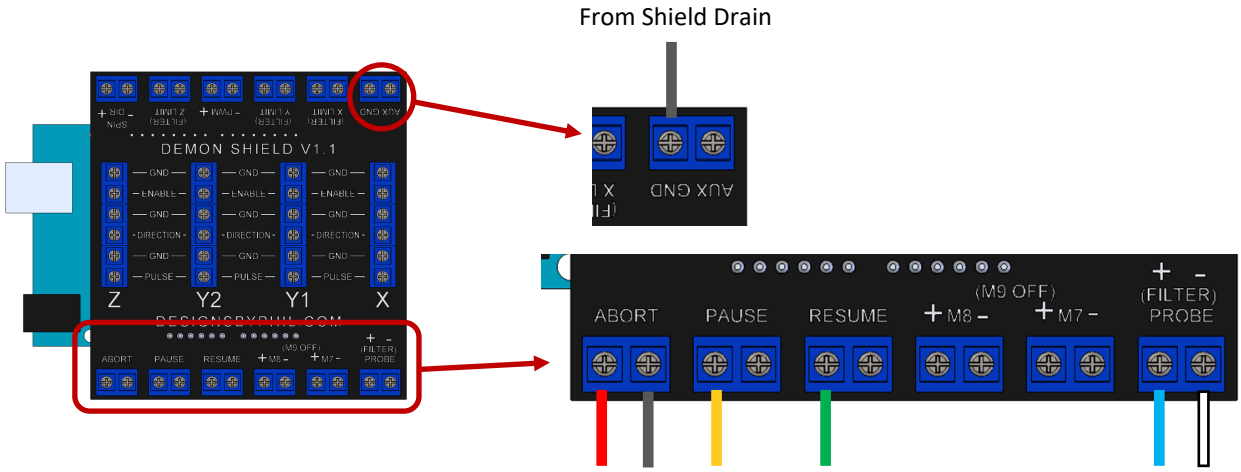
Wiring Instructions for the Designs By Phil, LLC Analog Control Enclosure—Parts Kit

What's Included:

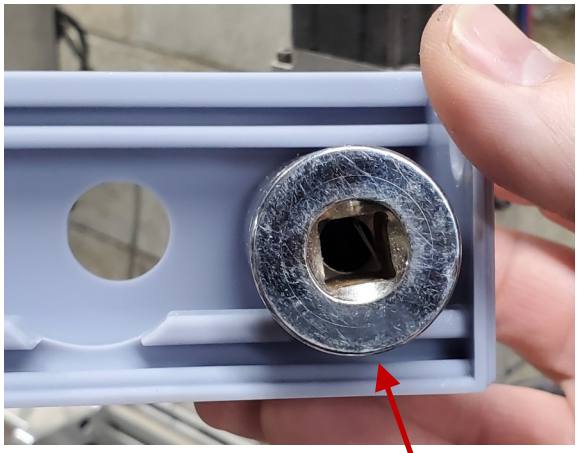
- 1x Enclosure
- 1x Red, 1x Yellow, 1x Green High Quality Momentary Push Buttons
- 1x Probe Jack and 1x Probe Plug
- 10 Feet of 18/6 Shielded Cable
- 1x Shield Drain Extension Wire (Black)
- 1x 3/16”Heat Shrink, 2x 1/4” Heat Shrink

18/6 Cable Connections Chart

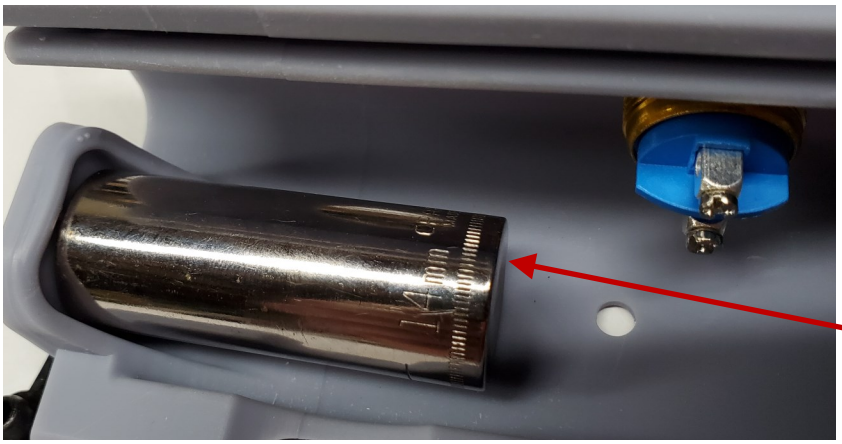
Conductor Color	Connection on Enclosure	Connection on Controller
Red	Red Push Button Lower Terminal	Abort Terminal Closest to USB Plug
Yellow	Yellow Push Button Lower Terminal	Pause Terminal Closest to USB Plug
Green	Green Push Button Lower Terminal	Resume Terminal Closest to USB Plug
Black	Thru All 3 Push Button Upper Terminals	Abort Terminal Farthest From USB Plug
Blue	Probe Center Solder	Probe (+) Terminal
White	Probe Outer Solder Point	Probe (-) Terminal



If you purchased the fully assembled Analog Controls, you can skip to the bottom of page 7 (STEP 9)



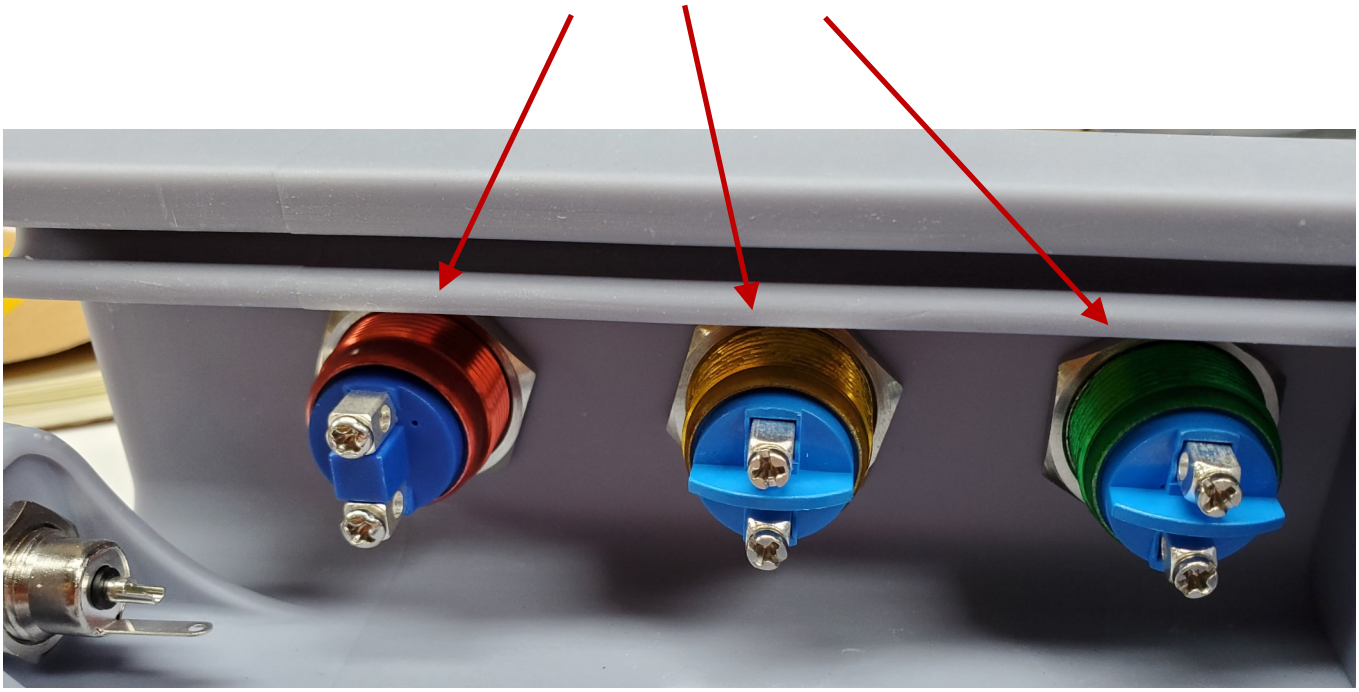
22mm socket



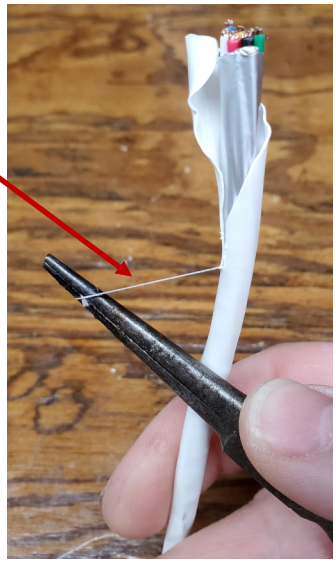
14mm socket

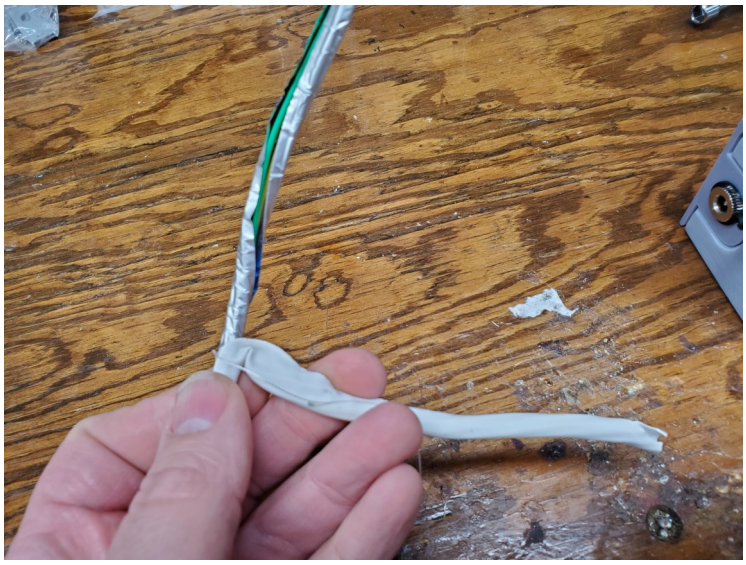
Step 1. Install the probe socket first using a **14mm** socket. If you don't, the push button bodies will interfere with the socket. Install the push buttons using a **22mm** socket after the probe . Rubber gasket goes on the outside under the head of the push button. Align the screw terminals vertically on all 3 push buttons as pictured below. Install the probe jack also with the ground pin down as shown. **DO NOT OVER TIGHTEN!**

Align Screw Terminals Vertically



Easy Strip String

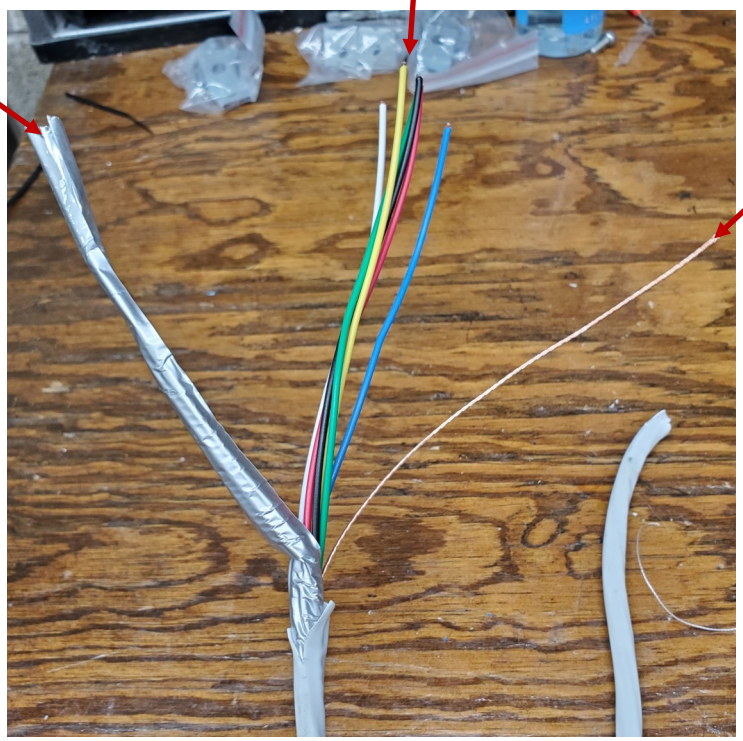




Step 2. On one end of the 18/6 cable, use the nylon string that's between the plastic jacket and the aluminum foil to strip the jacket back 6 inches. Then cut off excess plastic jacket, nylon string, the drain wire, and aluminum foil. On this end of the cable, the shield does not get grounded.

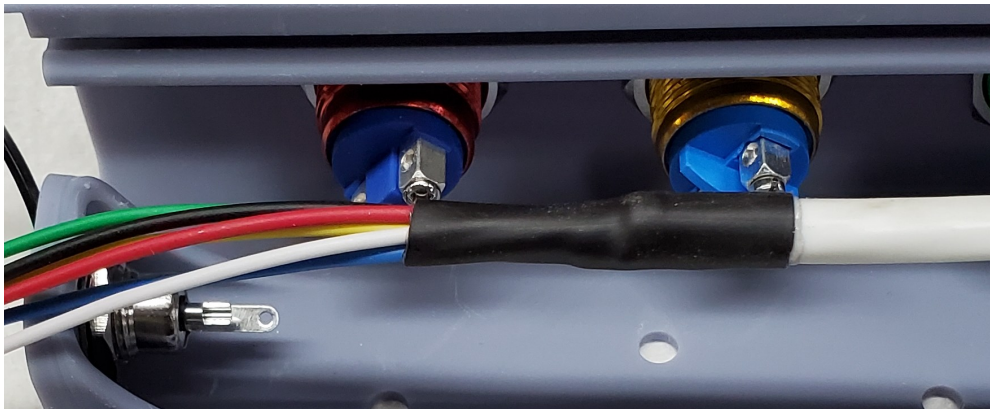
6 conductors

Shield Foil

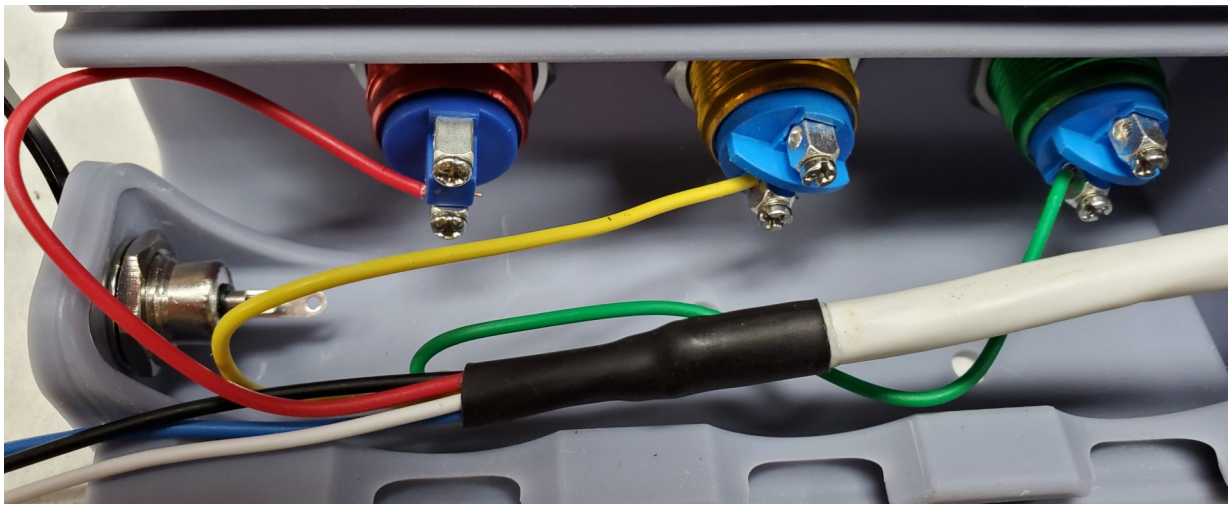


Shield Drain

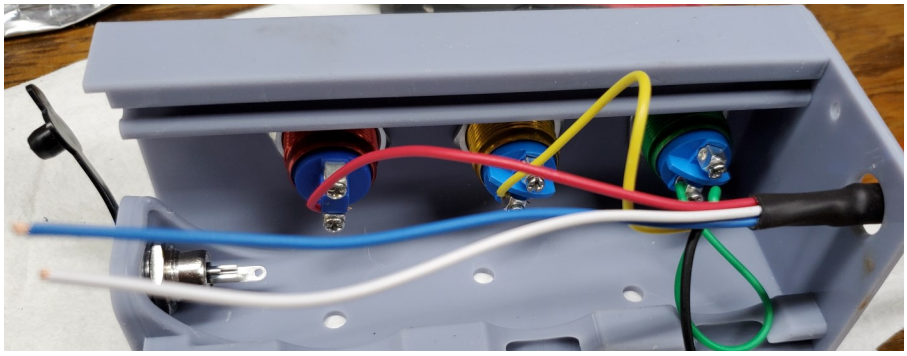
(Twisted Bare Wire)

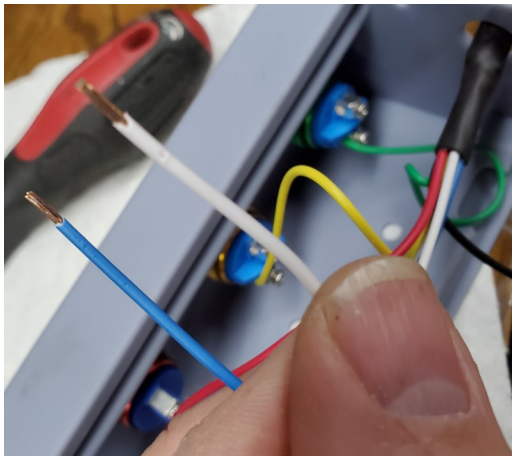


Step 3. Take one of the 1/4” heat shrink tube pieces and shrink it half way over the trim point on the jacket as pictured above.

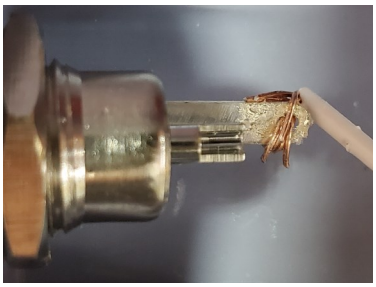


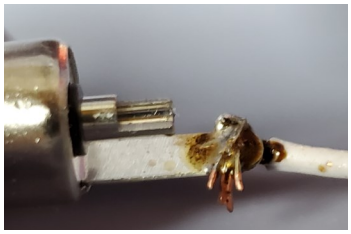
Step 4. Strip about 0.2 inches from the **RED**, **YELLOW**, and **GREEN** wire. Match the wire color up with the push button it goes to. Install wires in the lower terminals. It is a good idea to align the screw terminals vertically before this so as to make an easy path for the ground wire to pass through all 3 buttons (like the red push button in this picture).



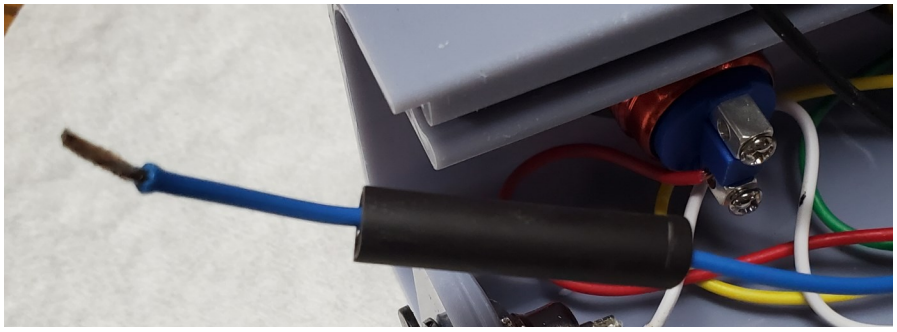


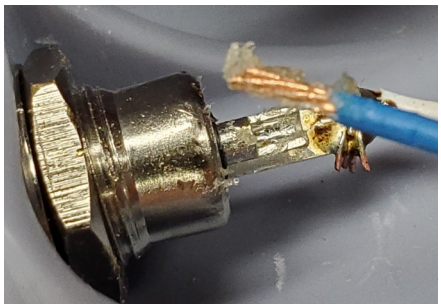
Step 5. Strip about 1/4” of the jacket off of both wires. Solder the **WHITE** wire onto the outer ground pin on the probe jack. Make sure to use flux. Trim any extra strands if easy to do. Next, Solder the **BLUE** wire to the center post, You can also choose to put the heat shrink on the **BLUE** wire instead of the **WHITE**. Either way will shield against shorts.

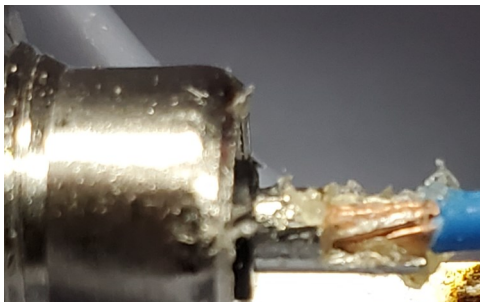


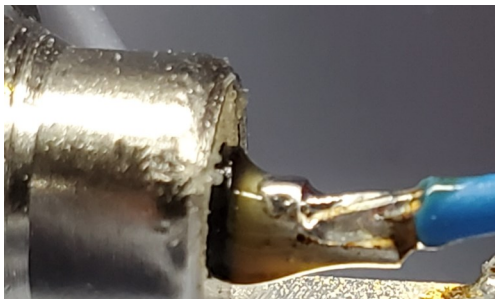


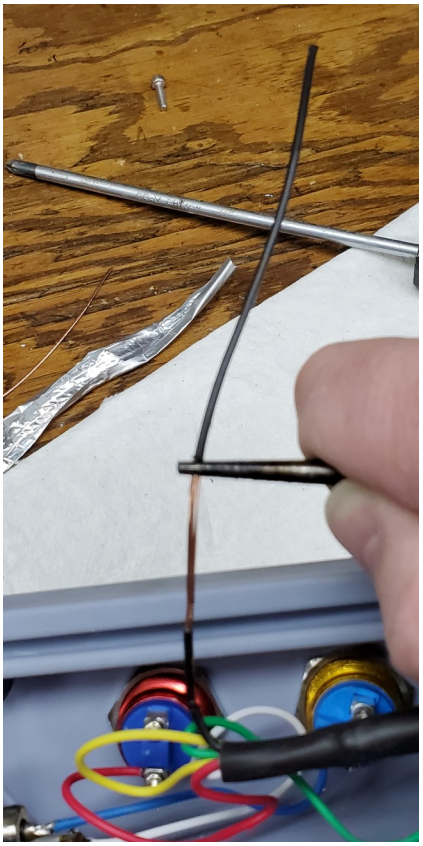
Step 6. Take the 3/16” heat shrink tube piece (smallest) and slide it on to the **BLUE** wire, out of the way. Tin the end on the **BLUE** wire then put flux on the center socket where the **BLUE** wire goes. Then solder the blue wire to the pin. Then slide the 3/16” heat shrink back over the solder connection as far as it will go and heat shrink. You can rub the heat shield of the soldering iron over the heat shrink to shrink it in tight spaces. The resin enclosure can take the heat of a heat gun on low.

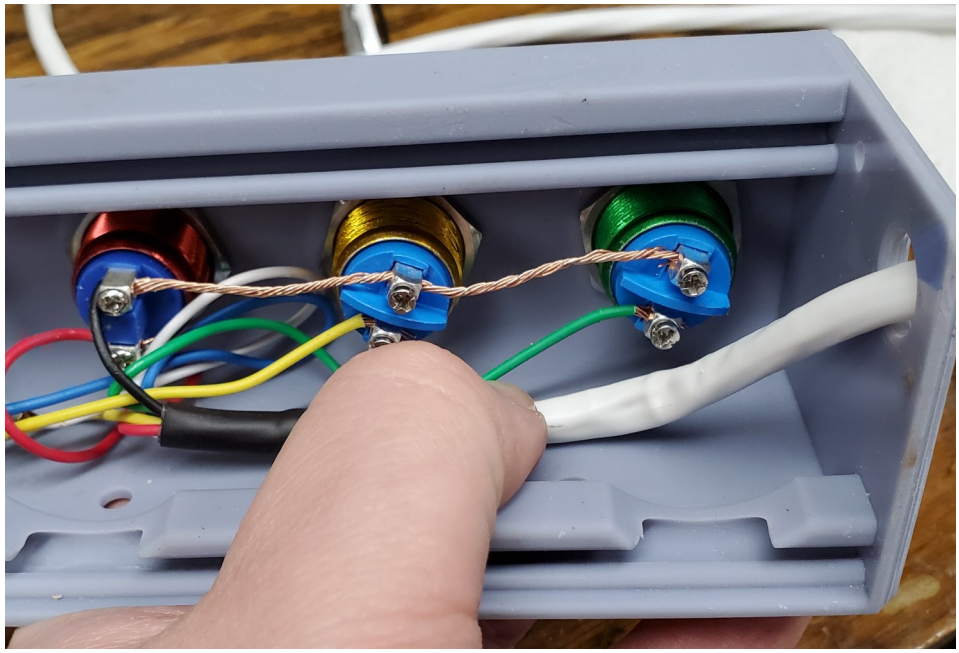






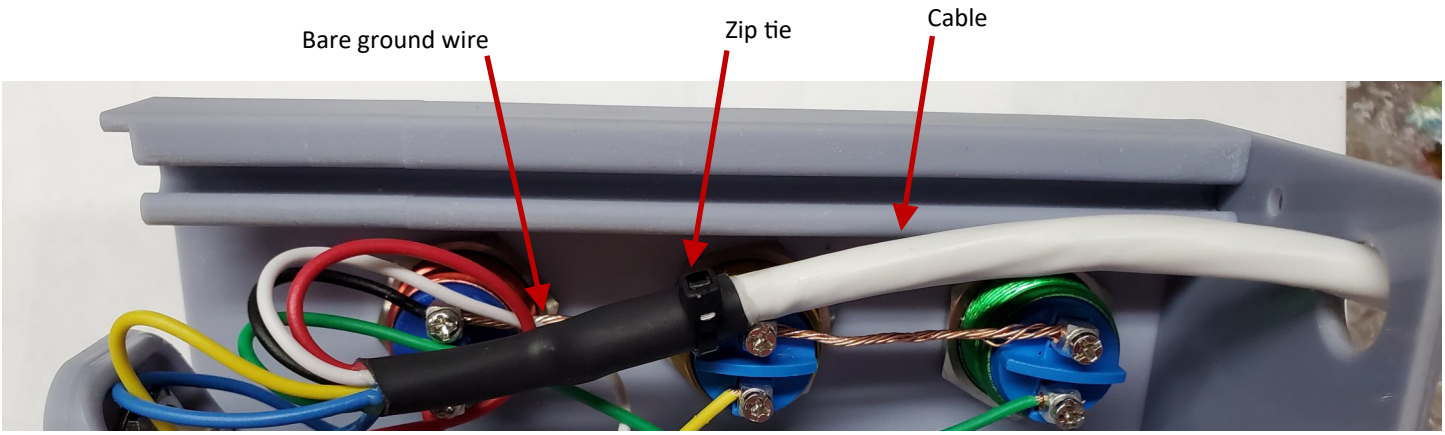


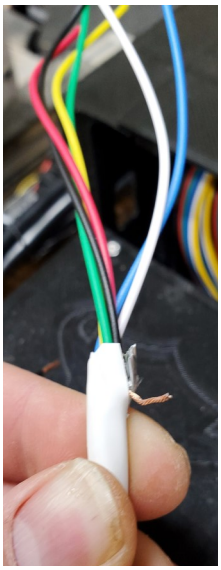


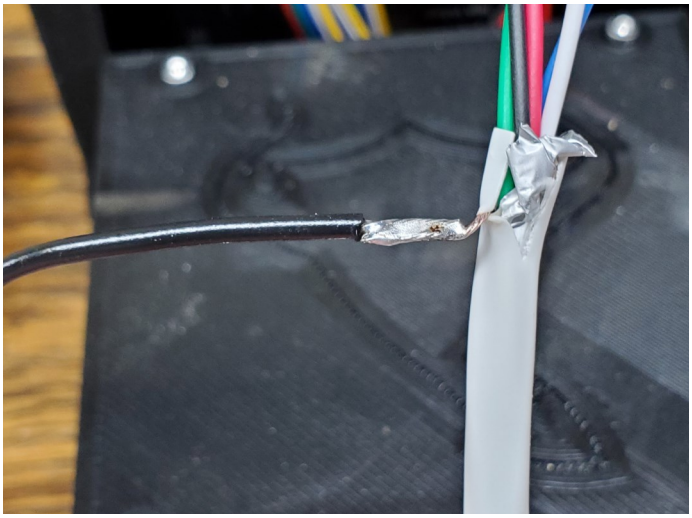


Step 7. Now strip 3.5 inches of the black wire and feed it through all 3 upper push button's screw terminals as shown. You can use a zip tie to keep the wire from pulling out and putting strain on the connections. Future revisions will have wire tie anchors molded into the enclosure.

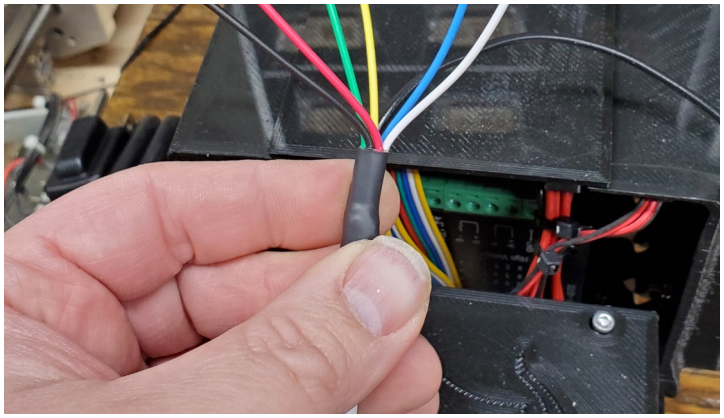
Use a zip tie on around the heat shrink of the cable and the bare ground wire (black wire) between the red button and the yellow button to keep the wire from pulling out and putting strain on the connections. Future revisions will have wire tie anchors molded into the enclosure.



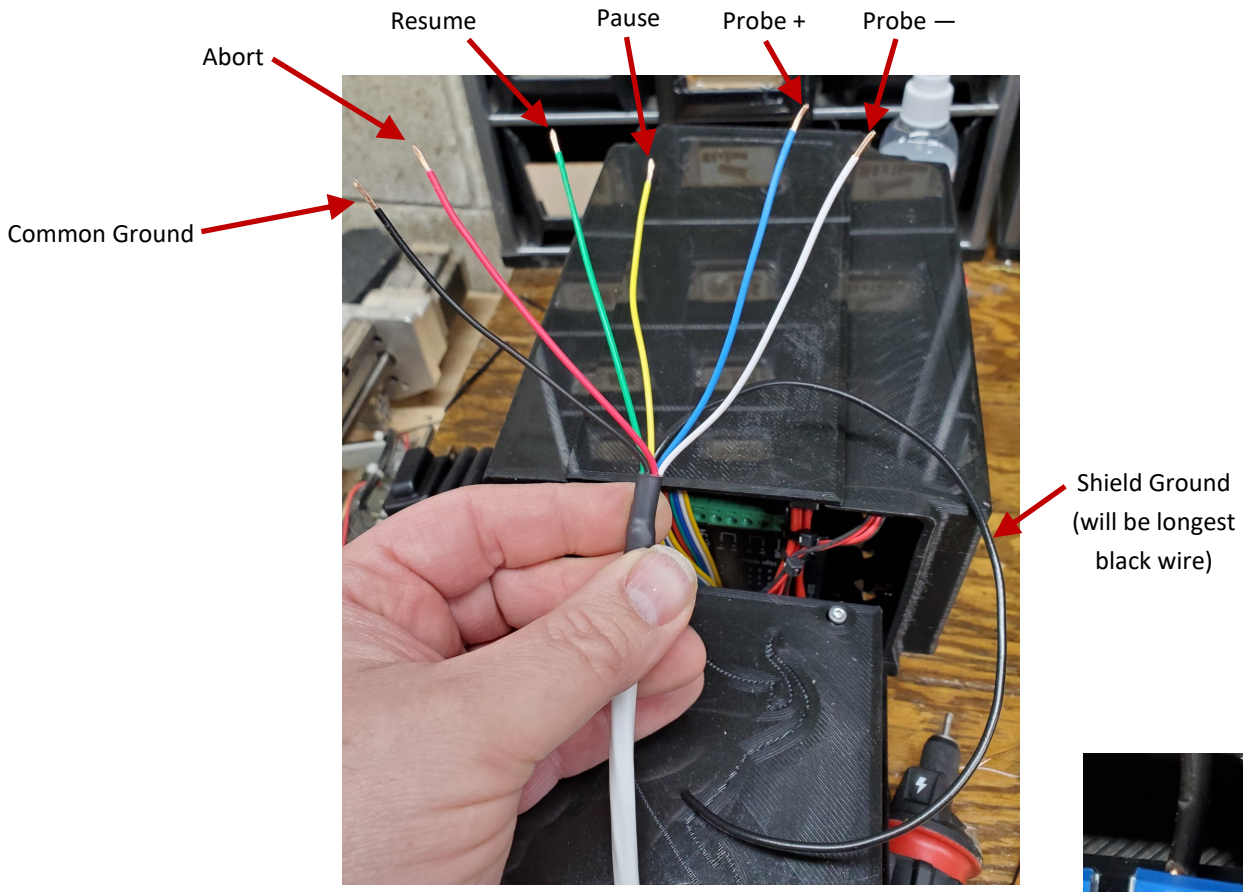
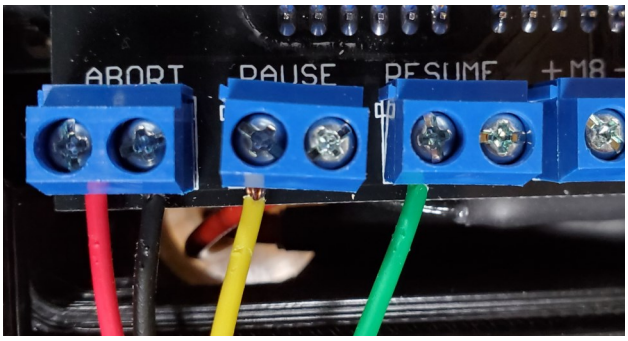
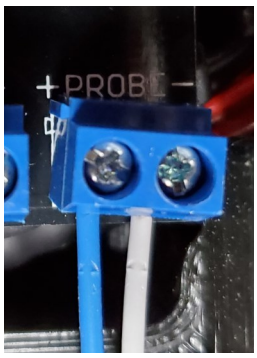
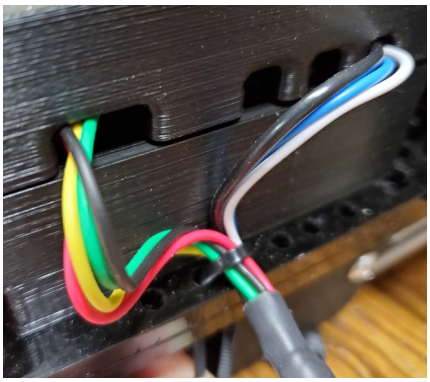




Step 8. On the other end of the 18/6 cable, strip 4 inches of the jacket back. Cut away the excess jacket, aluminum foil, and nylon strip string ONLY. DO NOT CUT AWAY ALL OF THE DRAIN WIRE. Trim the drain wire so about 1/4” is still sticking out. Flux and tin the end. Take the extra black wire included and strip, flux, and tin the end of that. Then, solder the extra black wire to the drain wire as shown above. Take the second piece of 1/4” shrink tubing and slide it over the area you just soldered. Shrink it so it covers the end of the jacket and the solder joint.



Step 9. At this point, you can use the screw holes on the bottom of the enclosure or the back or top of the enclosure cover. The enclosure is resin so it’s strong, but can be brittle. DO NOT OVER TIGHTEN OR USE TAPPERED SCREWS. The screws should flat under the head, not angled. (see below)



Step 10. See 18/6 Cable Connections Chart on page 1. Connect the 7 wires as shown. **RED** is abort positive. **Shorter BLACK** is push button common. **YELLOW** is pause positive. **GREEN** is resume positive. **BLUE** is probe positive. **WHITE** is probe negative. **Longer BLACK** is shield drain.