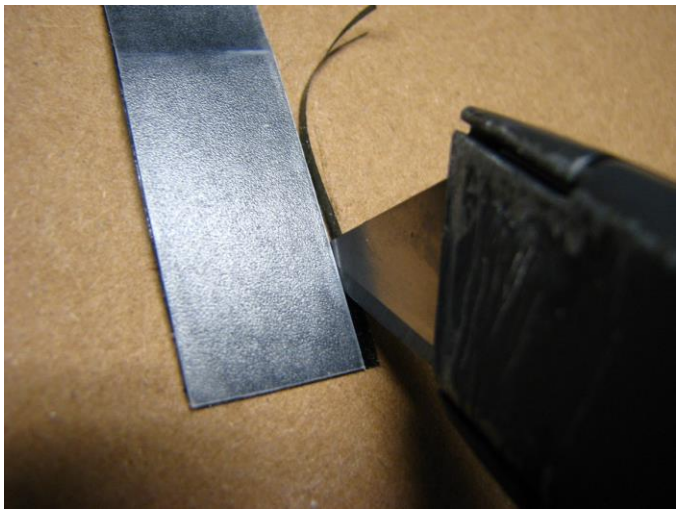
If you want a darker background for the display bezel, this is the prep work needed before we are going to close the trap up.

Pull the 3 LED display module out and retrieve the clear/white frosted piece of plastic that covers the display. This piece was significantly too long and was jammed into the display area and actually had a crease in it. If you want to leave it that way you certainly can. I actually cut it down to be just a little wider than the display and it felt like it fit much better.

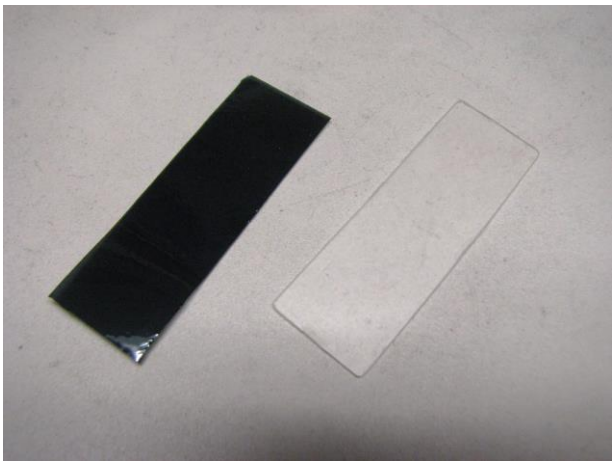
Make sure the clear/white frosted piece is clean and then peel the backing from the tint #5 and place on the smoothest side of the clear white piece. I use a razor blade to separate the clear backing:

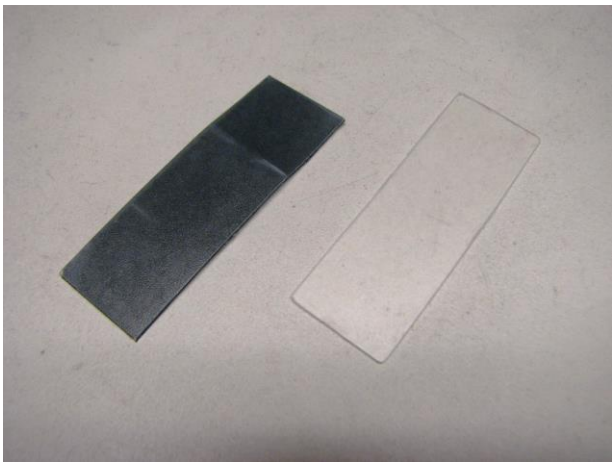


After using the edge of a credit card to smooth out any air bubbles, I trim away the excess tint material by placing the part tint-side-down against some cardboard and cutting with a box cutter or X-acto knife.

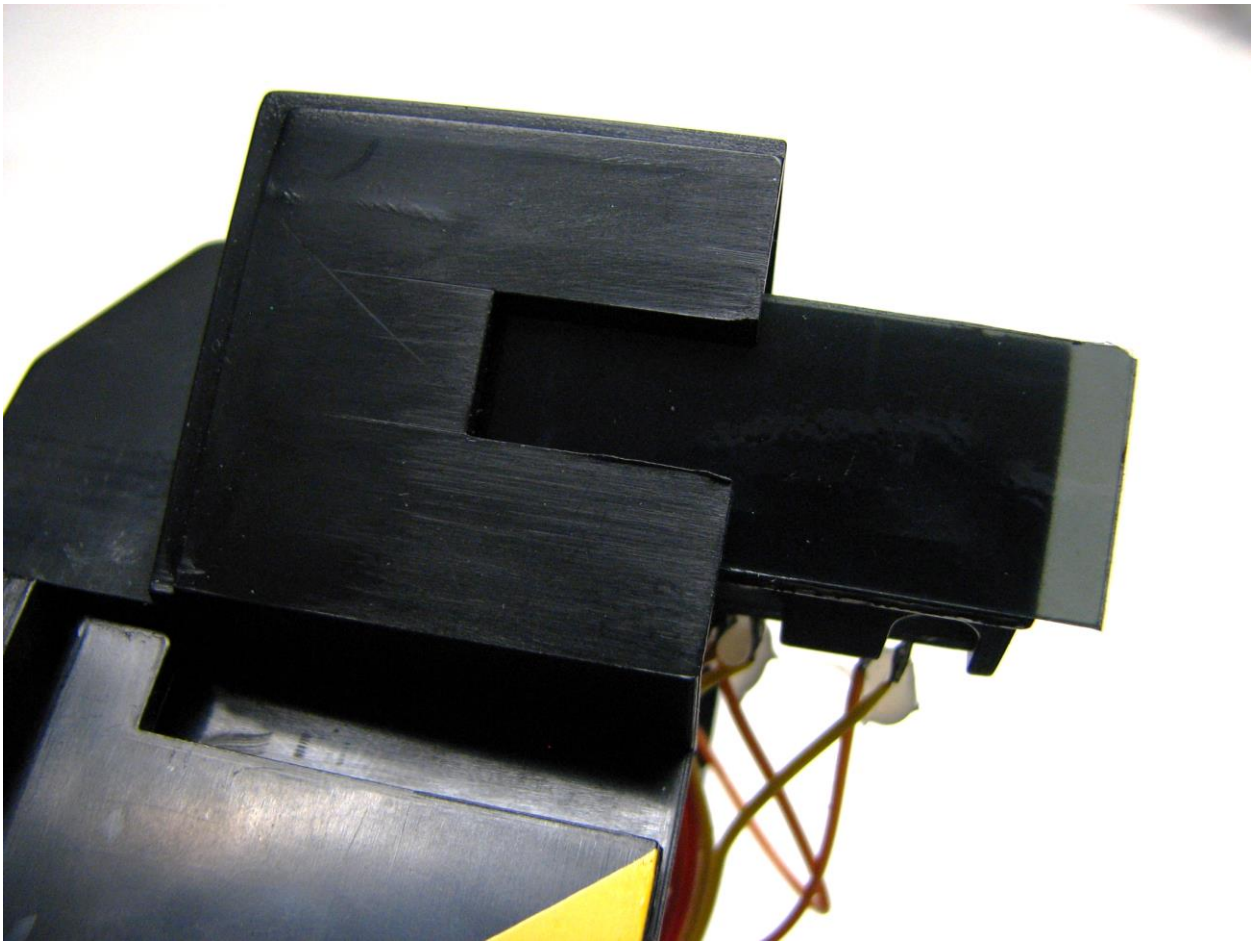


You can mount the tinted clear/white piece with the tint-side out for the darkest background, or with the tint on the backside. Either way works fine. I like it darker so went with tint side facing out. (Tint side out on left, tint on backside on the right):

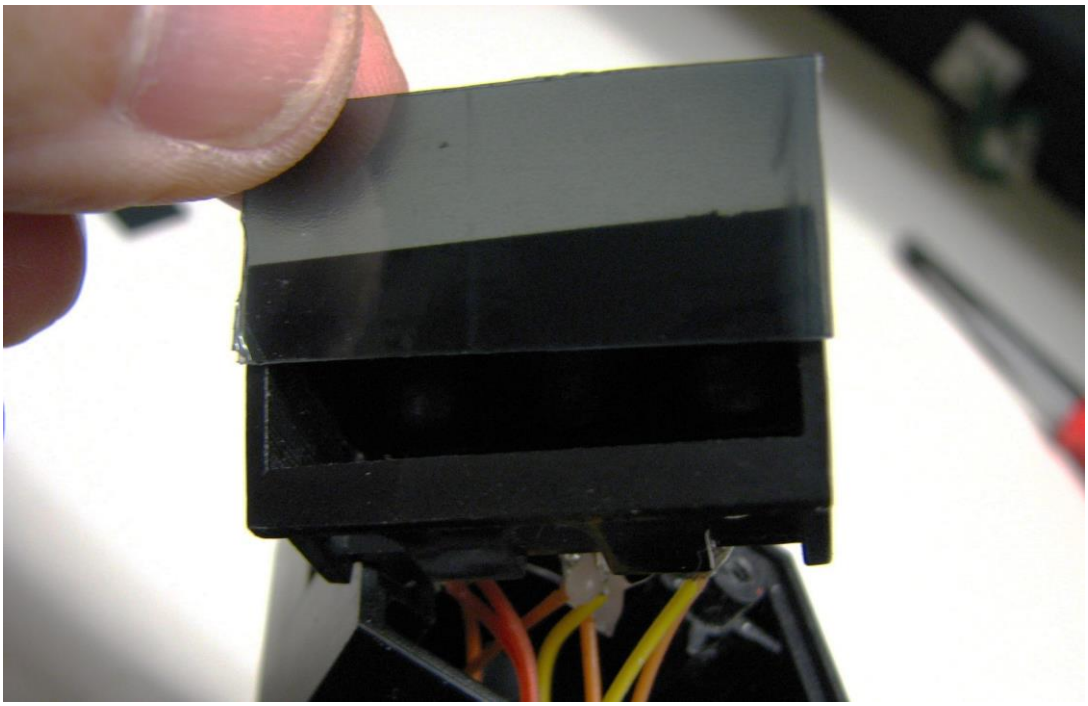




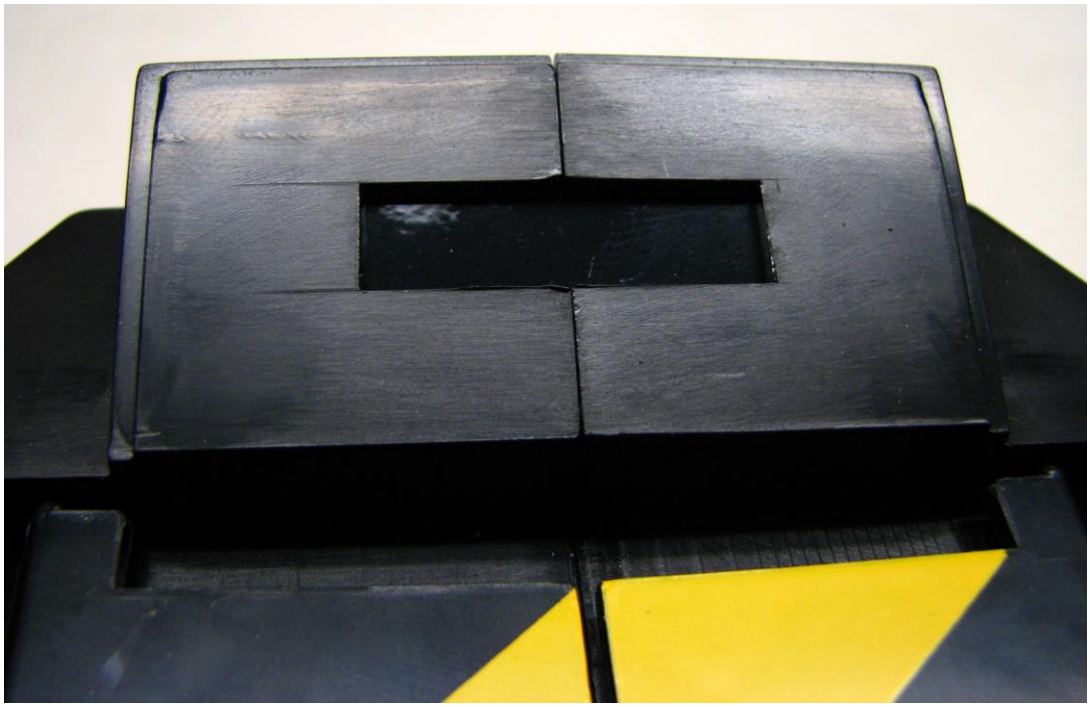
It is easiest to pull out the display set the filter on top and slide the display back in. Here is before I trimmed the overall length and it was very jammed in on the left side.



Later I trimmed the piece and liked how much easier it was to install and get the two halves of the trap to close around it:



Be sure and test fit the two trap halves together and make sure the two halves close tightly around the display.



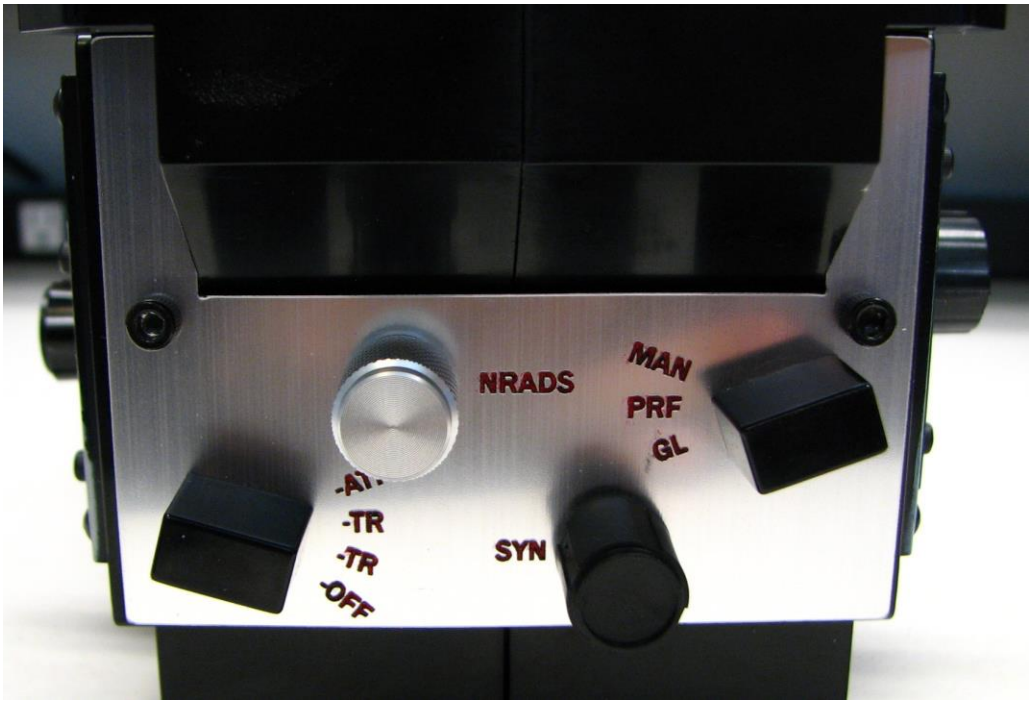
Trap Front Knob Panel Upgrade Part I:

First you need to decide if you want the **BLACK** lettering on the front panel #10, or bravely try and change that to RED.

This worked out fine for me, but not sure how repeatable this is. I used red acrylic craft paint (adheres to plastic). And carefully colored in the letters with a toothpick and tiny paint brush. Supposedly you can just wash the whole surface with paint, but I was not that bold. Before the paint sets you would then peel off the protective layer that covers only the brushed aluminum, not the etched black characters to the paint should mostly be left in the lettering.

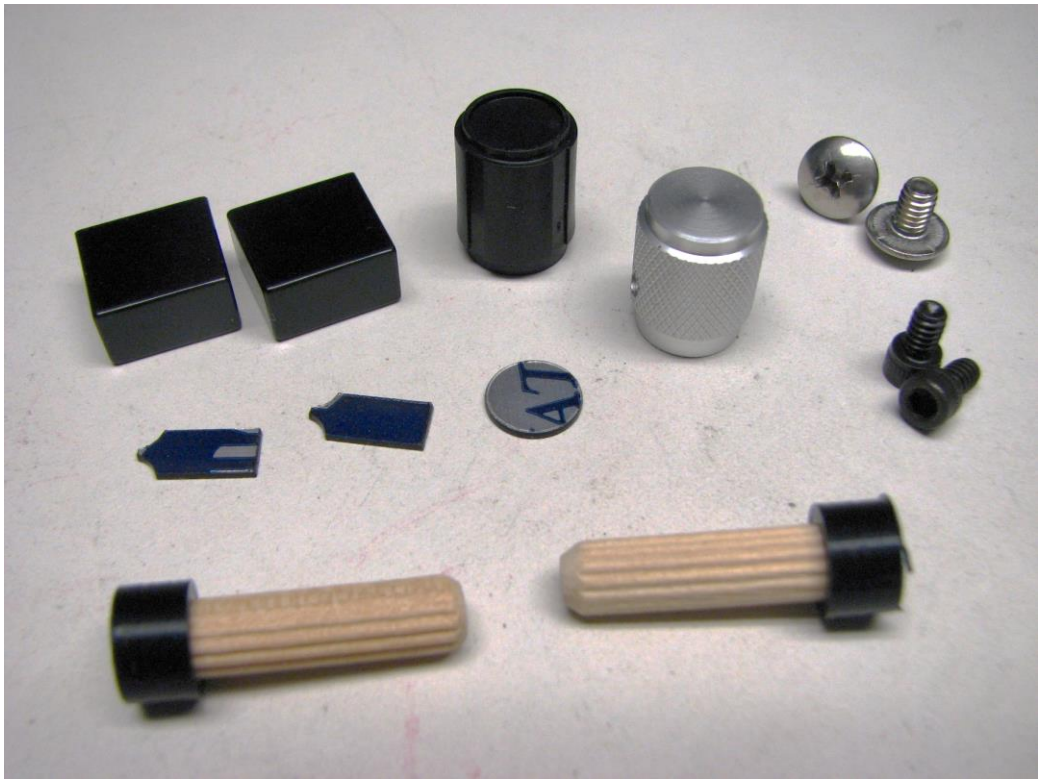
There are some very tiny pieces of protective film over certain letter portions, like the centers of the "A", "R", etc. that also need to be removed. Tweezers were what I used.

Here are the end results of my attempt, that turned out OK. Since the actual props used rub-ons and they were abused a lot, not sure this has to be perfect. I like that this is an etch and therefor will stick around even with a lot of use.



On to installing the knobs.

We should still have these pieces left to install on panel #10:



Preparing the two wooden dowels
Wooden dowels #15 will be used as posts for the knobs #11 and #13 to mount on them. Knob #11 has a round shaft so the dowel needs some sanding to fit inside. Sand a bit and test fir, sand more and repeat. The shaft should be very snug. One in, the set screw (if available) can be used to secure the knob even more, but don't do that until the knob is mounted on panel #10!

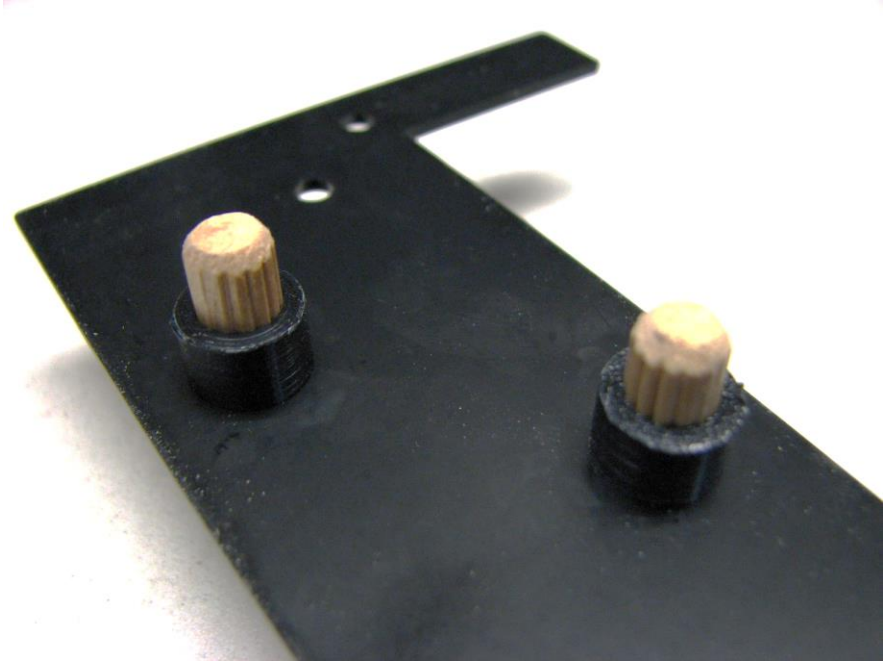


For knob #13, the other wooden dowel needs to be sanded flat on one side to make a “D” style shaft. Again, sand a bit, test fit, and repeat. This is a friction only (no set screw), so if you sand away too much you might have to glue the knob onto the shaft. A little hot glue on the end and press on worked for me after the panel_#10 was ready for having the knobs mounted.

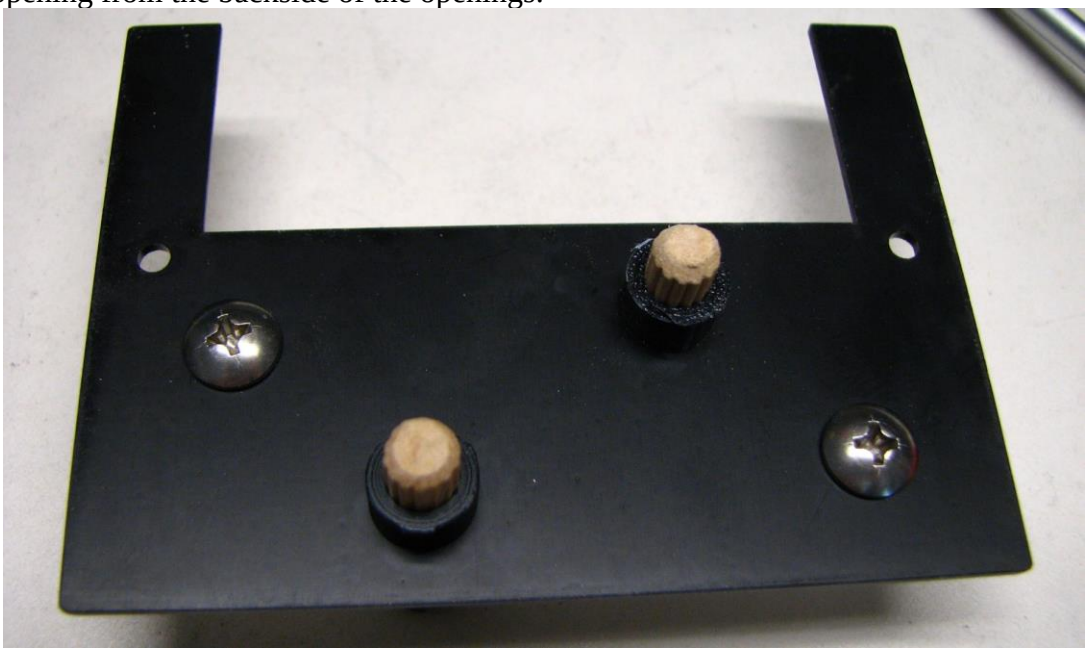


The black 3D printed rings are there to hold the dowel in place and still allow the knob to rotate.

You can now mount these two knobs onto panel #10 and here is what it looks like from the back side:



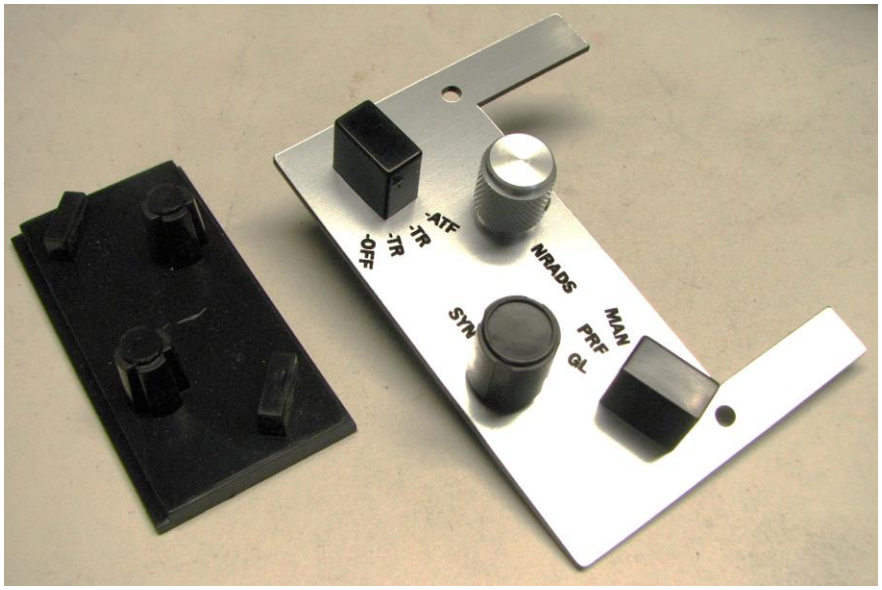
Next take the two larger button Philips head screws #16 and screw them into the other two screw shaft opening from the backside of the openings:





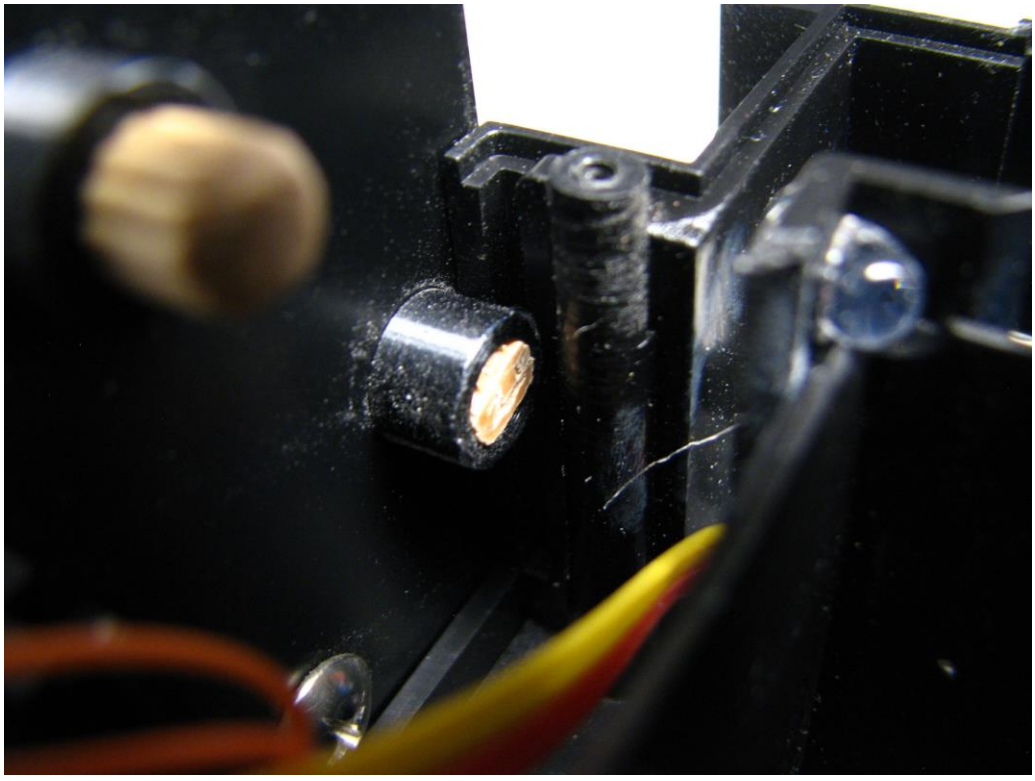
Next take the two black rectangular knobs #14 and screw them onto the screws and/or turn the screws while holding the knobs stationary.

Here is a comparison of the old front panel and the new one:



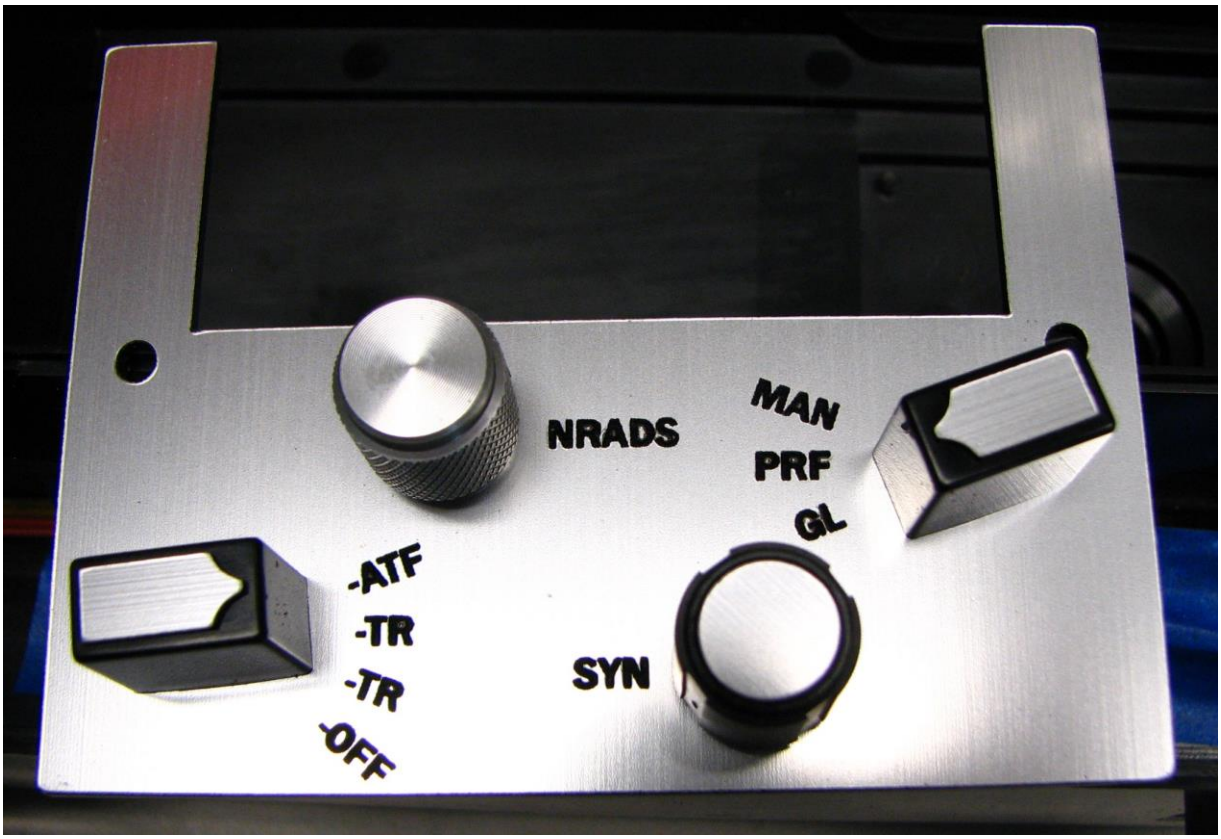
Next test fit the panel in each trap half and see if anything interferes. For me, the “SYN” black knobs wooden dowel was too long and interfered with the post on one trap half. The wodden dowel had to be shortened.

Shown here after I cut off the end of the dowel since it interfered with that post that is uses one of the main screws that is used to hold the two trap halves together.



If you like the GB2 look for the knobs, the 3 thin aluminum accent pieces #17 can be glued onto the top of the black round knob #13 and the two rectangular knobs #14.

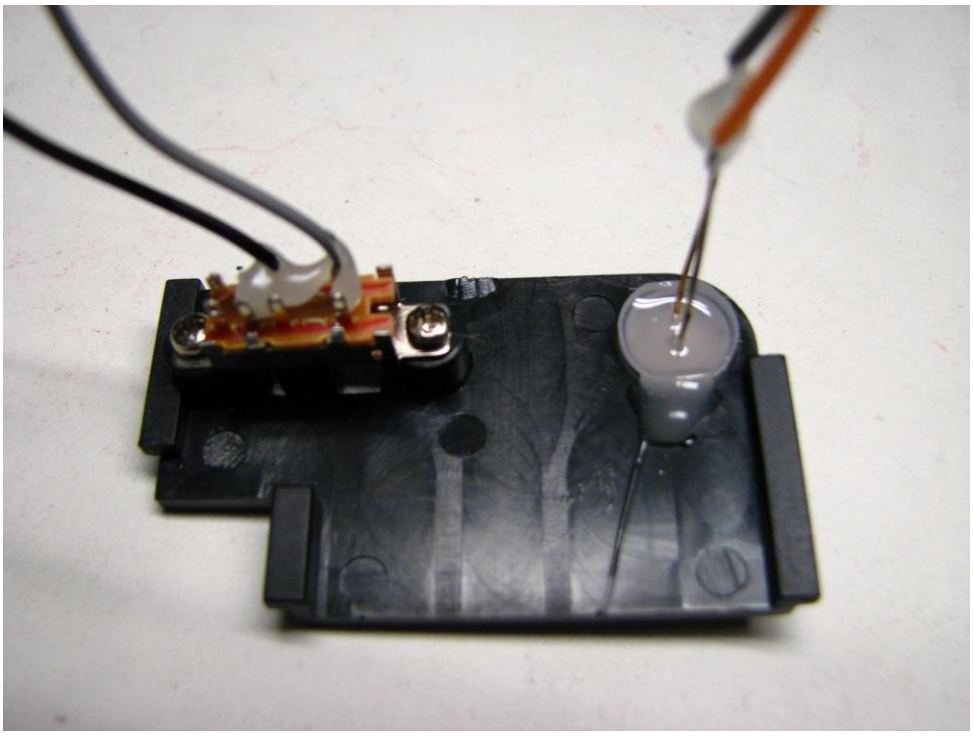
Here is a picture of the GB2-ish knobs on a black lettering panel #10:

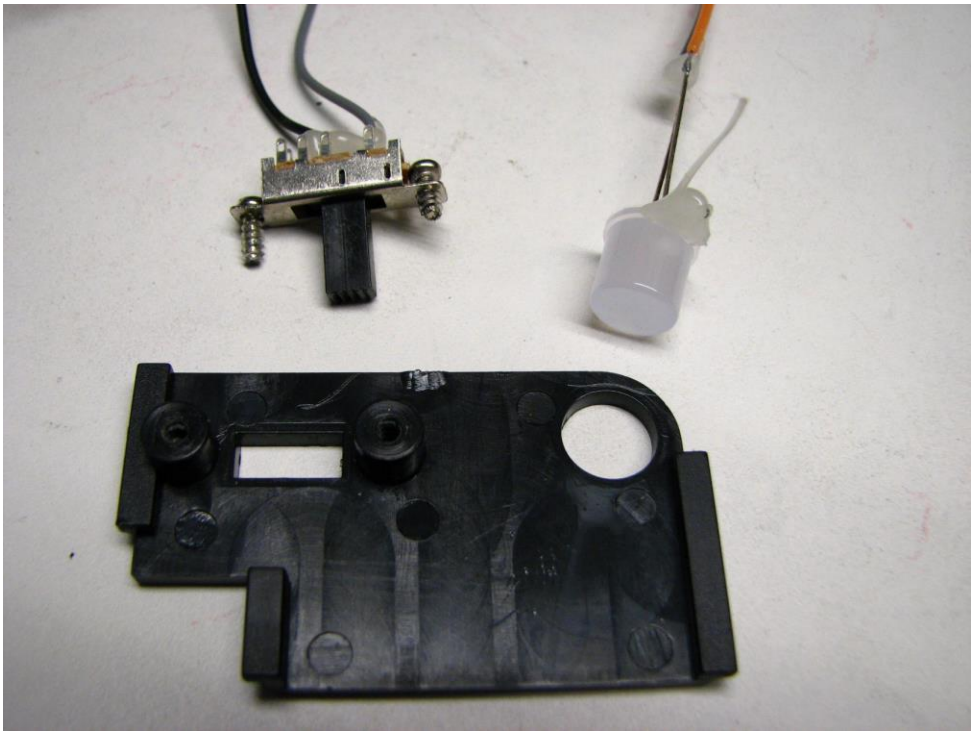


Now set this aside and make sure not to lose the two larger socket head screws #12 that will be used to mount this panel on the front of the trap after we do some more mods to the trap and then put the two halves together.

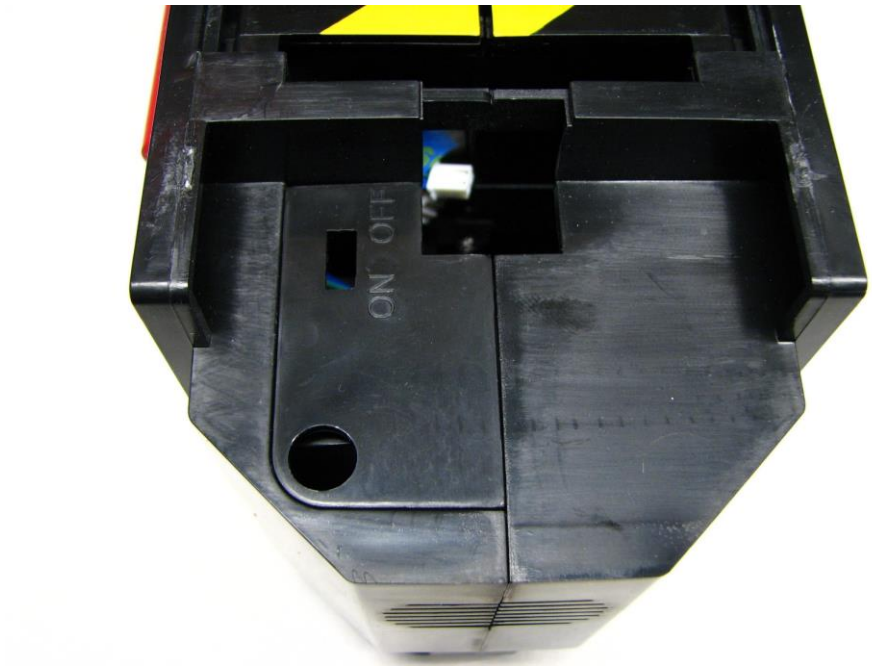
Trap Top Control Panel upgrade:

Start by taking the switch and the indicator light out of the small control panel.
The Light is held in with a small dab of glue that is easily removed, and/or just press on the LED and it pops out. Unscrew the two small Philips head screws holding in the switch.

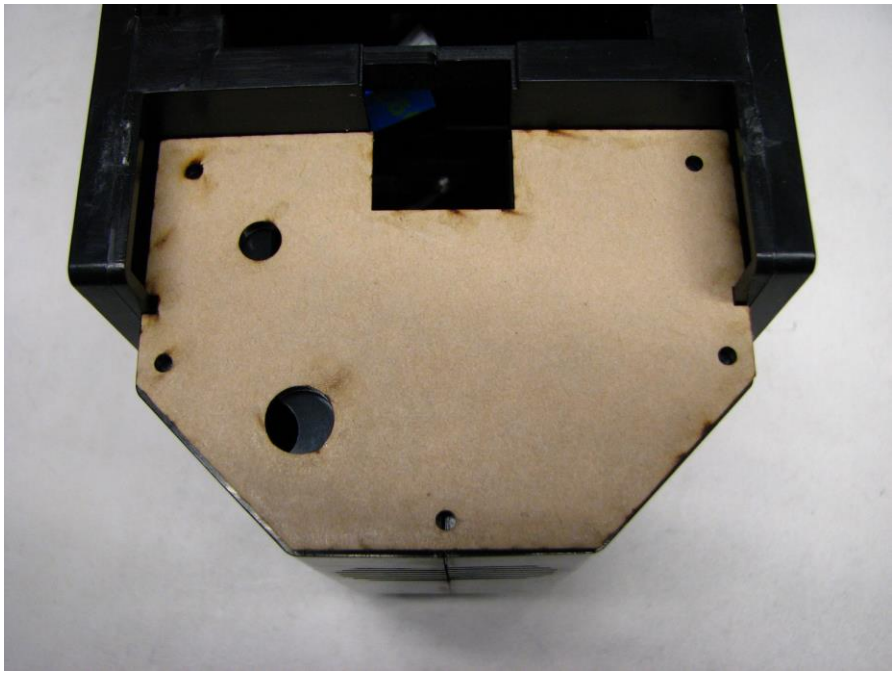




Place the small control panel back on the trap half and fit the two halves together. No screws or tape, just set in place.

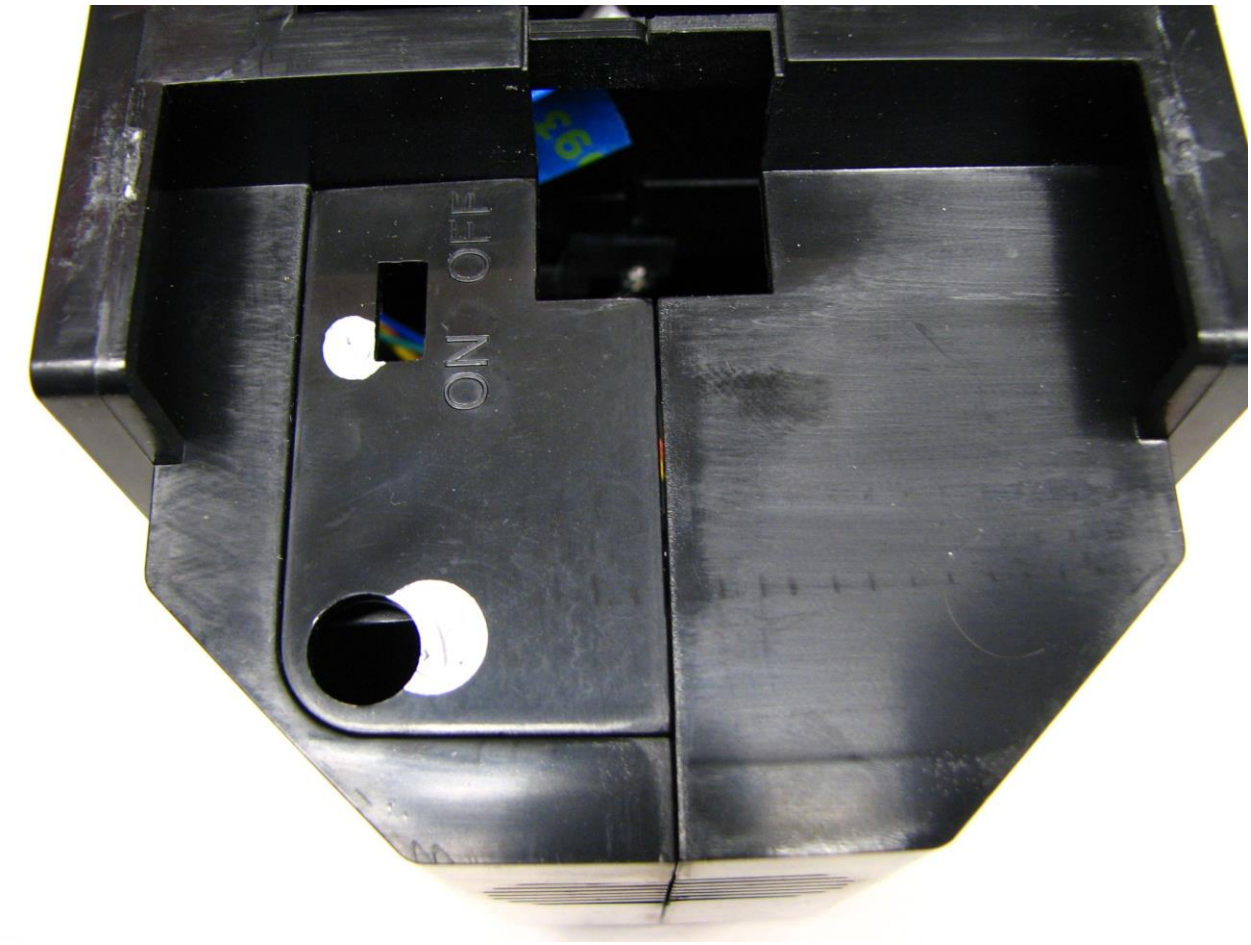


Then open up the back two halves a small amount and place the top panel #24 in place over the old front panel and push the halves back in place. The “GhostLab42” should be on the back side of this panel.



Use a silver sharpie and mark where holes will need to be made in the bottom piece for the to main holes in the top piece to be non-obstructed.

After the top panel #24 is removed you can see where the holes will need to be made in the small top piece:

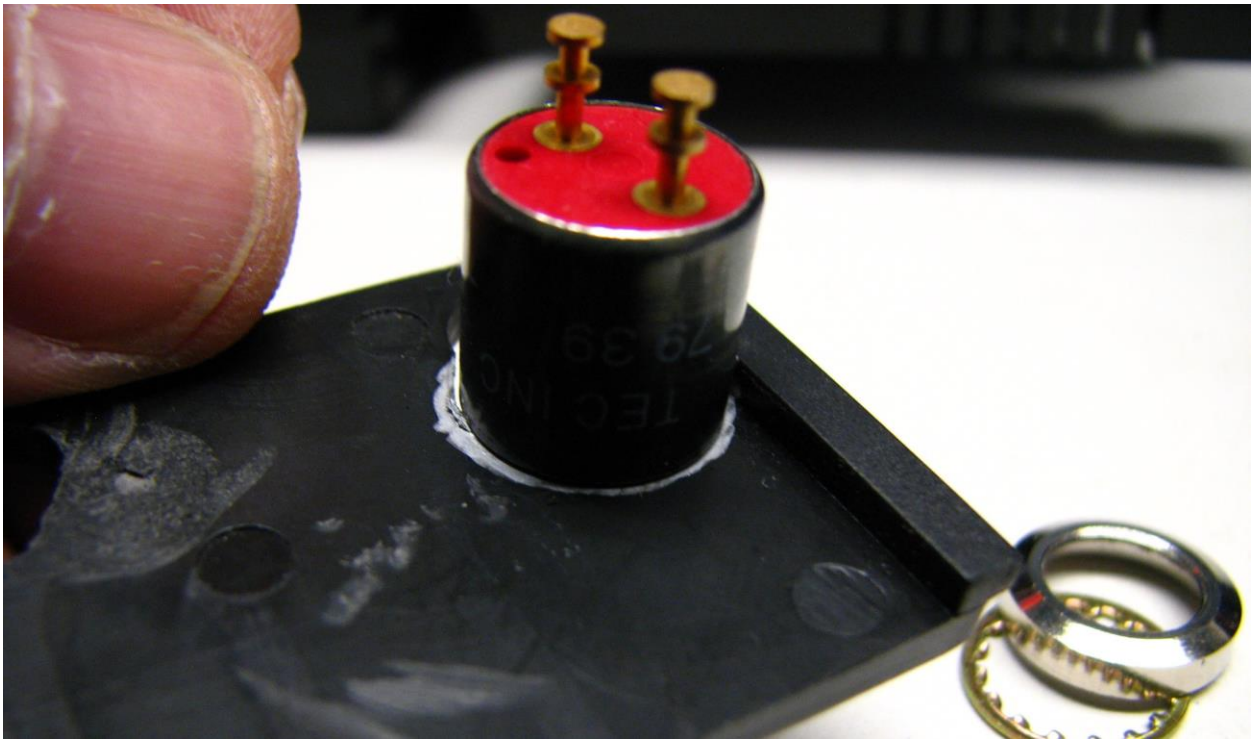


Remove the small front panel piece and carefully grind out these holes. Try to leave some material around the holes to keep this part strong. It helps support the handle and we do not want to weaken that support.

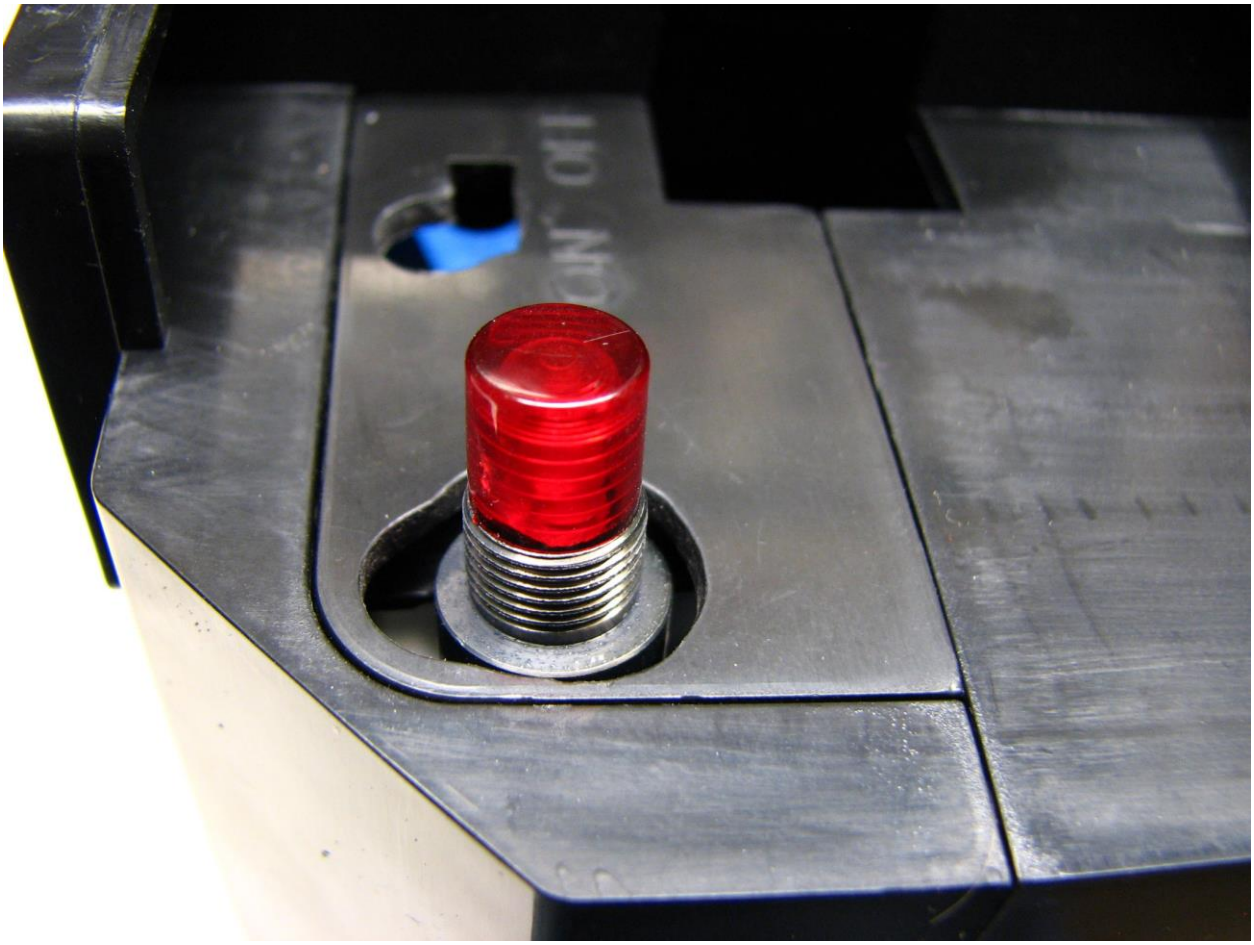
Flip the panel over and place the internal toothed washer from the indicator on the new hole and mark a ring to allow the indicator to slip through. The washer is just so you do not get the sharpie on the body of the indicator.



After the panel is marked, test fit the indicator in and see that the marking is visible all around the indicator:



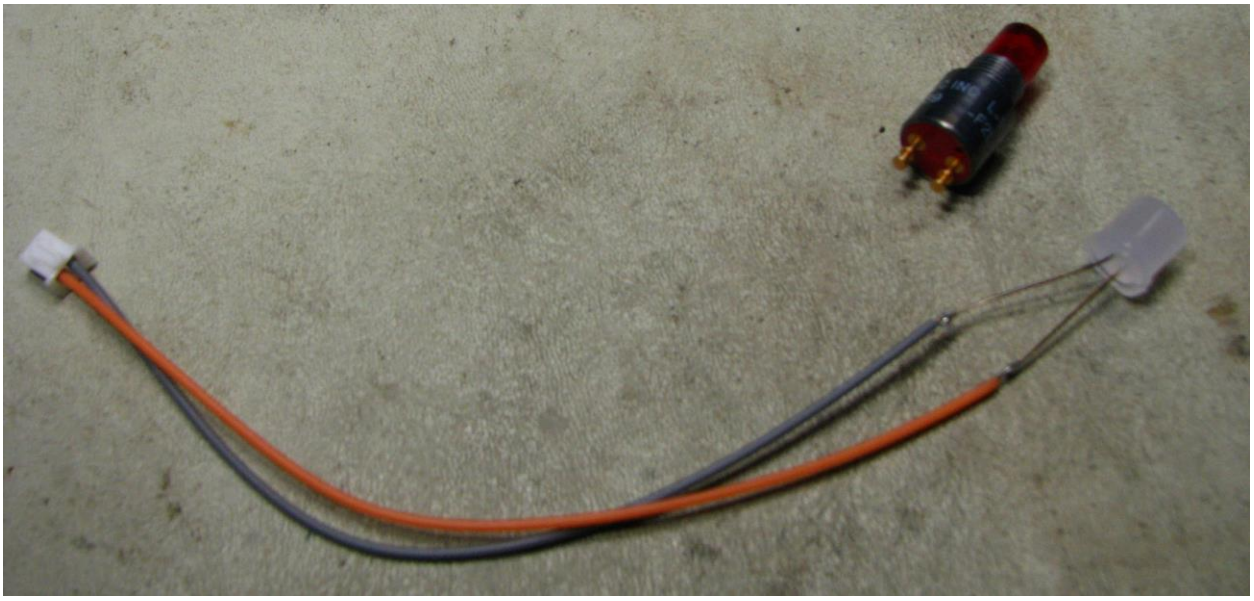
Grind that away and make sure the indicator has enough room to fully pass through the opening.



Also make sure the top and bottom of this part do not have any extra “flash” from the grinding out of the hole. The surfaces need to be flat so that parts do not hang up on the edges.

Electrical fun – This is where we get to solder!

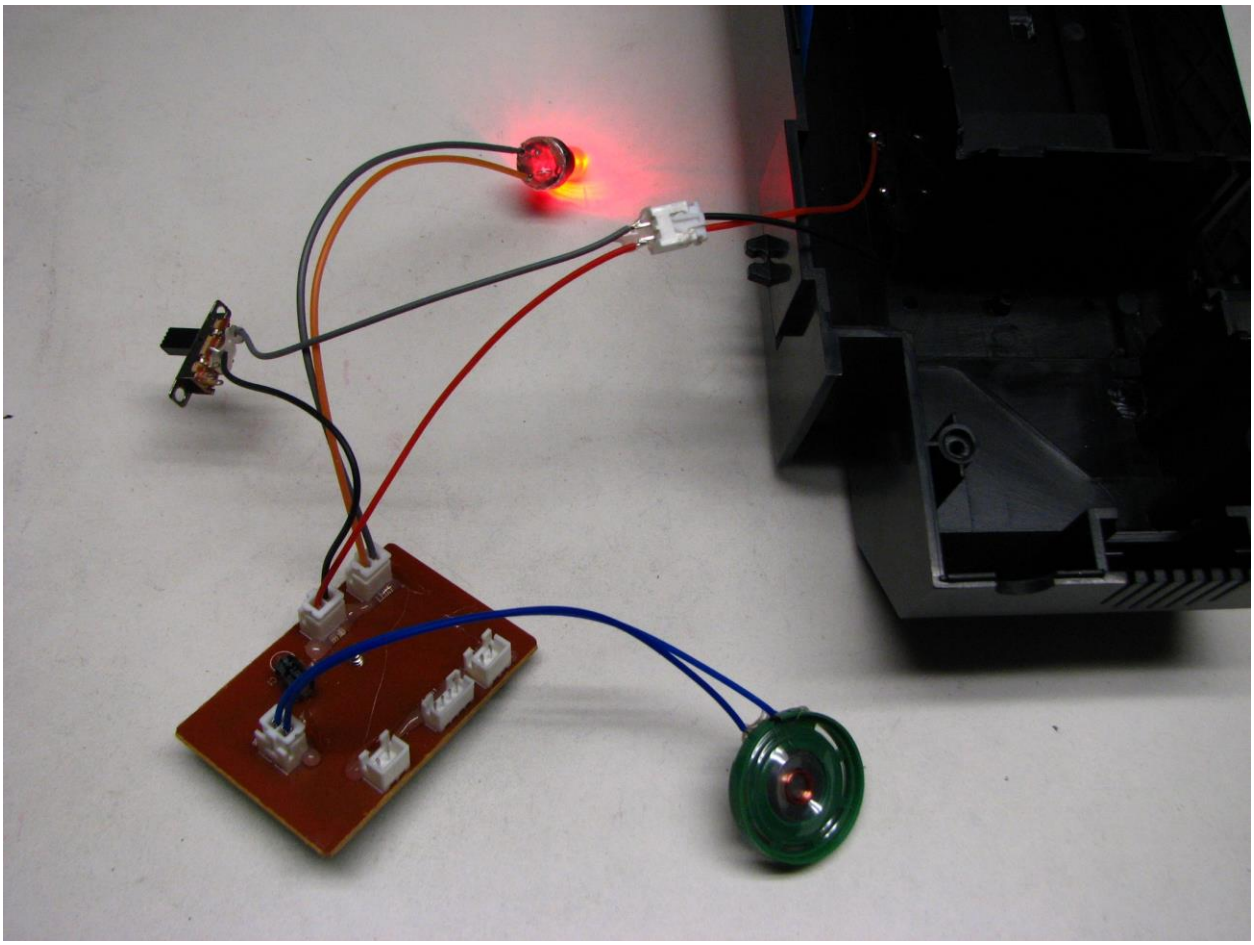
First we need to replace the LED indicator and you get to test this out to see which version you like.



You will need to remove the wires from the White molded LED that came with the Spirit trap and try the unmodified indicator light assembly #22. THe orange lead gets attached to the terminal with the "dot" next to it. If you get the connections swapped the indicator will not light up.



Now test the new light. Put batteries in the battery compartment and plug in the board. With the power switch on, the new indicator light should light up. Shown below is the modified indicator, as I did not think the LED that came in this part was bright enough. If you like how it looks we are done. If you think it is too dim, we can make it way brighter!



Optional Indicator light improvement

Not sure if there is a simpler way to replace the LED, but here is what I did. Basically we are building our own indicator.

First hacksaw the indicator off. The LED is located in the bottom and we need the top in order to securely attach it to the top panel.



The bottom portion and LED can be tossed. I then filed the edges a bit to make sure they were not too sharp. I don't want to bleed on this installation.

Next take LED #23, bend leads out and set it in the top portion of the indicator.

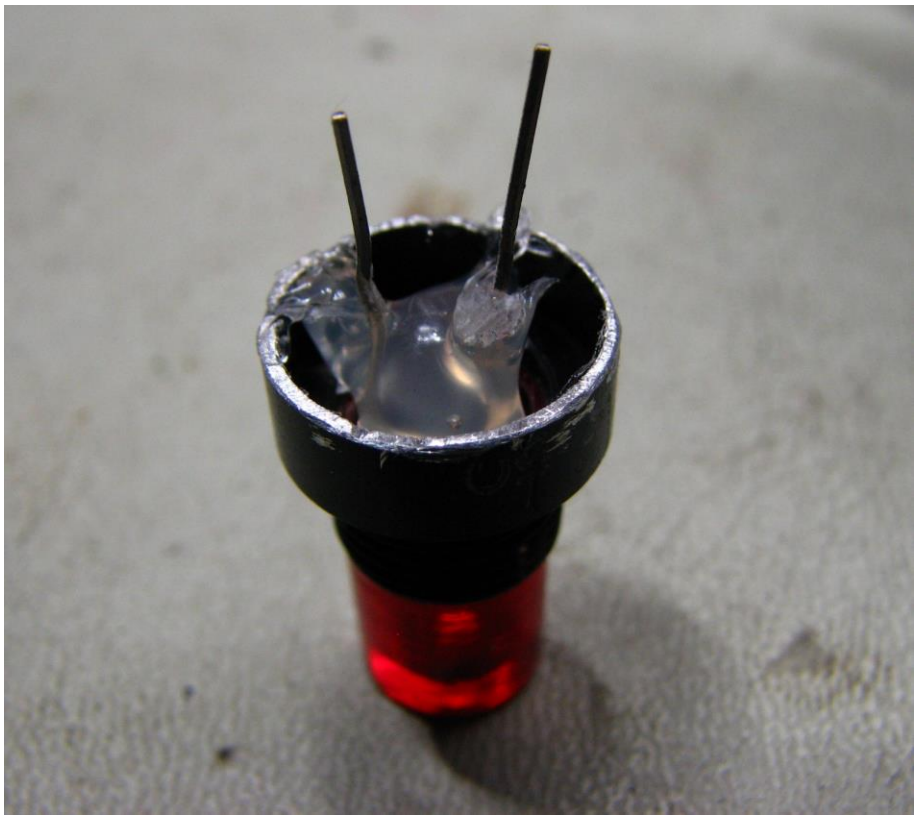


I like it so that the LED is just visible through the lens, not shoved all of the way up into the lens.

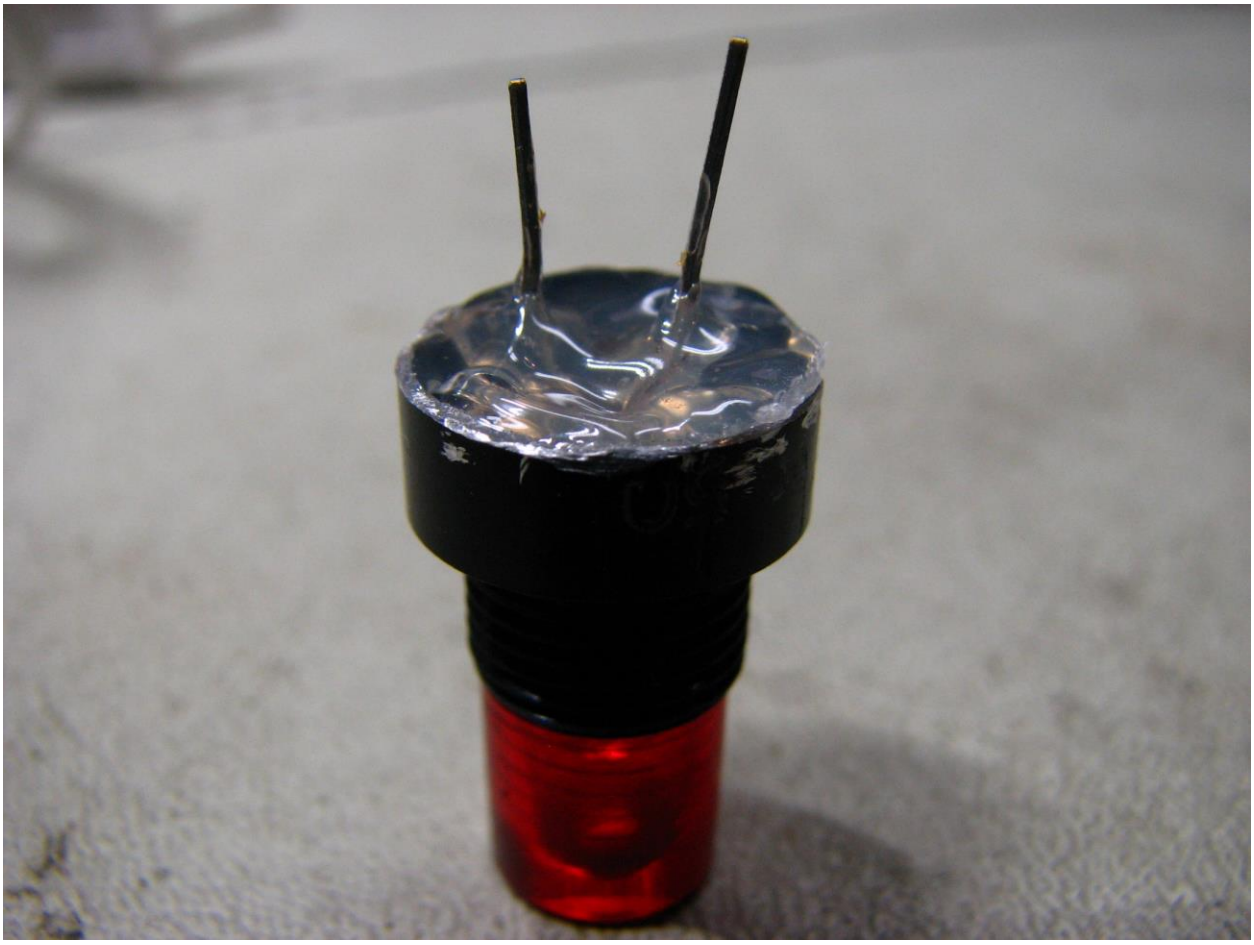




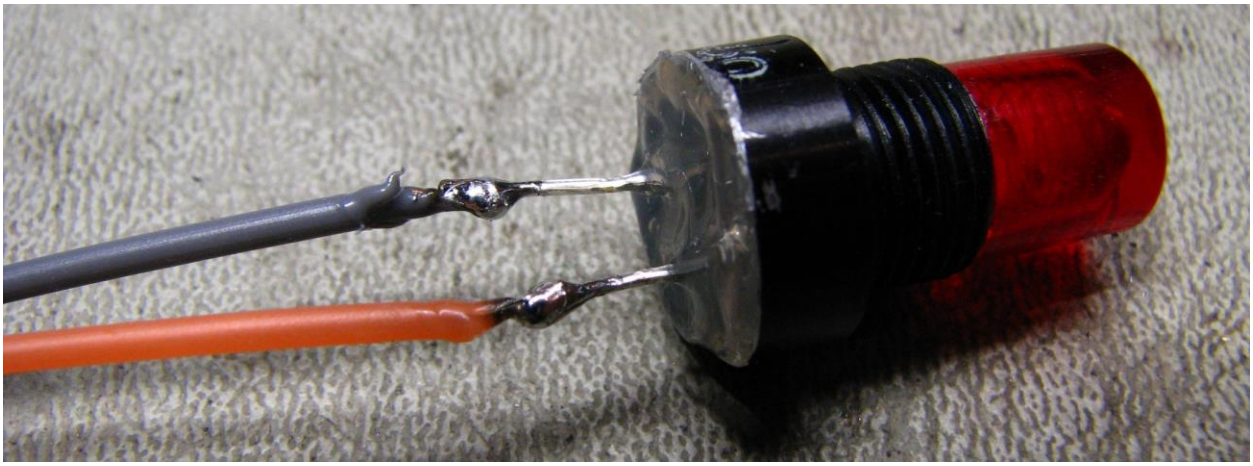
Next take a glue gun and just tack the two lead in place. Be careful not to get too much glue in there and do not led it drip down into the lens. Then bend the leads up so they are not touching the metal sides.



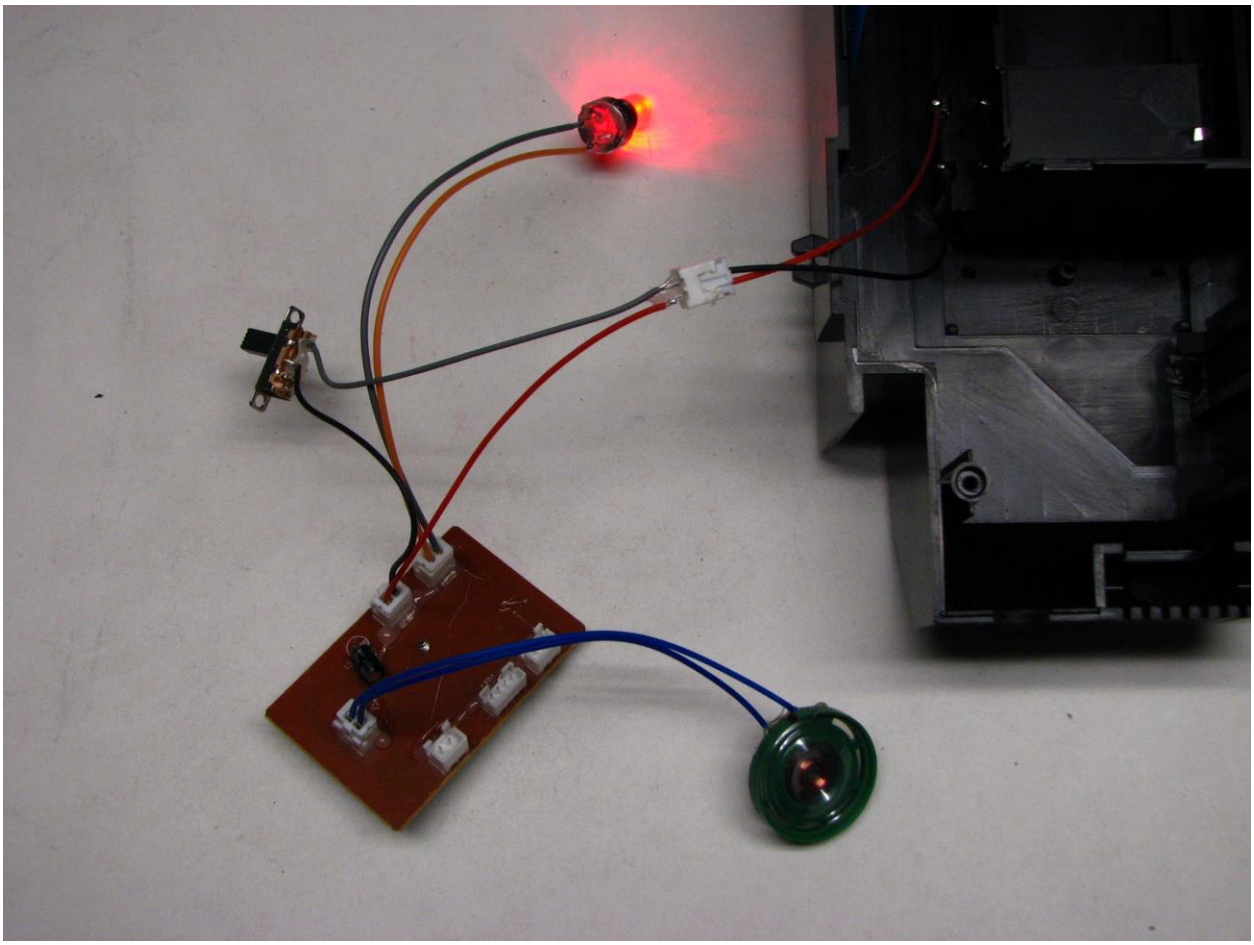
Then add a couple more layers of glue, just a small amount at a time and let each layer cool. The main idea is we want to fill in the back, but we do not want any of the hot glue to get past the LED and into the red Lens!



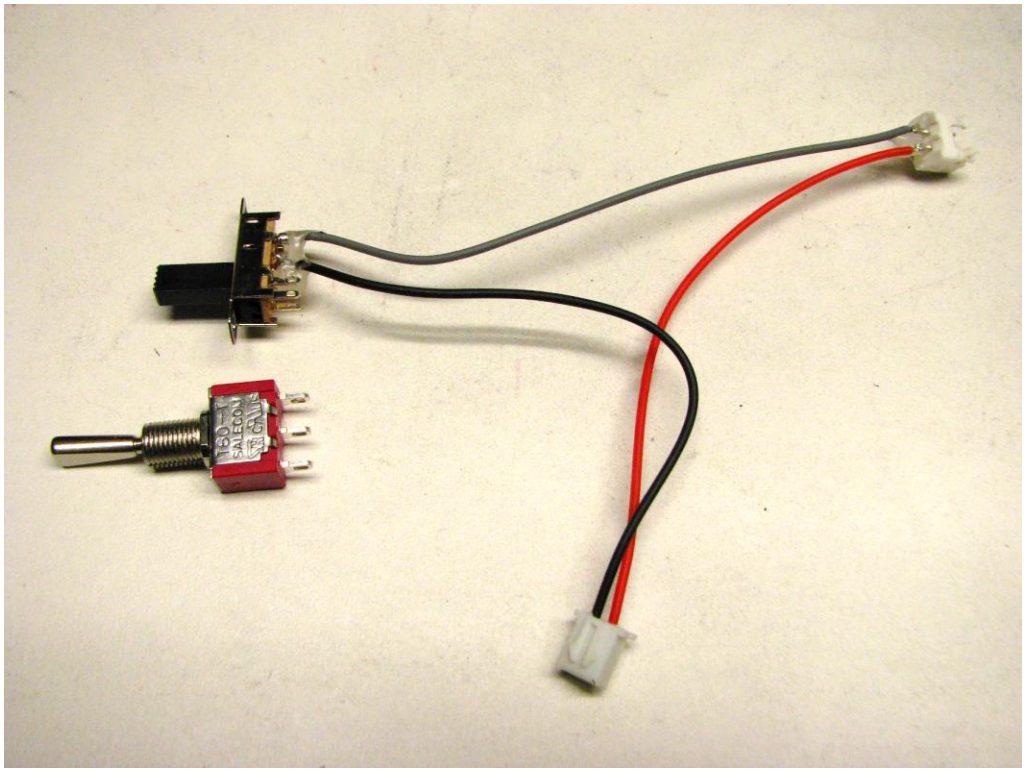
The leads are different length. We need to connect the Orange wire to the longer lead and the grey wire to the shorter lead.



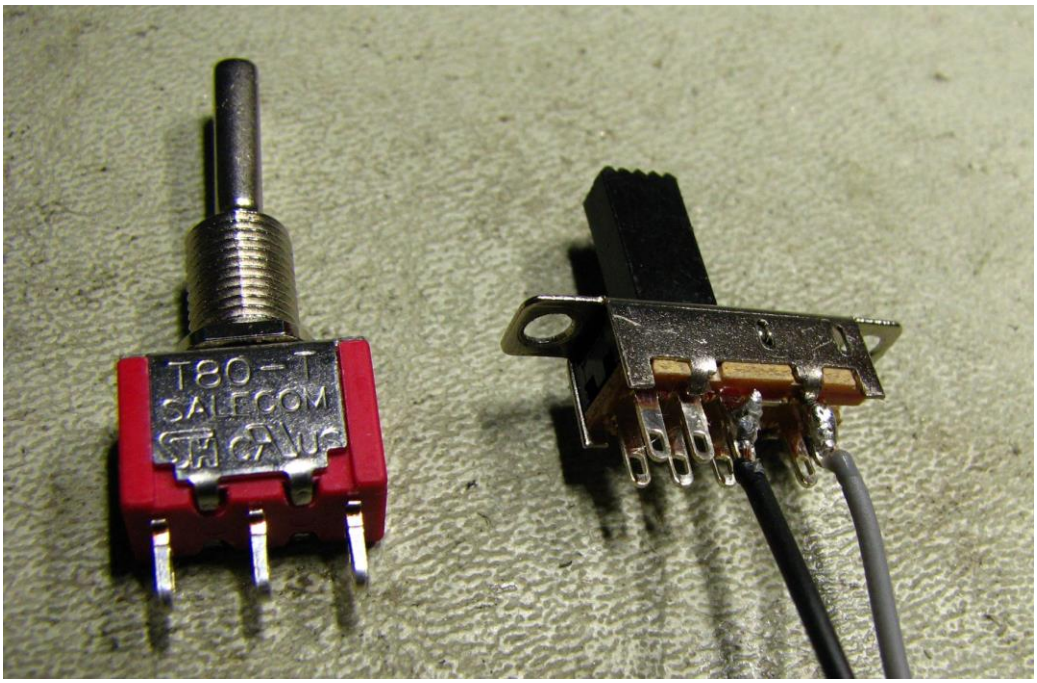
Time to plug this in and test it to see how bright it is! Of course you can’t easily go back, so hope you like it bright!



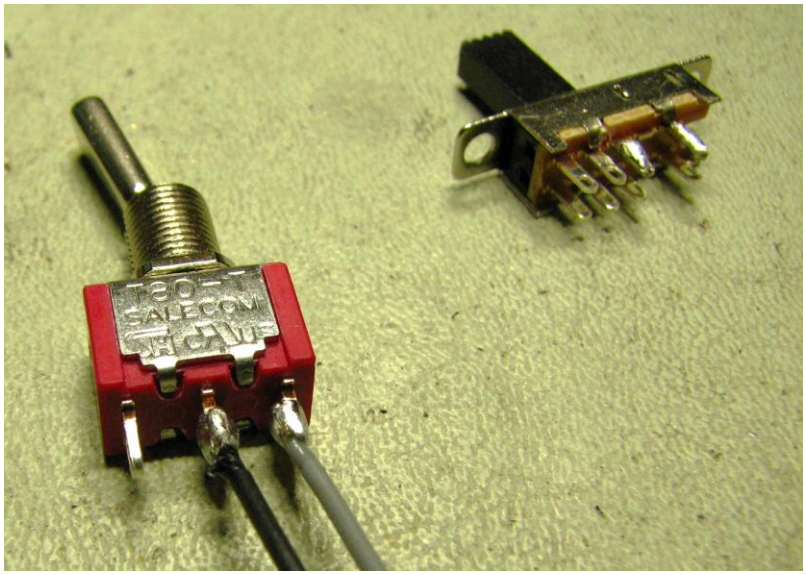
Next you need to move the wires from the old black slide switch to the new toggle switch.



To remove the glue holding the wires to the old switch. I used the needle nose pliers.

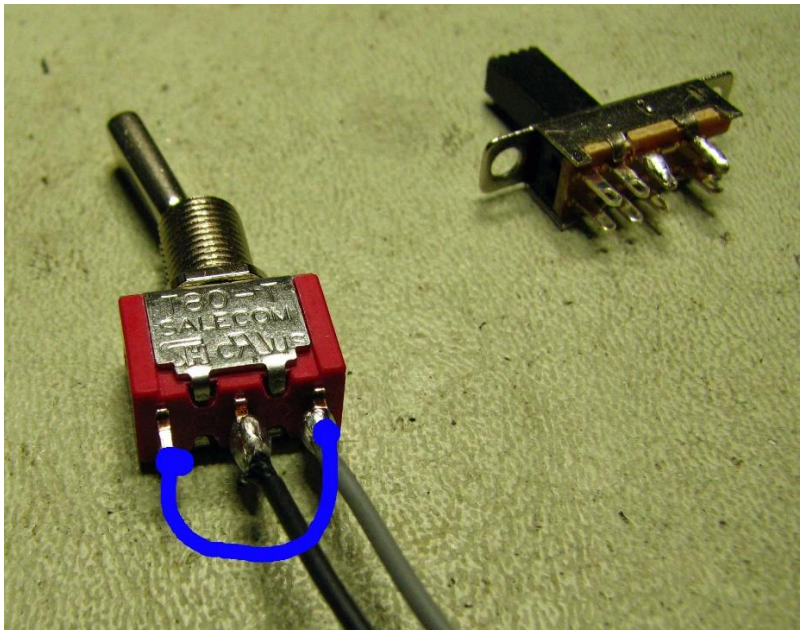


Then you can remove the wires (just heat up and remove) from the old switch and then attach the wires to the new switch. The wire color is not critical – the black and grey could be swapped and the switch will still work fine.

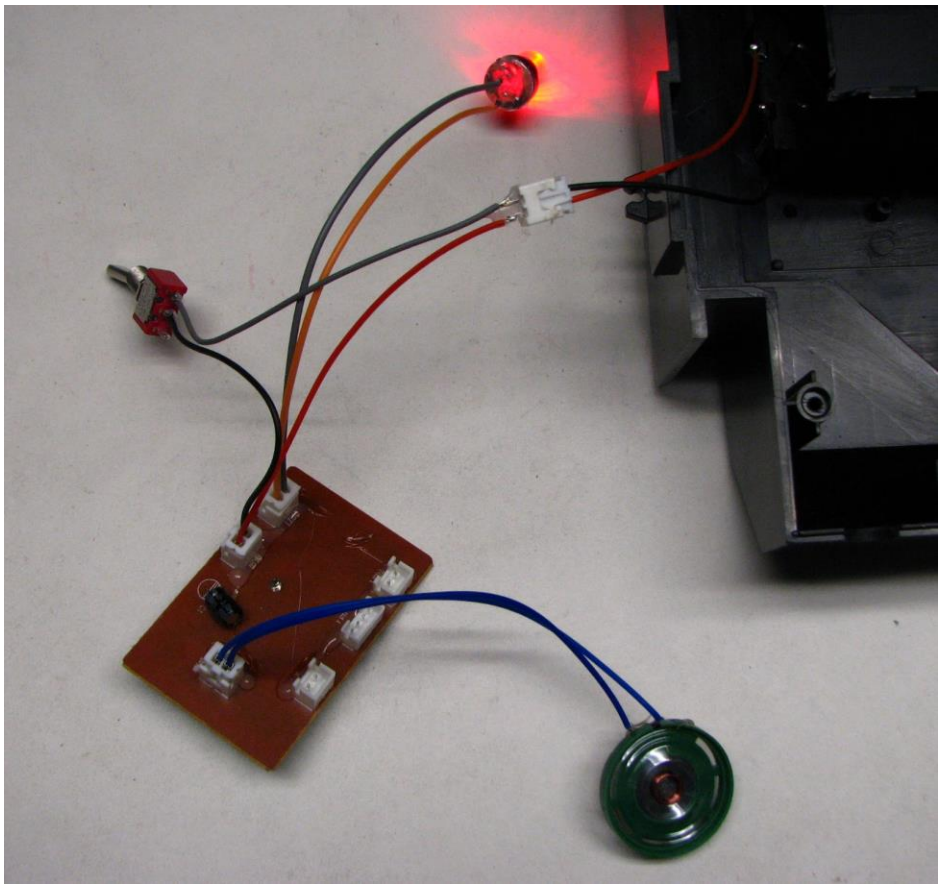


The switch is an ON-OFF-ON type switch. With the switch as shown (left), the right to connections are shorted together. This would turn on the trap. In the center position (OFF), no connection is made. With the switch toggled all of the way to the right, the left two contacts are connected. Since the far left contact has no wire, the switch behaves the same as OFF.

If you would like the trap to turn on for either ON position (toggle handle to the far left or far right), an additional wire would need to be added (not included in this kit) between the far left and the far right terminal as shown below drawn in with BLUE.



Now plug the new switch in and test to make sure the switch works as expected:

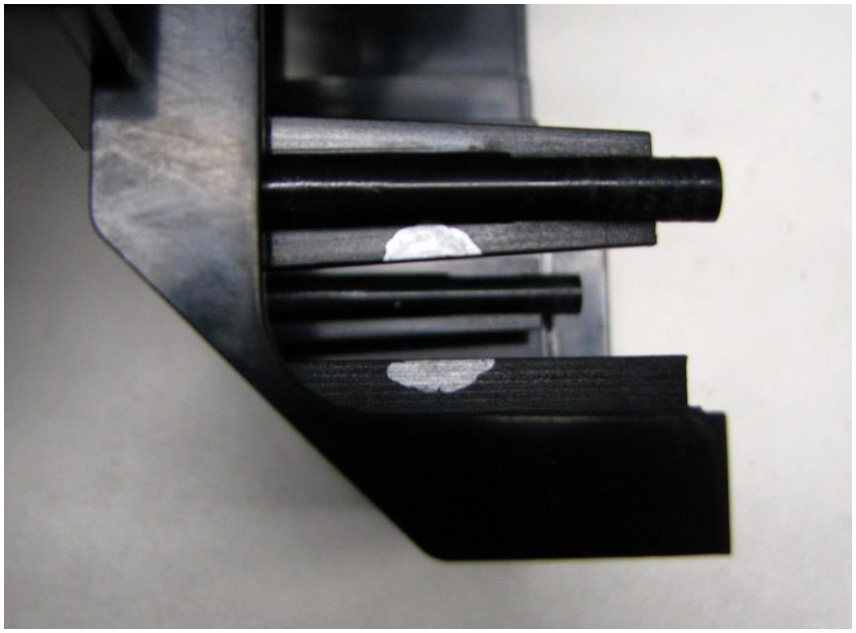


Optional Material removal:

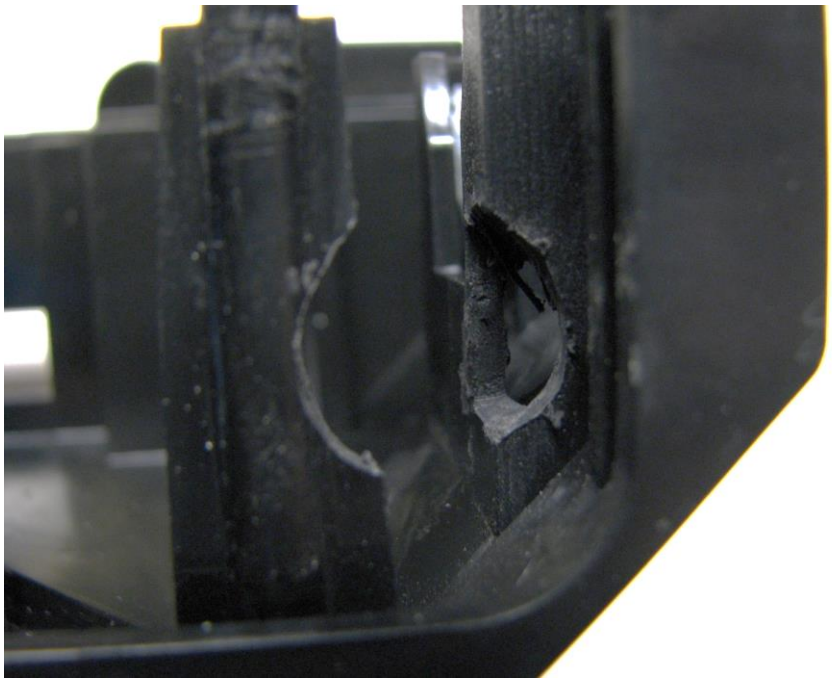
The process of removing more material now may not be needed. It IS needed if you want to use the replacement indicator light as-is, but it will be fairly dim. I much preferred cutting it apart and replacing the LED. This short stubby part may not need the extra material removed. Depends on how short you made it!

Reassemble the parts back together. Then mark the post that the new larger hole can view:

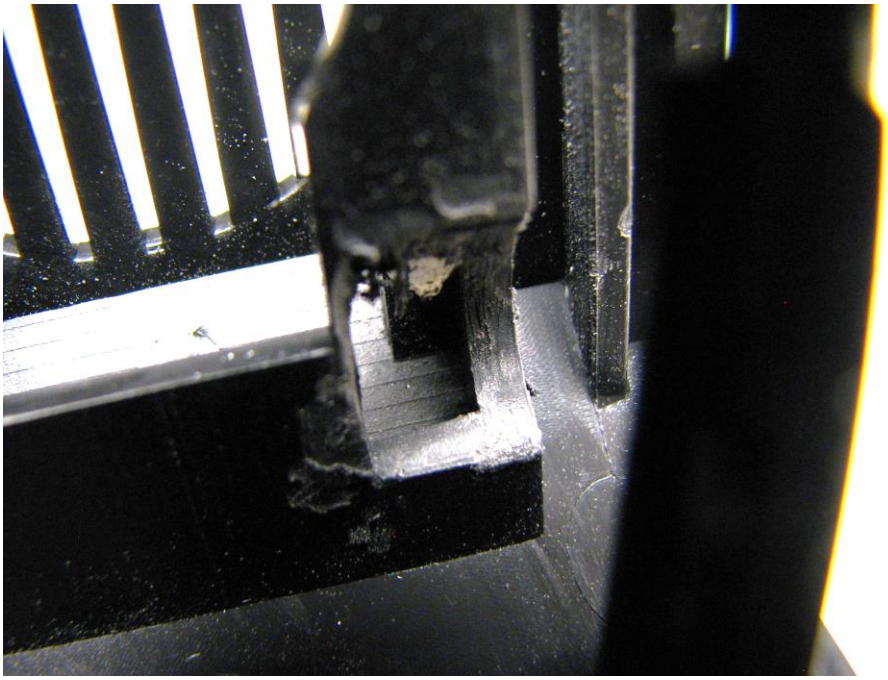




(*Still optional*) Then grind out the marked portion of the supports. Make sure the speaker and wires are not in the way when performing this grinding. Looking down into the cavity after some grinding:

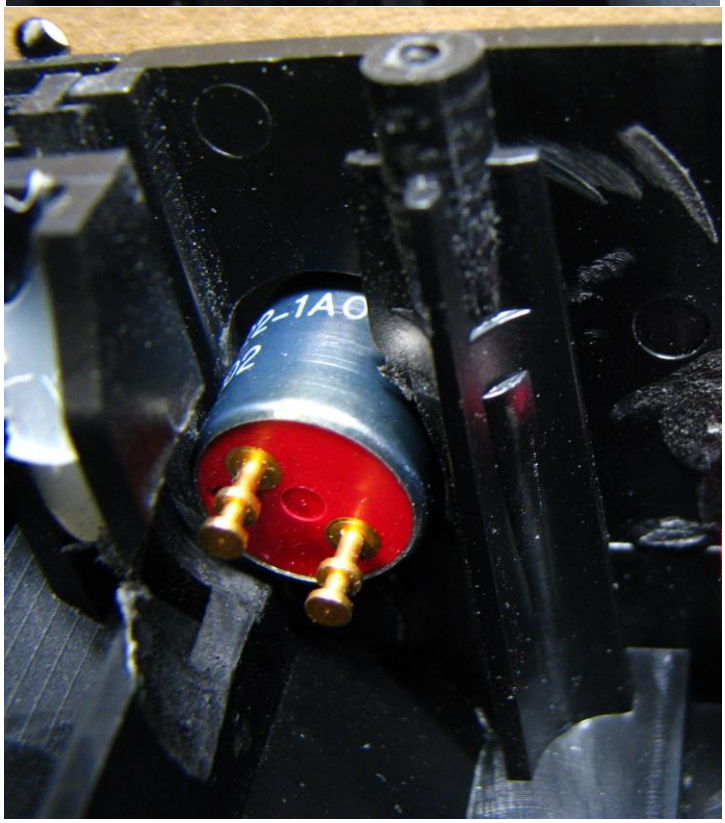


And looking from the inside towards the speaker holder and opening:



(*Still optional*) The full size indicator should be able to be slid into place from inside the trap:





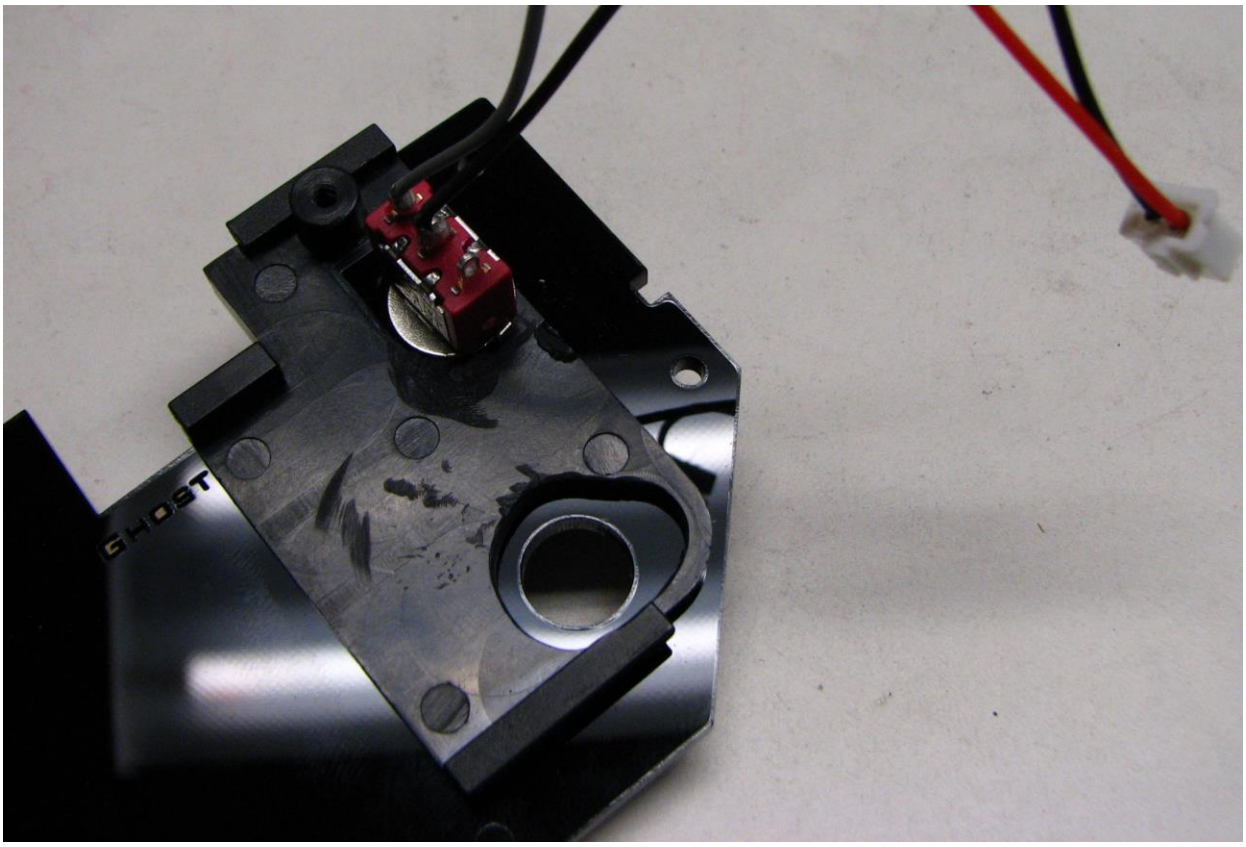
(End of Optional)

Connecting the old and new #24 control panels.

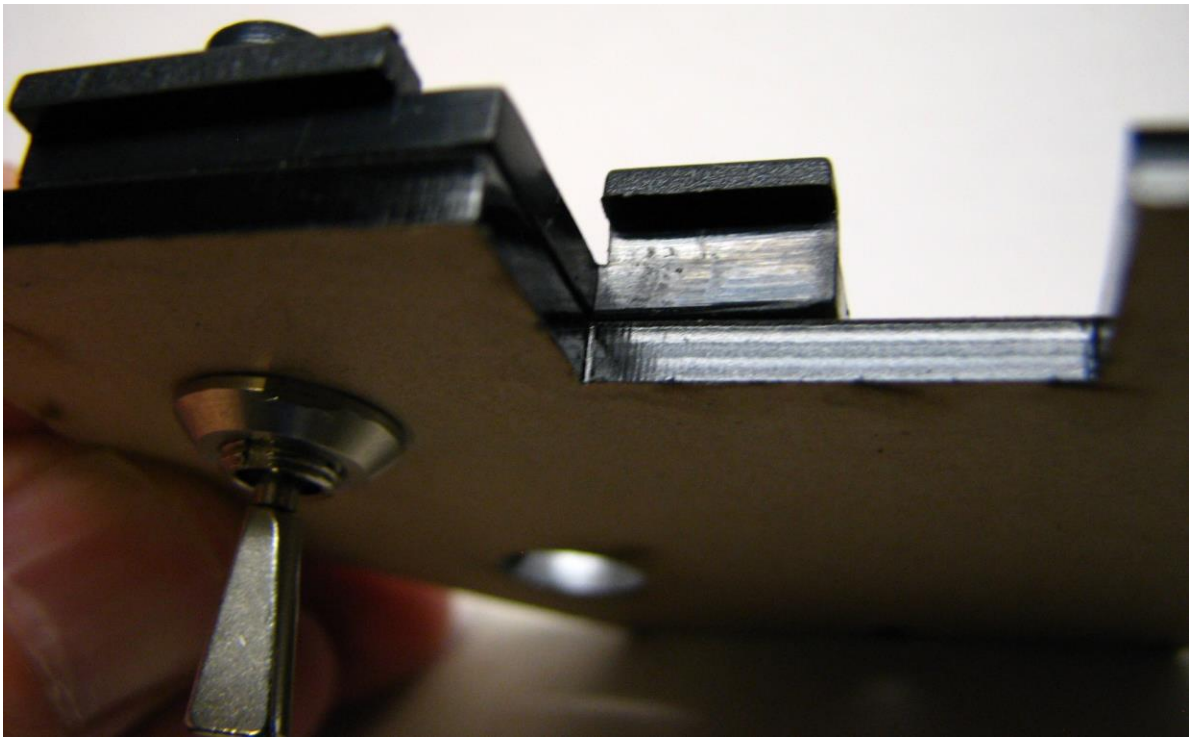
Peel off the protective layers of the top panel #24.



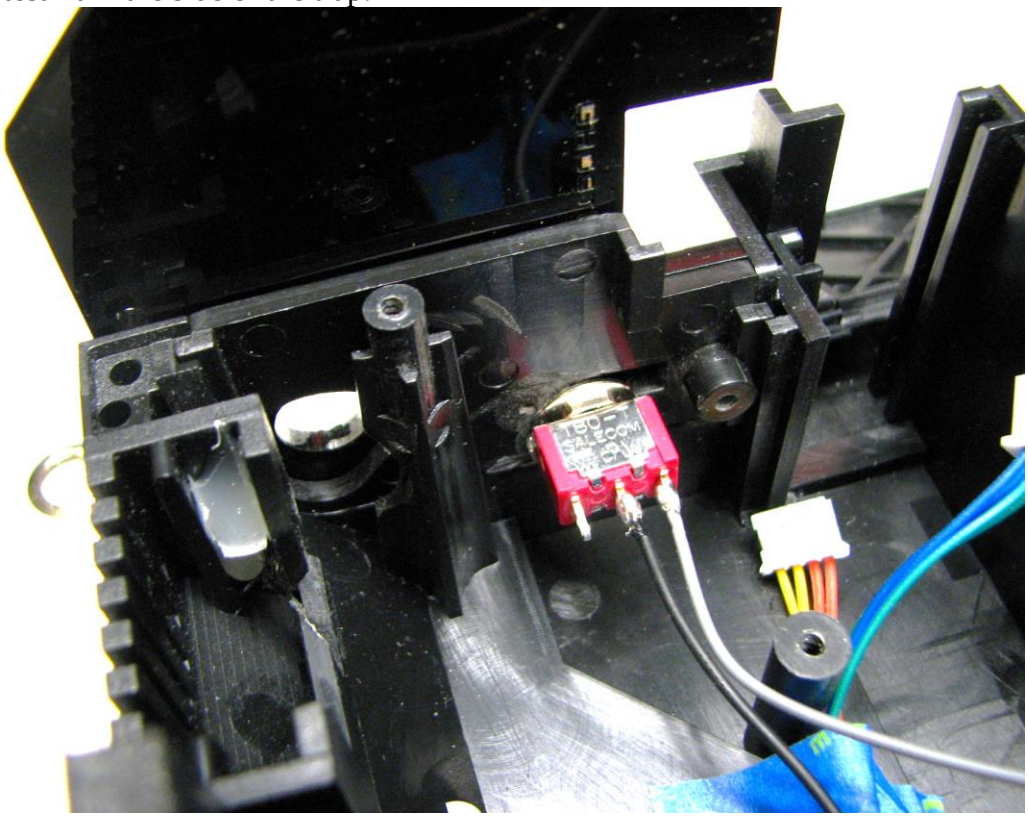
And mount the old panel to the bottom of this panel with the toggle switch. The toggle switch will have the locking flat washer installed on it first and upside down so the tab does not interfere with anything, then the old panel goes on and the new panel and finally the fancy nut. The other nuts and washers are not needed.



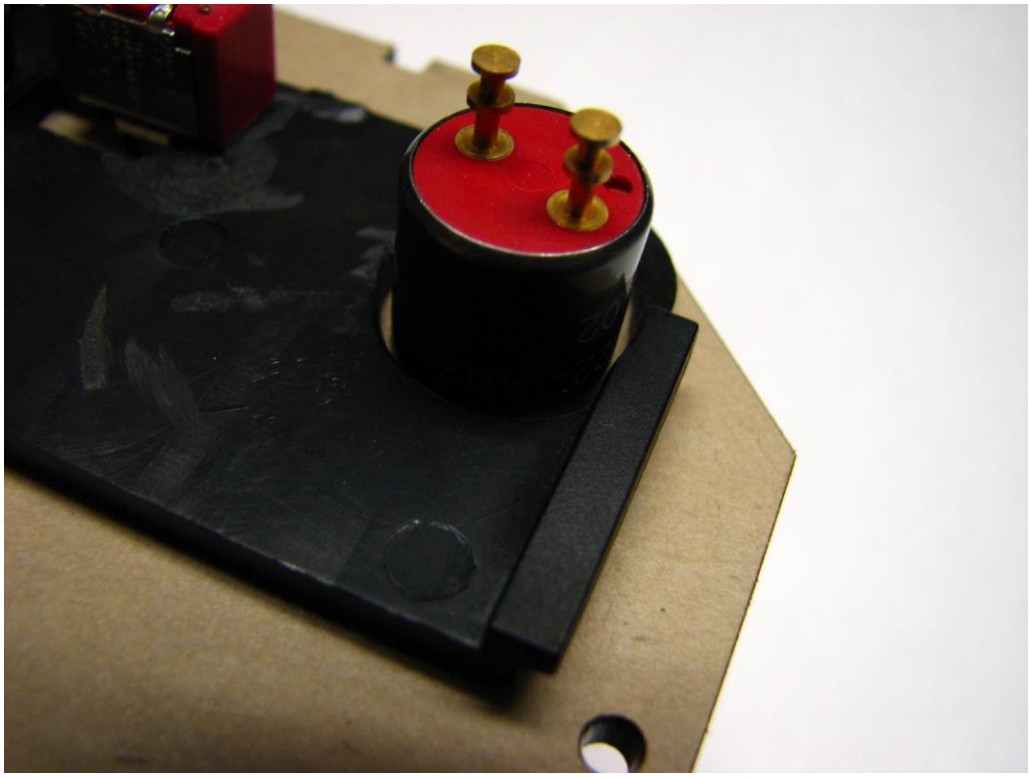
Try to get these edges well aligned:



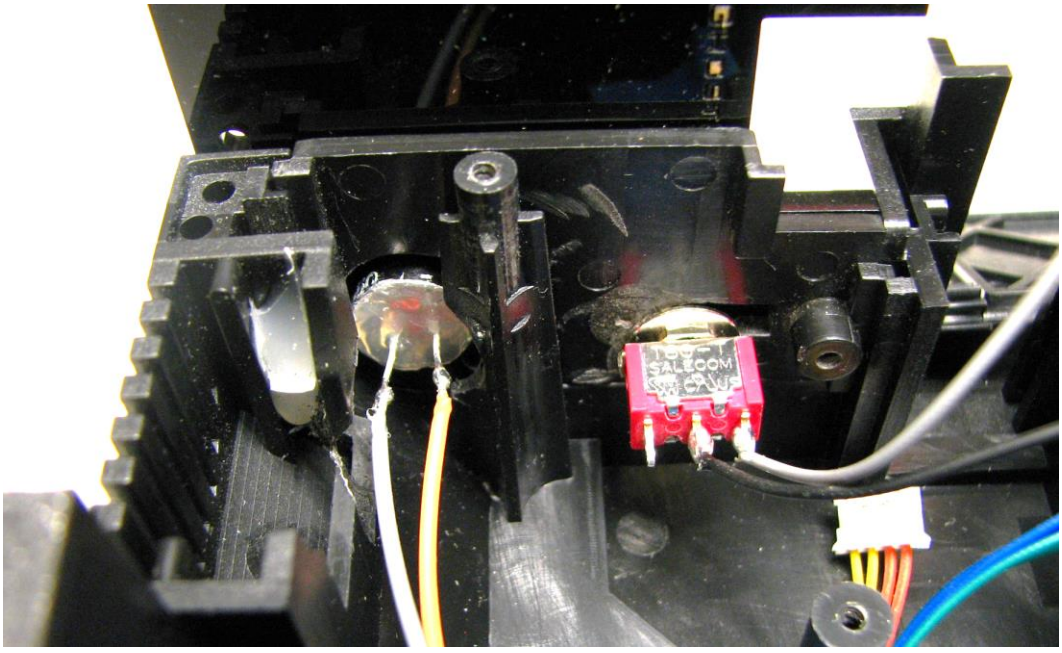
Then try a test fit in the side of the trap:

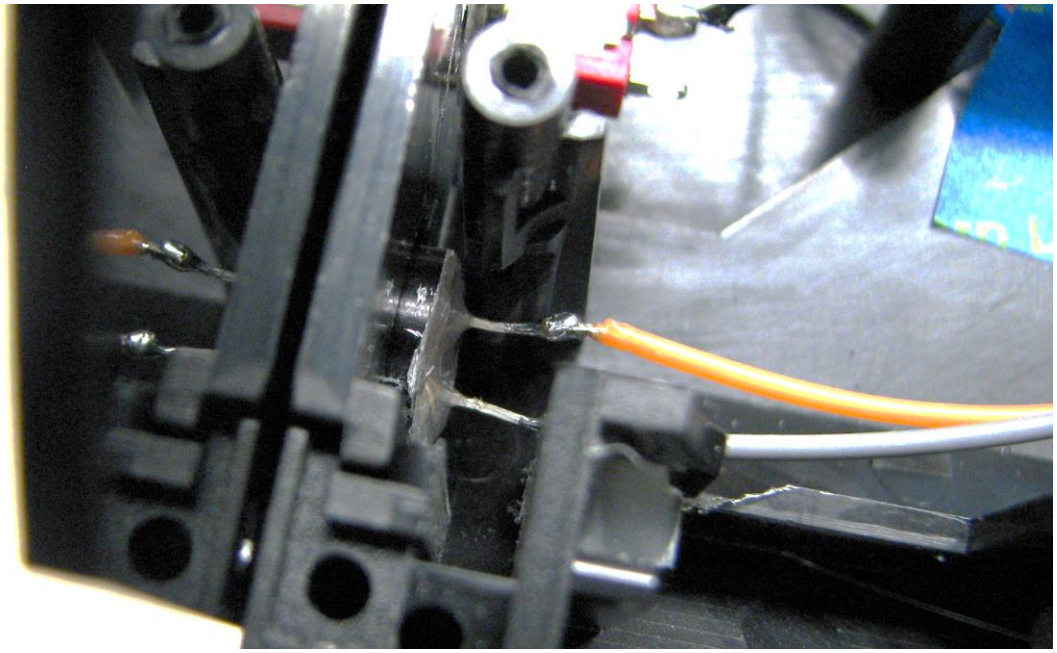


Next, pull this back out and insert the power indicator #22 and then slide it back in place.



If there is not enough clearance around the post, you may have to modify the post and then remove the indicator, slide in the top panels and then install the indicator AFTER you have the top panel in place. The modified indicator I had was short enough to clear these obstacles, so the entire panel just slid in and out with the switch and indicator in place.





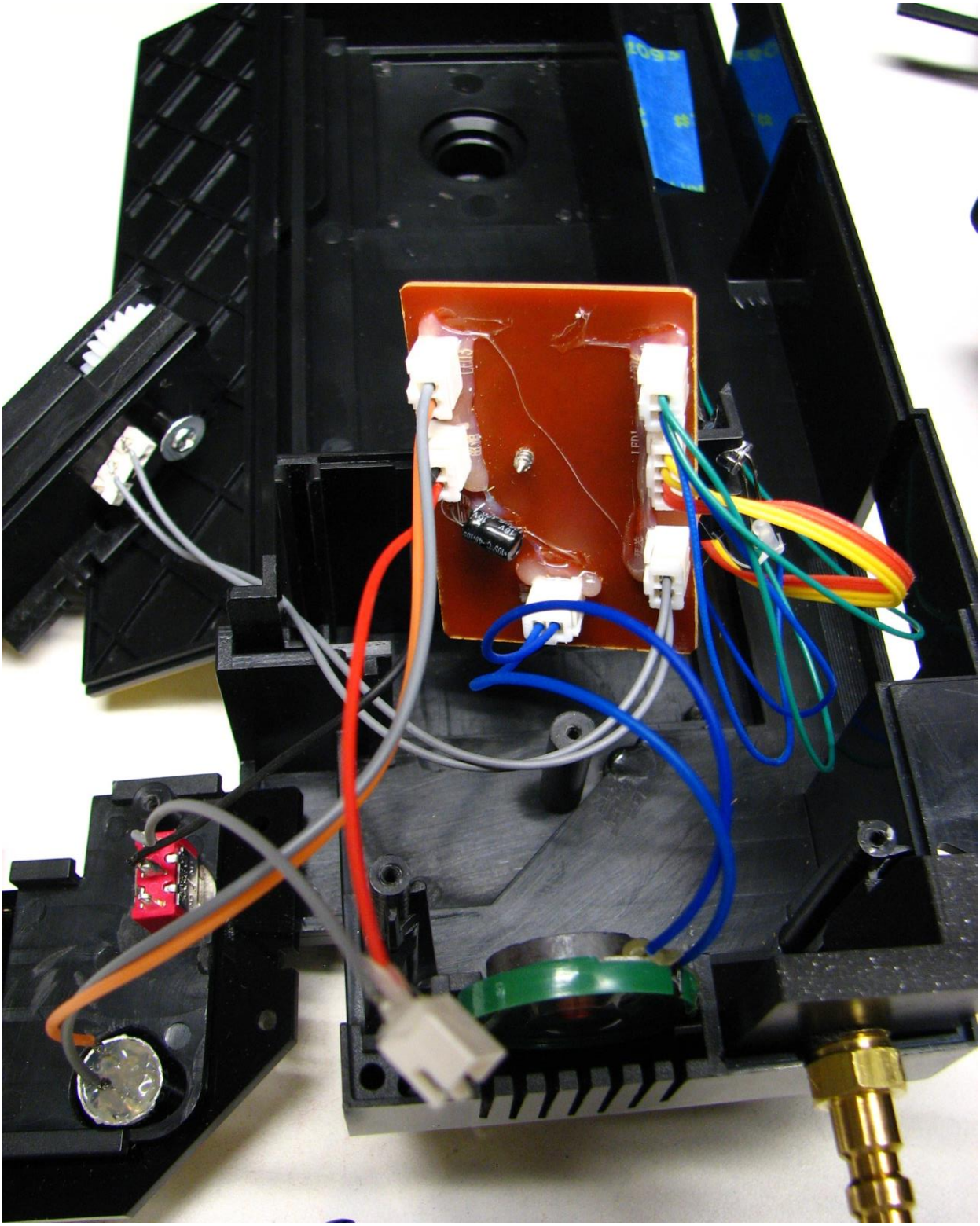
Next we get to test fit the handle with this top plate.

I tried to keep the pieces together, but I eventually dropped it and had to put it back together. So it ended up being easier to play around with just the handle and keeping the plunger and white thingee separate.

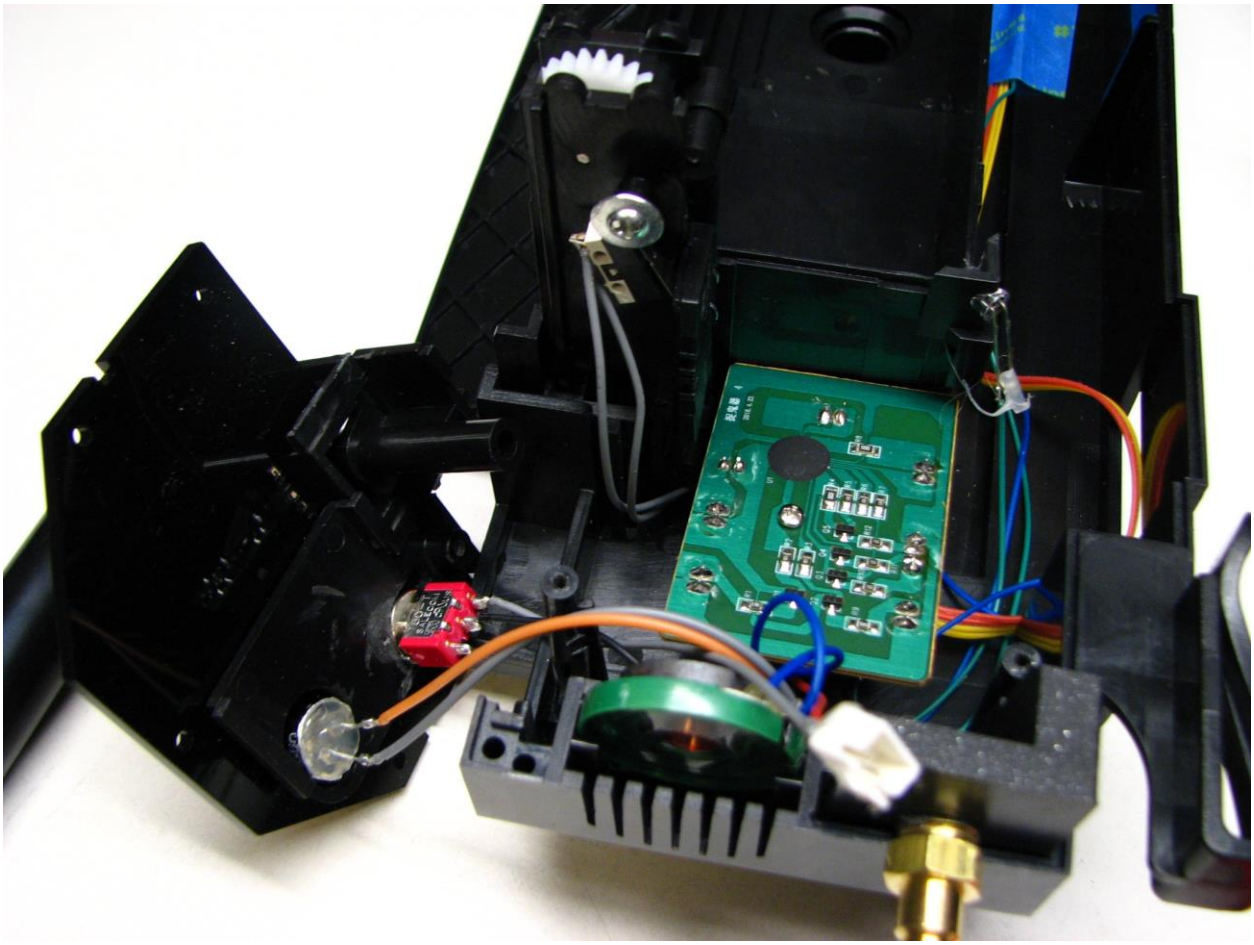
Slide the top piece out enough to install the handle in the slot and then slide the handle and top pieces back into position. This is to make sure the alignment between the two top pieces is correct. If this is good, pull the top out and tighten the switches fancy nut (I use a small crescent wrench to not scratch things up) and the indicators fancy nut (by hand since I didn't want to scratch it with the needle nose pliers). Then re-test fit to make sure this will work later.

Reinstall the circuit board and wiring

Plug all of the wires back in and set the circuit board here:



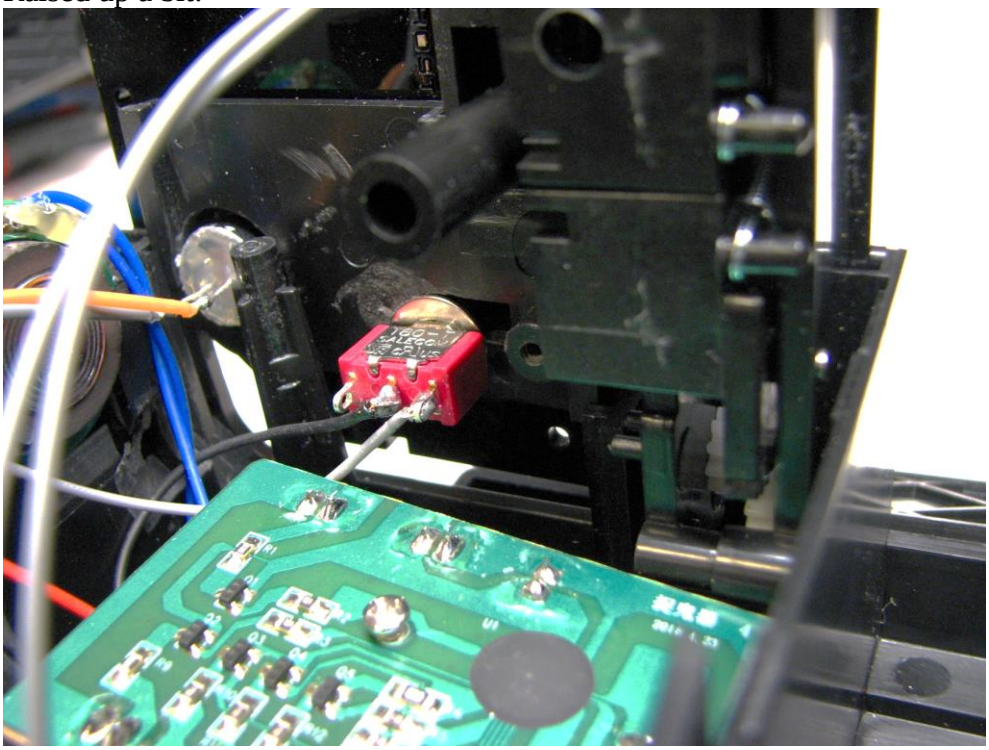
Flip the board over and screw it down and also place the gearbox in:



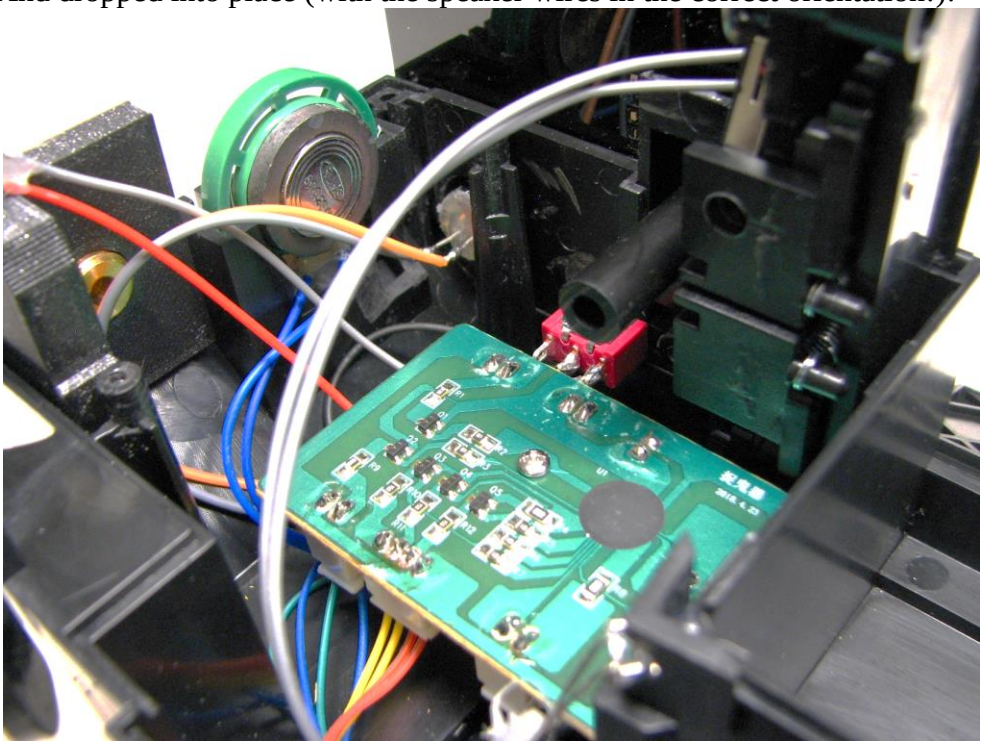
I changed out the blue tape for packaging tape and dressed the wires so that they would not get caught between the two halves while reassembling.

Next you get to lift up the gear box a bit, align it with the handle (all three parts), and then slide in into place.

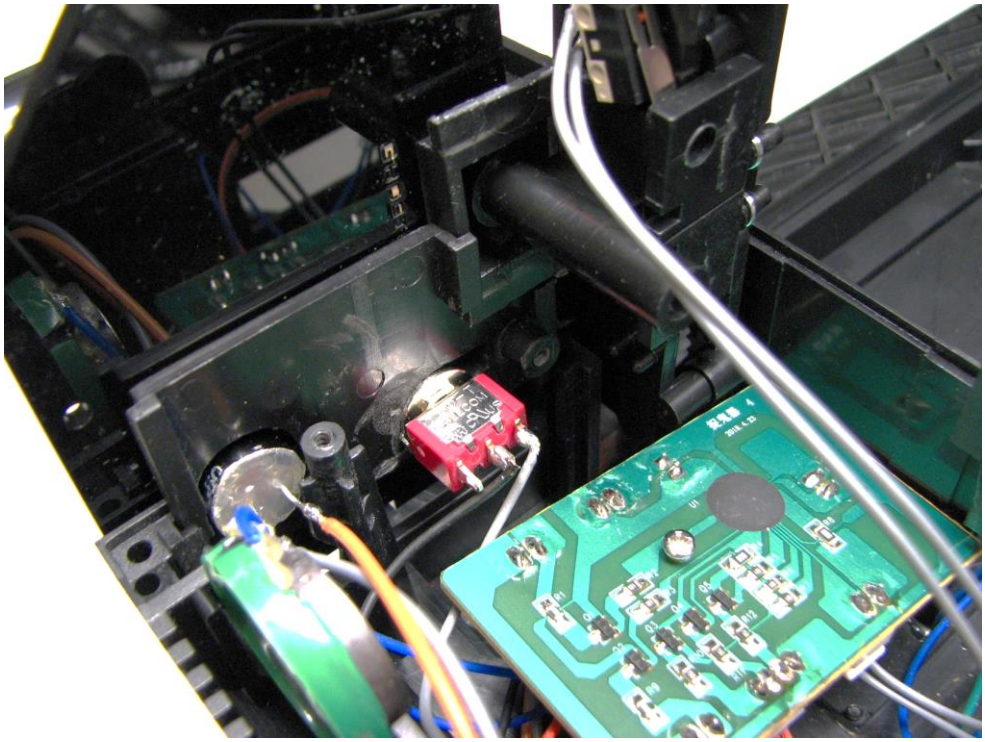
Raised up a bit:



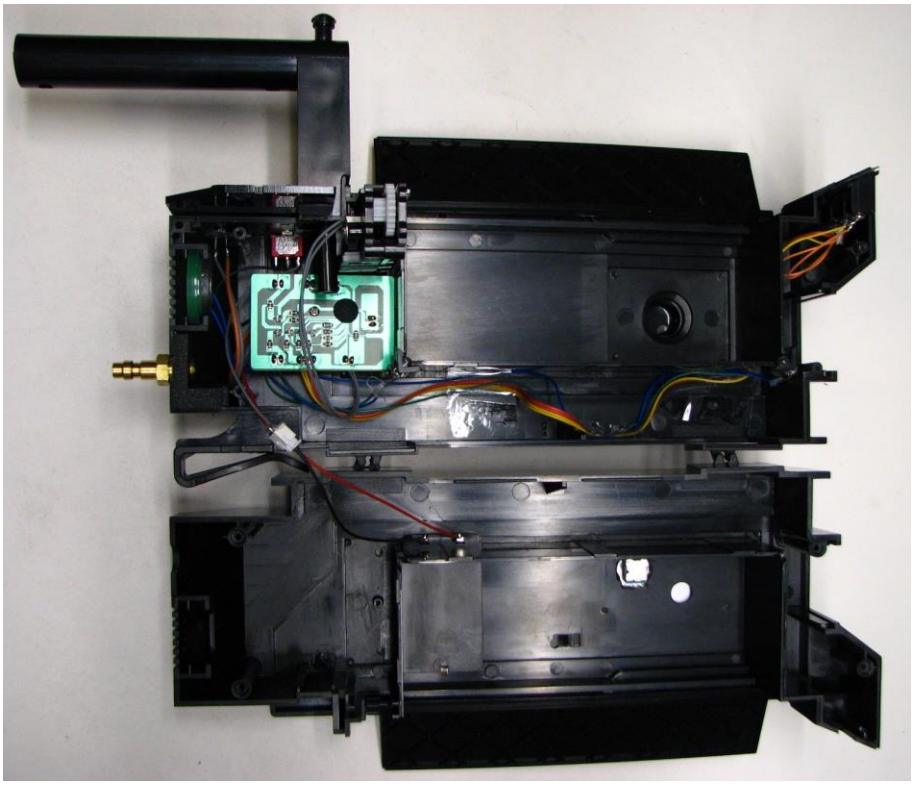
And dropped into place (with the speaker wires in the correct orientation!):



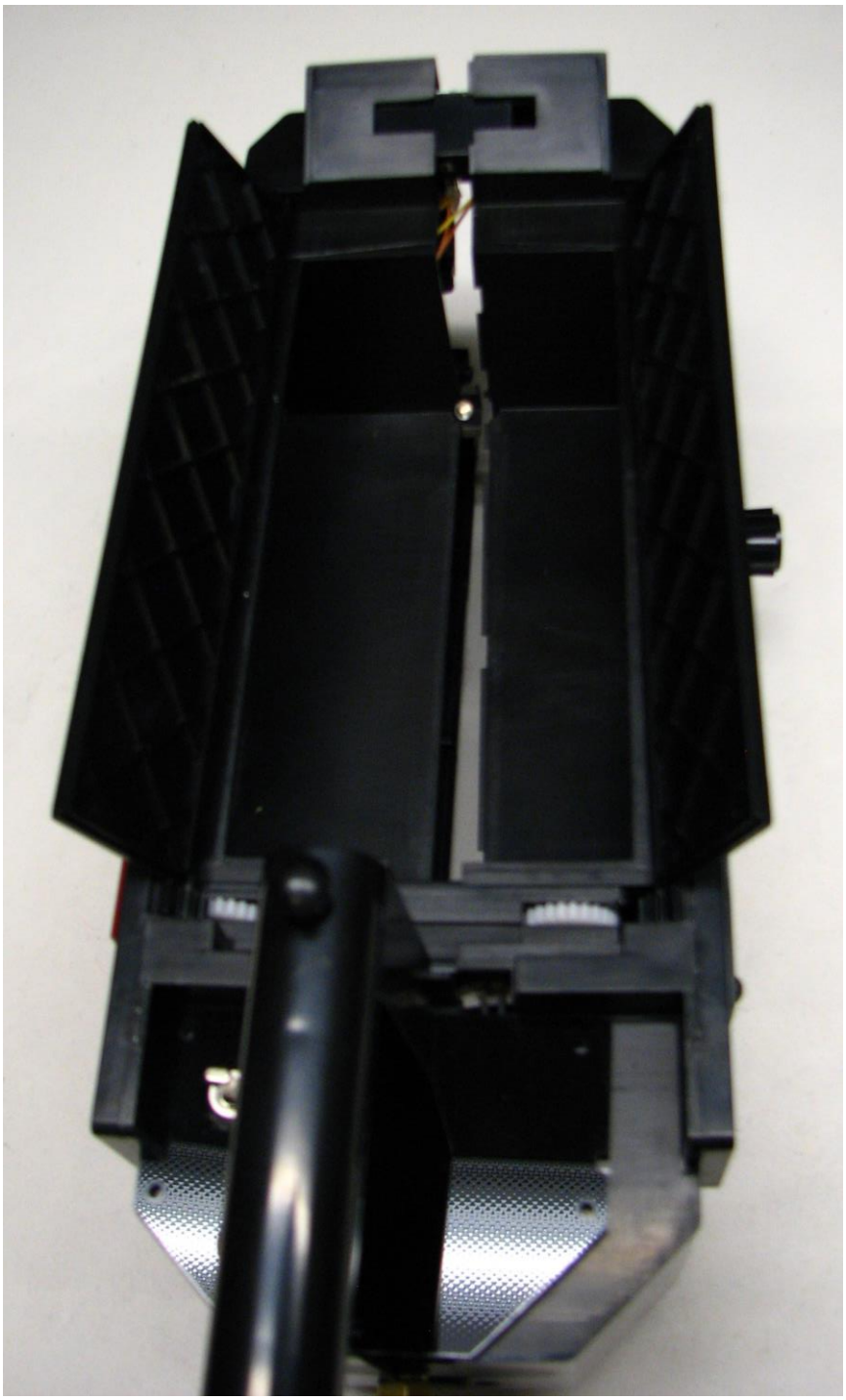
From another angle once in place:



Here are the two halves about to be joined together:



The flaps work best for me if they are wide open (and the button up) when joining the two halves. Also be careful to align the display. Here the halves are about to be fully combined.



I did make a video of this since it is a lot of things in motion at one time.
https://www.youtube.com/watch?v=_Uj2AaKuHJc

After the two halves are joined. Verify that the flaps open and close.

Next verify that the electronics are working and nothing was messed up while joining the two halves.

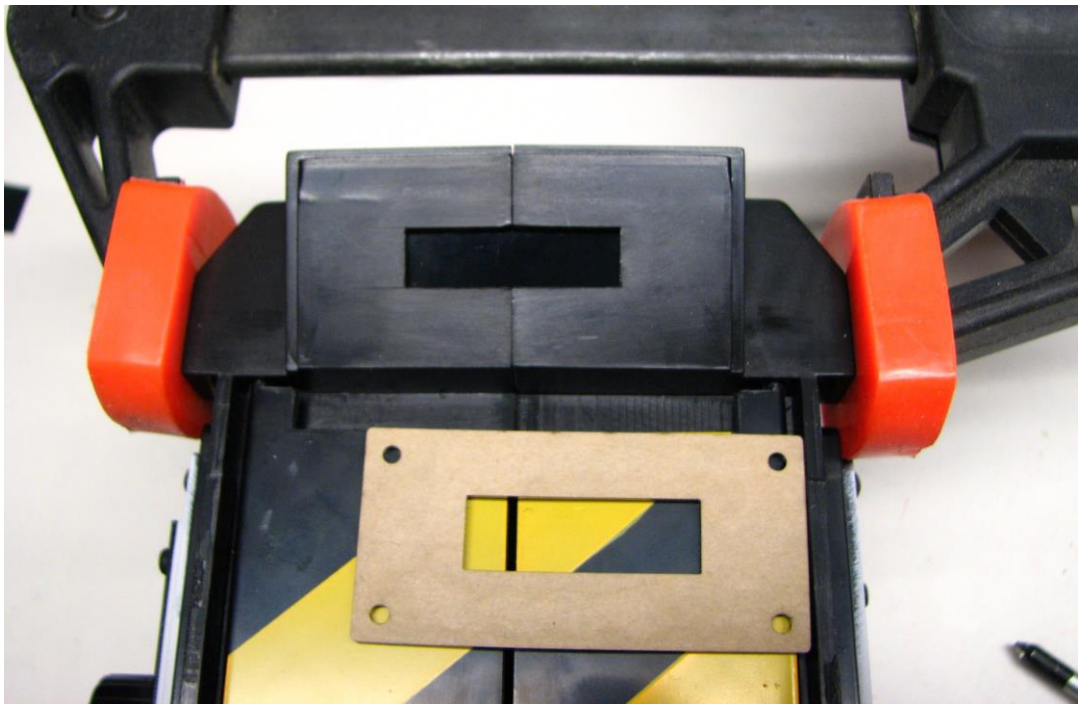
Then reinstall the four main screws that are used to hold the two halves together. Do not over tighten and either strip the screws or the plastic posts that they are being screwed into. Use a good Philips screwdriver and be sure to apply a lot of force on the screwdriver into the screw (not a lot of force in twisting the screwdriver!).

Finally, tighten the hose connector #19 by hand and then with a crescent wrench. I did this with pliers once and it left marks on the flat portion (nut) of the connector, so I won't do that again.

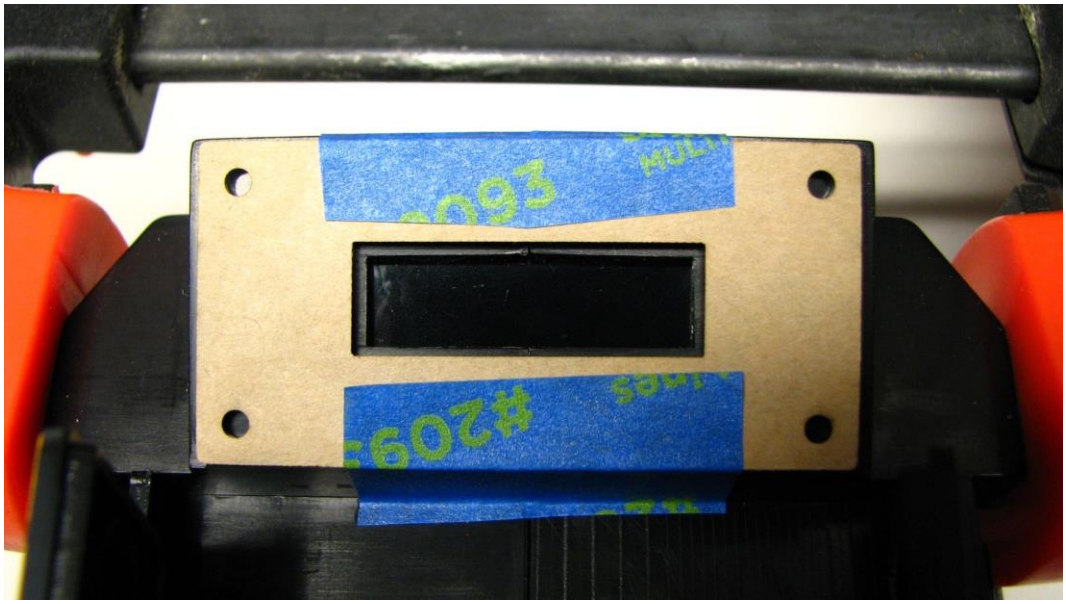


Trap Display Panel Upgrade Part II:

Even though the trap is screwed together, I still used a clamp to make sure there was little to no gap in the two halves before I mounted the display.



Then tape the display panel #1 in place before drilling the holes. The bezel cutout is not centered top to bottom and the "GhostLab42" is marked on one side that should be located at the top of the panel. The opening should be centered on the display housing below showing equal amounts of the display housing all around the inside opening.

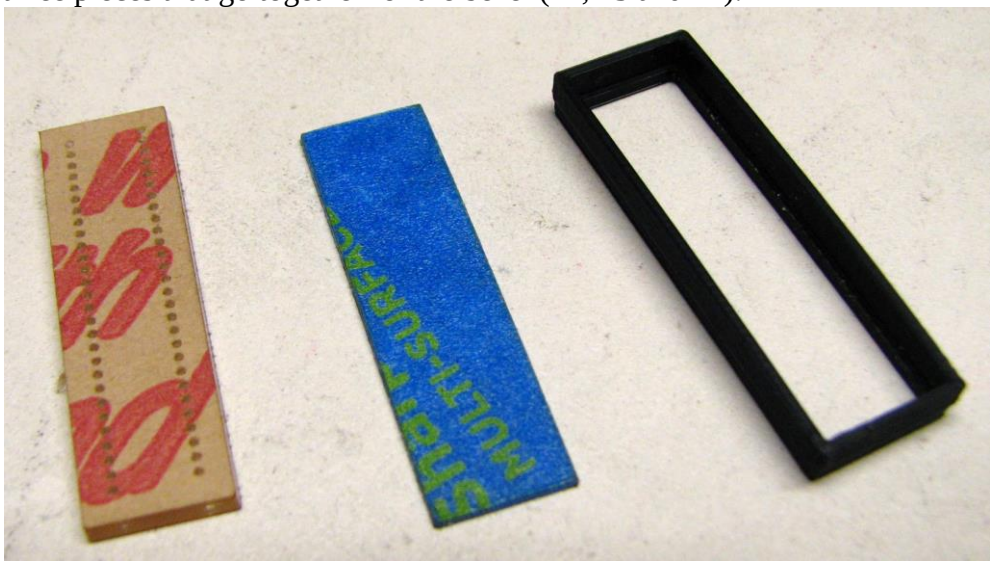


Use a 3/32” drill bit and a 3/32” hex key/wrench

Drill and install 4 socket head screws #28 into the four corners of the display panel. still like to drill one hole (upper left), mount a socket head screw #28, then drill the opposite corner hole (lower right) and mount that screw, then drill out the remaining two corners and install their screws. A little slower install but makes sure the panel fits very nicely.

Assemble the bezel:

There are three pieces that go together for the bezel (#2, #3 and #4):



Peel off the blue tape from both sides of the lenticular material #4 and place in the bezel #2 with the reflective side down (ridges facing up). I do this with gloves so as not to leave fingerprints on the clear parts.



I see some particles on there and blew them off with a bulb puffer I had lying around. Les chance for “spittle” on the lenticular material that way.

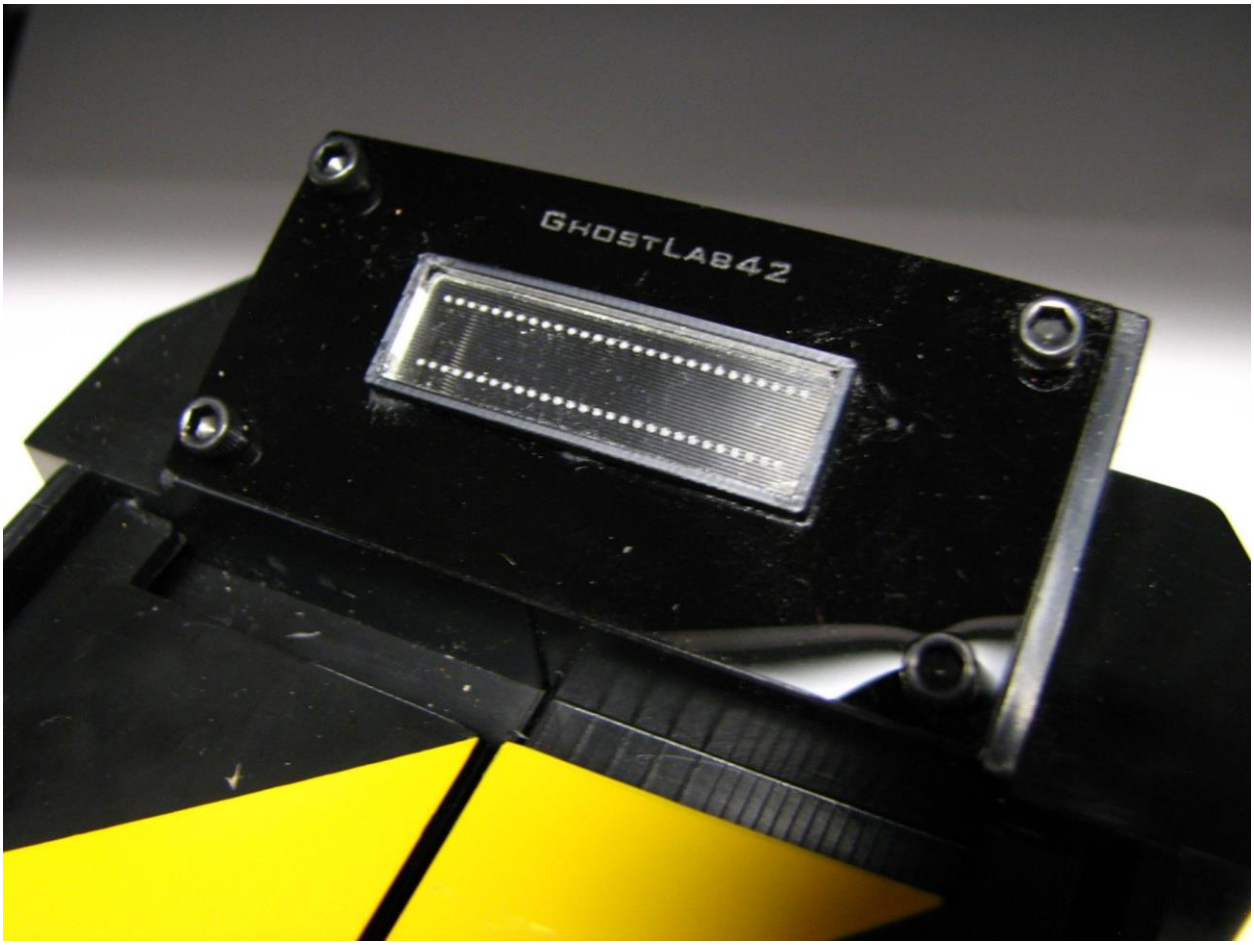
Next peel off both sides of the protection material from the main clear acrylic cover. Orient the piece and then press into the display with the etched circles side faced down.

I used a tiny amount of super glue in the corners to hold everything in place. It works OK, but maybe there is a better adhesive to use that will not show.

Next remove the panel #1, and peel off the protective layers and test fit the bezel assembly in the opening. You can choose to have the "GhostLab42" show on the front or flip it over so it does not show (horizontally, "Ghostlab42" should still be on the upper portion of the panel). I won't be heartbroken if you choose to hide my company name. 8-)

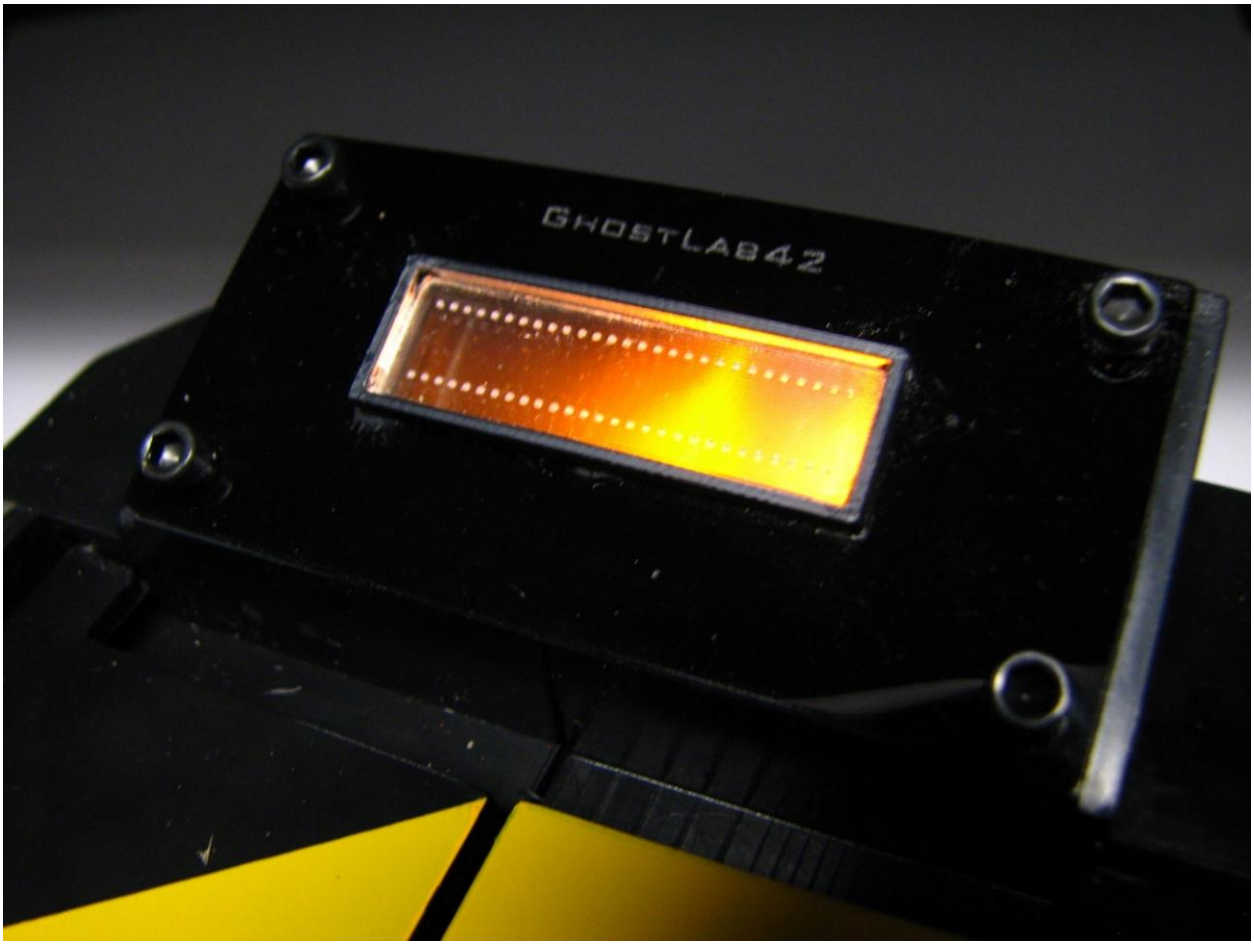
I used superglue in the corners and in the center of the long edges on the inside of the opening in panel #1. Press the bezel in place and it worked OK, but again would like to know if there is a better adhesive to do this!

Remount the panel/bezel assembly and here is the finished look with the lights off,



Of course the "GhostLab42" is facing out on mine traps!

And the lights on:



Of course the “GhostLab42” is facing out on my traps!

Trap Front Knob Panel Upgrade Part II:

Nearly done!

Use a 7/64" drill bit and a 7/64" hex key/wrench
Test fit, Drill the holes and install the two socket head screws #12 for the front panel.

I just held the piece in place with one hand and drilled with the other. You could tape it in place if desired. Make sure the two top skinny sides of panel #10 are pushed firmly against the trap black surfaces before you drill.



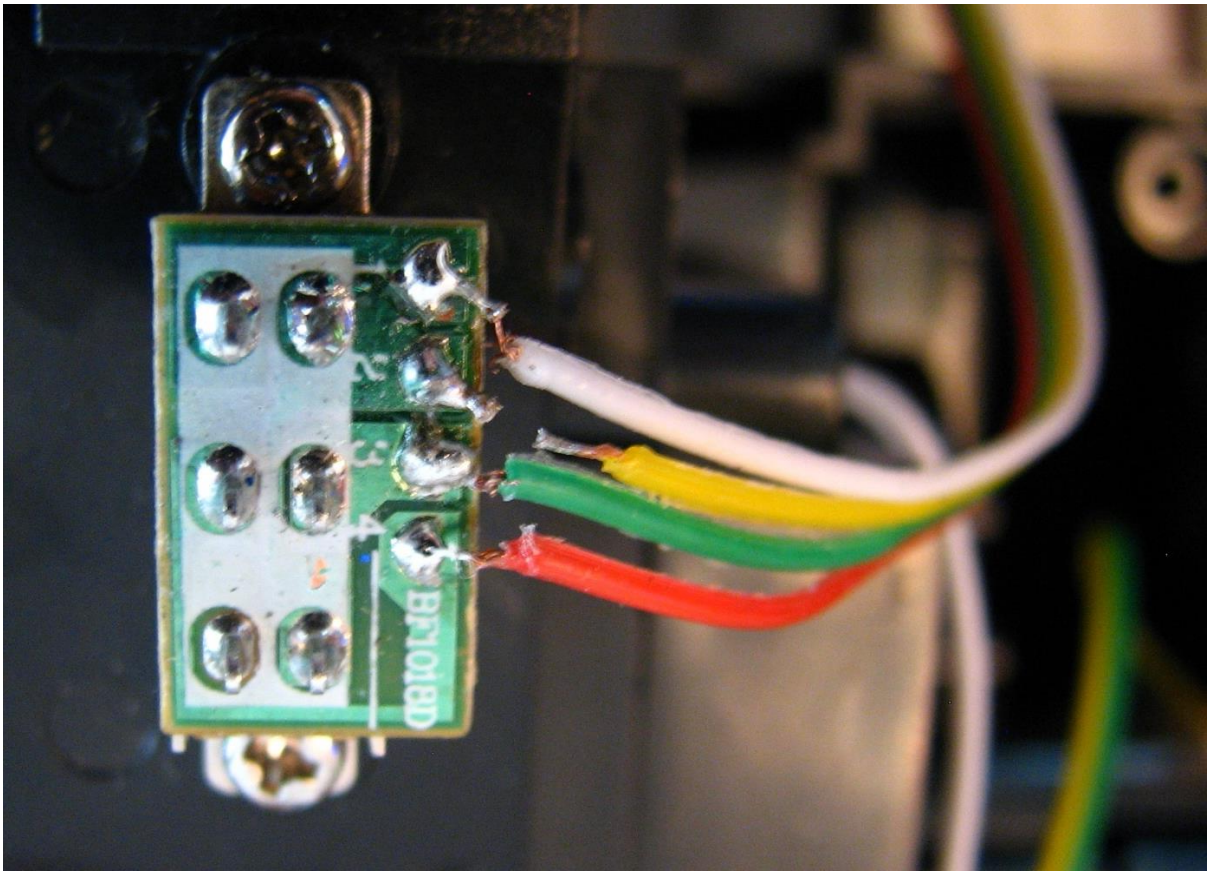
The 7/64" drill may be a bit too small but the 1/8" may not leave the hole snug enough, so try the 7/64 and if that does not allow the screw to start try reaming it out a little with the 7/64" bit. If that does not work, then try the 1/8", but be very careful NOT to ream out the hole. Just drill as little as possible.

Trap Finishing off:

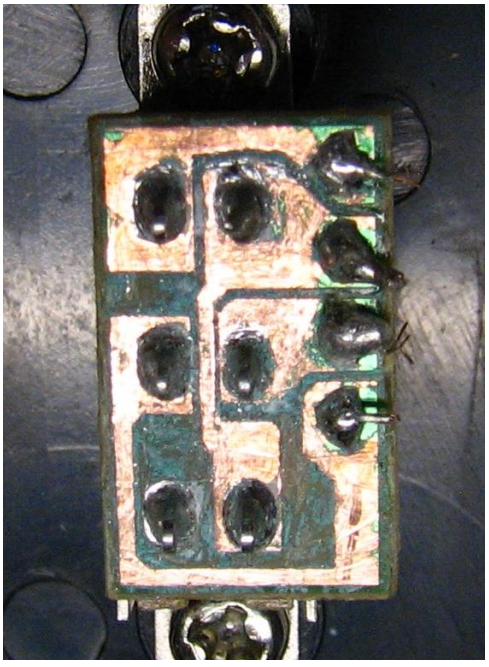
Flip the trap upside down and set a pair of wheels in place and just press over the connector until it snaps in. Do the same for the other wheel pair.

Apply any of the decals that came with your Spirit Trap if you wish, and possibly do some painting or weathering of the trap – have fun!

Appendix A: Walmart Ghost Trap with Pedal Wiring



Revealing the circuit board traces (I scraped off the white silk screen and green solder mask):



OFF

ON

White: Enable Lights, enables lights when near +3VDC (700Kohm equivalent pullup resistor)
Yellow: Battery Input to board (needs Battery +3VDC to operate)
Green: +3VDV (Battery "+", positive)
Red: GND (Ground, Battery "-", negative)

Switch operations:
OFF:

1) Yellow and Green wires are shorted together
    a. Power is connected to the board and will drain the batteries
    b. Draws approximately 0.5mA when nothing is happening
2) White and Red wires are shorted together
    a. White is forced to GND
    b. Disables lights from being on all the time

ON:

1) Green and Yellow wires are shorted together
    a. Power is connected to the board and will drain the batteries
    b. Draws an average of 75mA when the LEDs are cycling
        i. 20mA per LED and on average 3 LEDs on (Power and 2 in the display)
           10mA for the electronics
2) Red wire is open
    a. Pulled up to +3VDC
    b. Enables LEDs to be turned on

Putting a fresh set of 400mAh AA zinc carbon batteries (cheap "general purpose" type batteries) in this trap and leaving the power switch "OFF" should last about a month before the batteries were dead. If you started with 2000mAh alkaline batteries, you would get about 4 to 6 months before the batteries were dead without ever turning the trap on.

Connection options:

1) Same operation as black slide power switch using the SPDT Cosmetic toggle switch:
    - Solder Green and Yellow wires together. Power will always be on. Cover with heat shrink or electrical tape to make sure it does not short to anything.
    - Connect Red and White to two adjacent terminals on the SPST switch

    Switch operation:
    ON (up) – Lights normally off but the pedal can operate the trap doors
    OFF – Same as ON (up), lights off, but pedal can operate the trap doors
    ON (down) – Continuous sequencing of the lights, pedal can also operate the trap doors

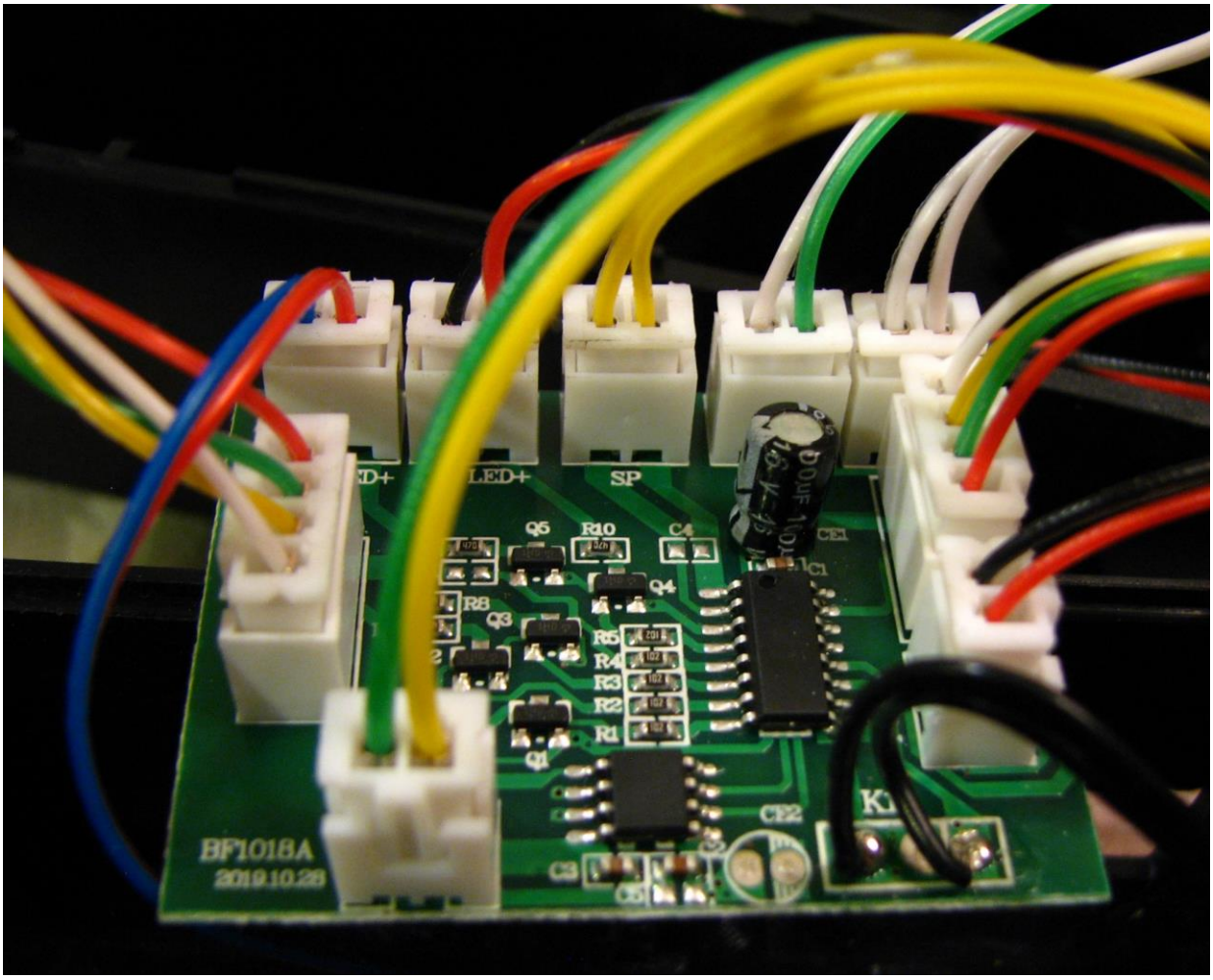
2) Suggested wiring for SPDT toggle switch with different operation:
    - Leave the Red and White wires open. Cover with heat shrink or electrical tape to make sure they do not short onto something.
    - Connect the Yellow wire to the center connector and the Green wire to both outside connectors.

    Switch operation:
    ON (up) – will turn on the lights and the pedal will open/close the trap doors
    OFF – battery is actually disconnected, so no lights and pedal does not do anything
    ON (down) – same as ON (up), lights on and pedal can open/close the trap doors

3) Optimal wiring requires a DPDT toggle switch (not included in the cosmetic kit):
    - Connect Red and White wires to adjacent connections of one pole of a DPDT switch.
    - Connect the Yellow wire to the center connector and the Green wire to both outside connectors of the other pole of the switch

    Switch operation:
    ON (up) – Lights normally off but the pedal can operate the trap doors
    OFF – battery is actually disconnected, so no lights and pedal does not do anything
    ON (down) – will turn on the lights and the pedal will open/close the trap doors

Reference picture for plugging the wires back into the board:



There are two Red/Black 2 wire connections. One is labeled “Power” on the board and is used to connect to the battery. The other one is labeled “-R LED+” and goes to the power indicator LED next to the toggle switch.