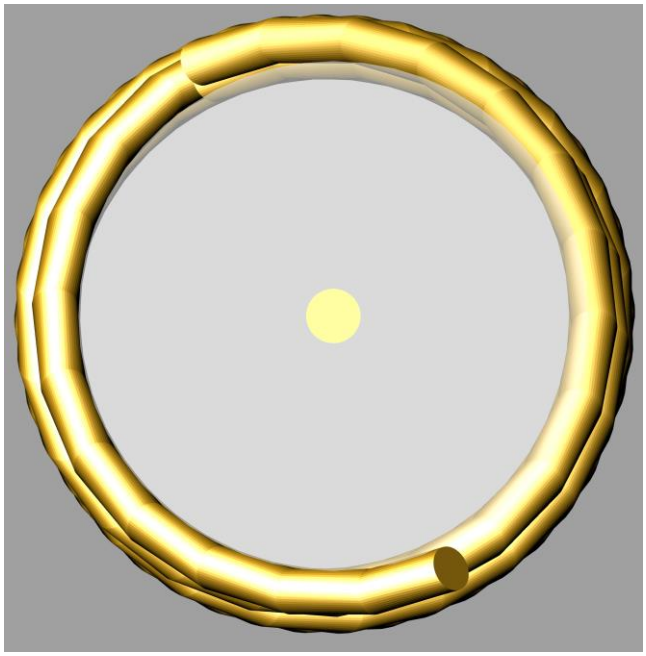
Creating a Power Cable

Note: Follow steps 1-6 to create the end of the cable that connects to the PMT (though there are a few extra steps described on at the end of this document for non-telescoping PMTs). Continue with steps 7-8 to create the end of the cable that plugs into the power supply.

1. Cut yourself a piece of red HV cable, about three feet long.

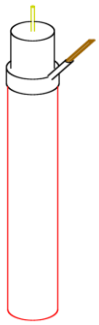
2. Cut away two inches of the outside plastic on one end of the cable. The end of the cable should look like the illustration below.



3. Unravel the braided copper wire, and twist 1/3 of it together, cut away the rest.

4. Use a wire stripper to remove the plastic surrounding the central wire in the cable

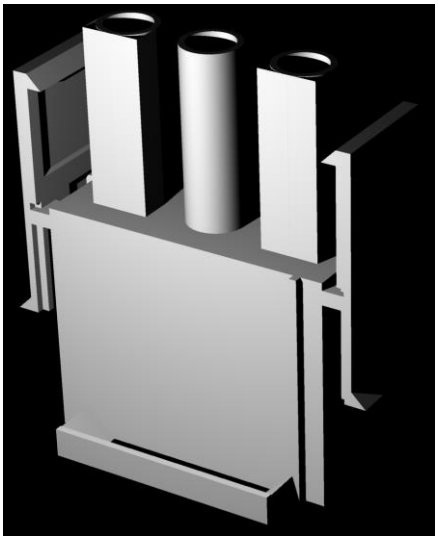
5. Place heat-shrink over the braided wire; shrink it using a heat gun. This will keep you from receiving a nasty shock later.



6. Place heat-shrink at the point of your first incision into the wire, shrink it. This once again keeps you safe against electricity.

7. Obtain 2 female ended high-voltage pins and solder them to the two ends you have created.

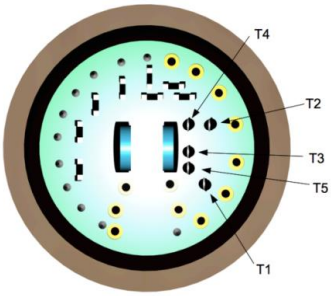
8. Obtain a voltage head and insert the pins. They will click when fully inserted. If you have the flat part of the voltage head facing down and away from you, you will place in the ends such that the grounding wire (one covered in black heat-shrink) is on the right.

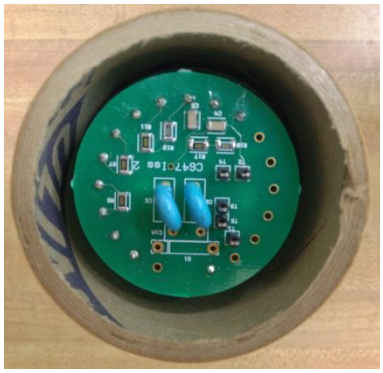


This is an illustration of the voltage head used in CROP. Notice the strip of plastic down the length of the rectangular portion. This line indicates the space in which the **High Voltage** wire is placed.

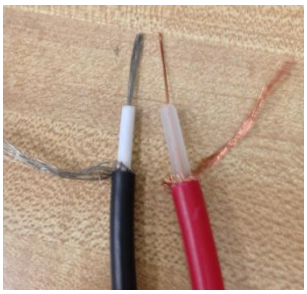
Non-Telescoping Tubes

After you put the PMT in its tube, you now have the task of wiring it.

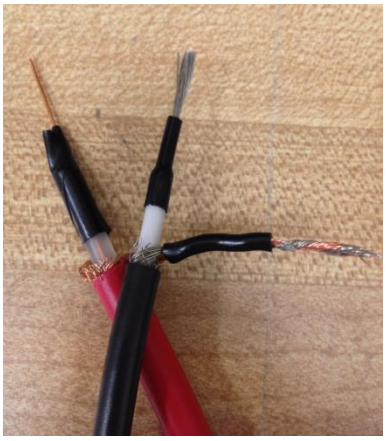


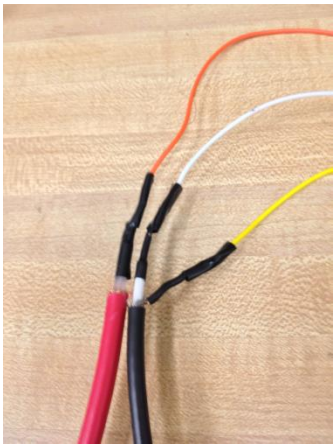


First, you must acquire about three feet of a red high voltage (HV) cable and a black signal cable. Strip both wires at the ends so you have about two inches of bare wire to work with. It may be difficult to strip since the wires are rather thick. Unbraid both of the outer wires and cut about 2/3 of the outer wire away. Strip the inner wire about an inch from the top.

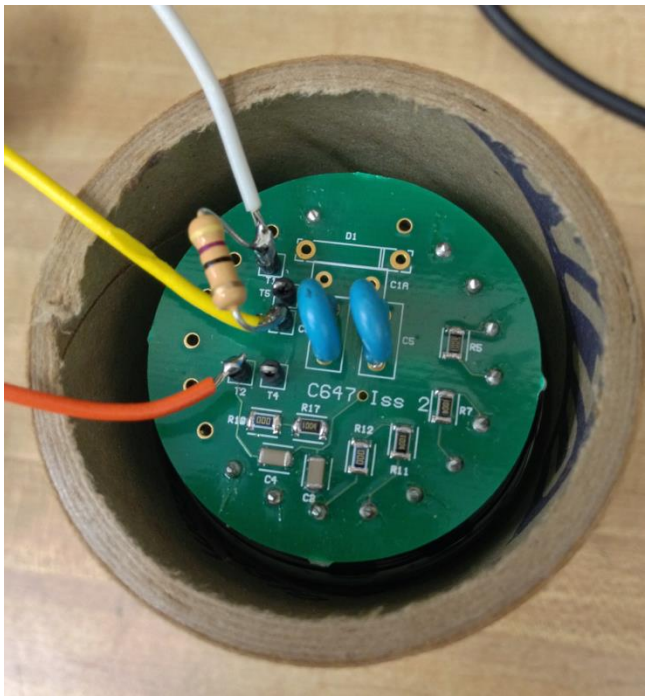


Twist the two outer wires together and wrap the three wires with heat shrink or electrical tape to prevent you from getting shocked. Then, gather three colored wires. I have chosen orange, yellow, and white. Solder the white wire to the inner wire of the black signal cable. Solder the orange wire to the inner wire of the red HV cable. Solder the yellow wire to the twisted outer wires.





Solder the white wire to T1 on the PMT, and then solder the orange wire to T2 and the yellow to T3. Then place a 50 Ω resistor between T1 and T3. A 50 Ω resistor has the color bands of gold, black, dark red, and yellow. Cap or caulk the PMT so it is light tight. Now you are ready to test it. If the PMT is new, make sure you remove the black sticker at the bottom of the PMT so it can receive signals!



Gluing a PMT

Before gluing on the PMT, make sure the PMT has been cleaned with acetone as described on page 26. Gluing a PMT is a rather simple task. First, place optical grease on the glass portion of the PMT and the remaining open surface inside the collar. Place the PMT inside the collar and press firmly. Wrap the collar up to the PMT with electrical tape so light does not enter through the top.