

Control Board to  
Fan Cable



# Materials

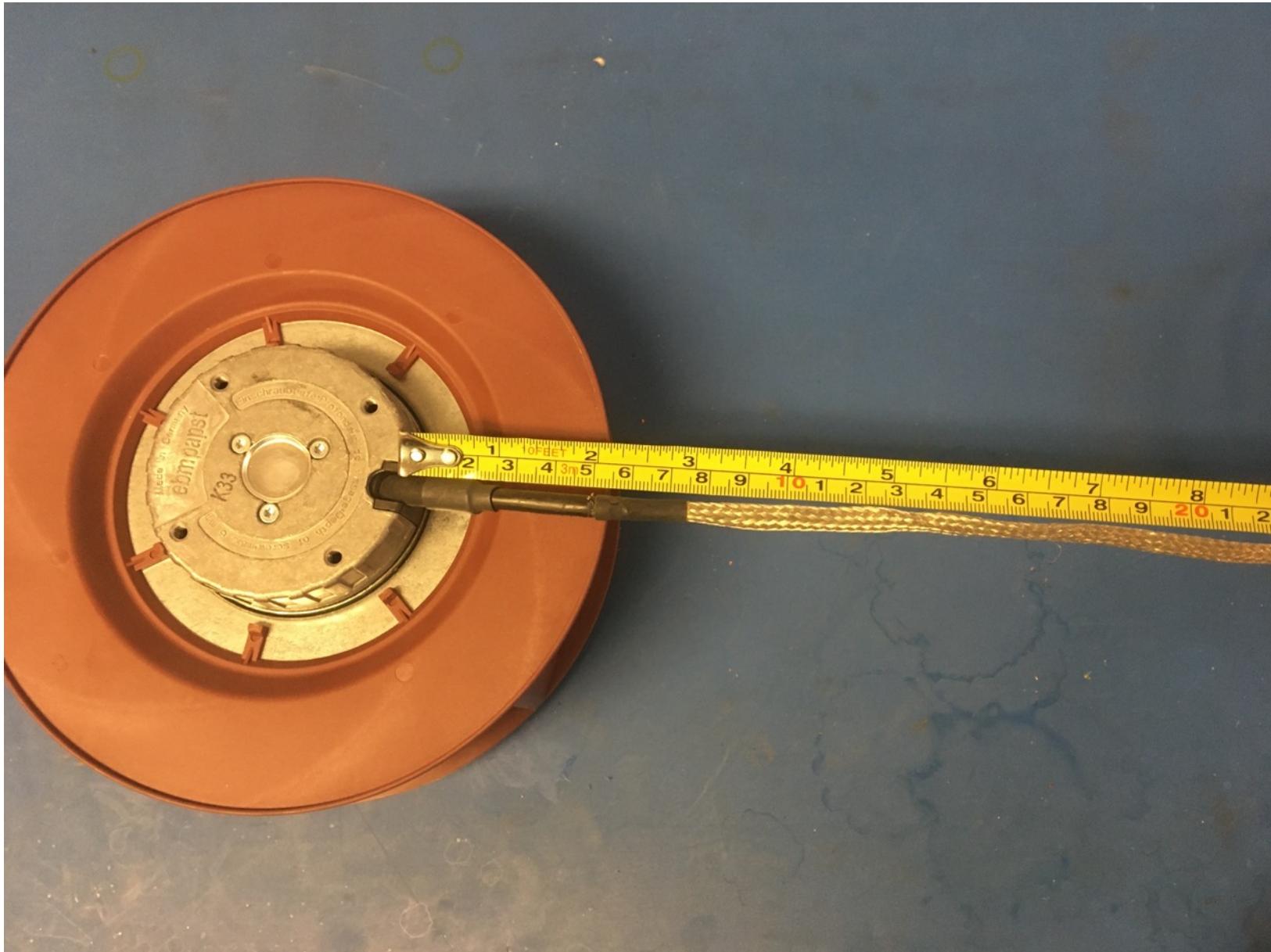


# Tools

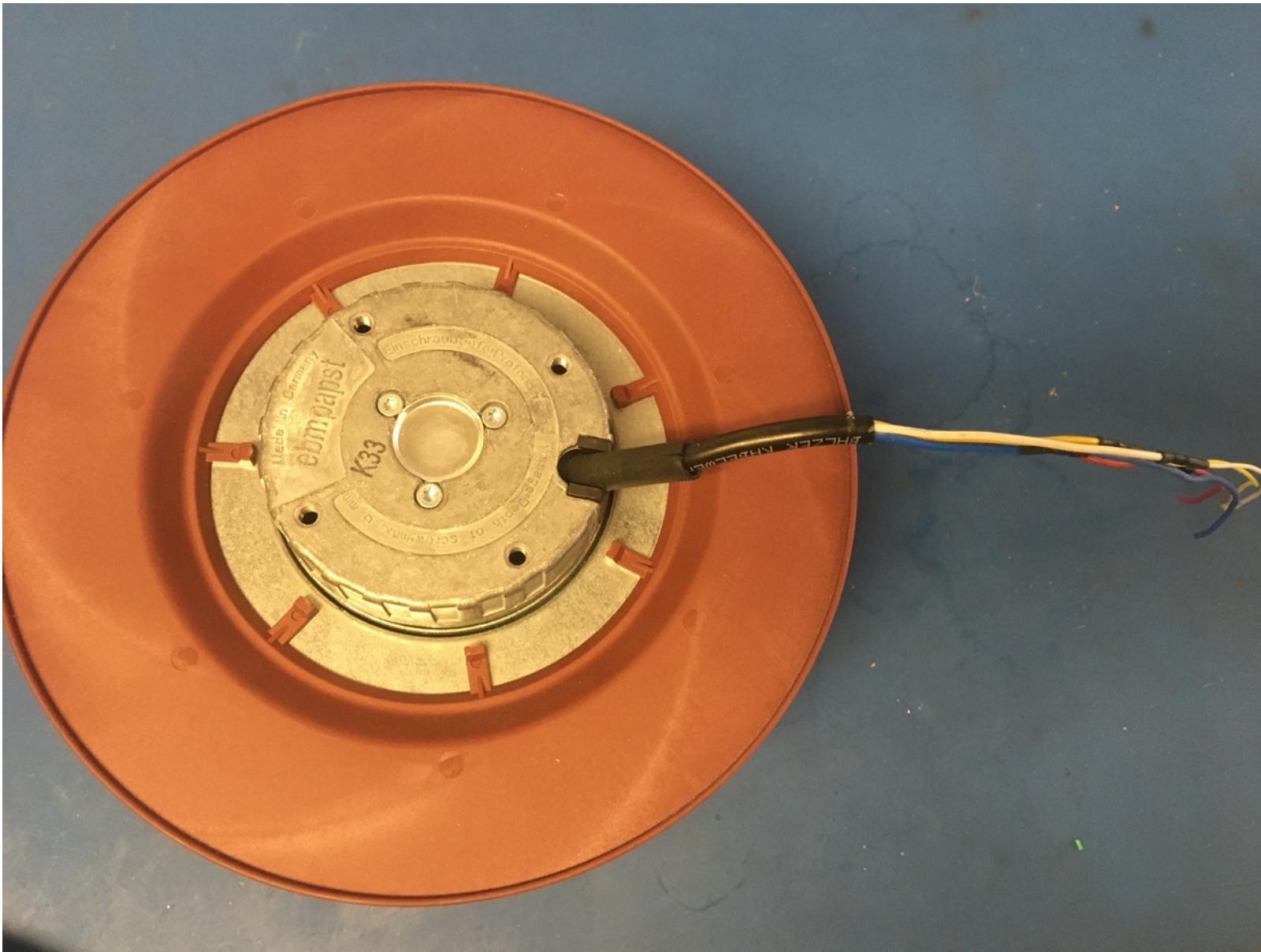
# KK 254 Crimping Tool



If starting with a used fan, trim the existing wire harness to 8in. If starting this process with a new fan, skip to slide 7.

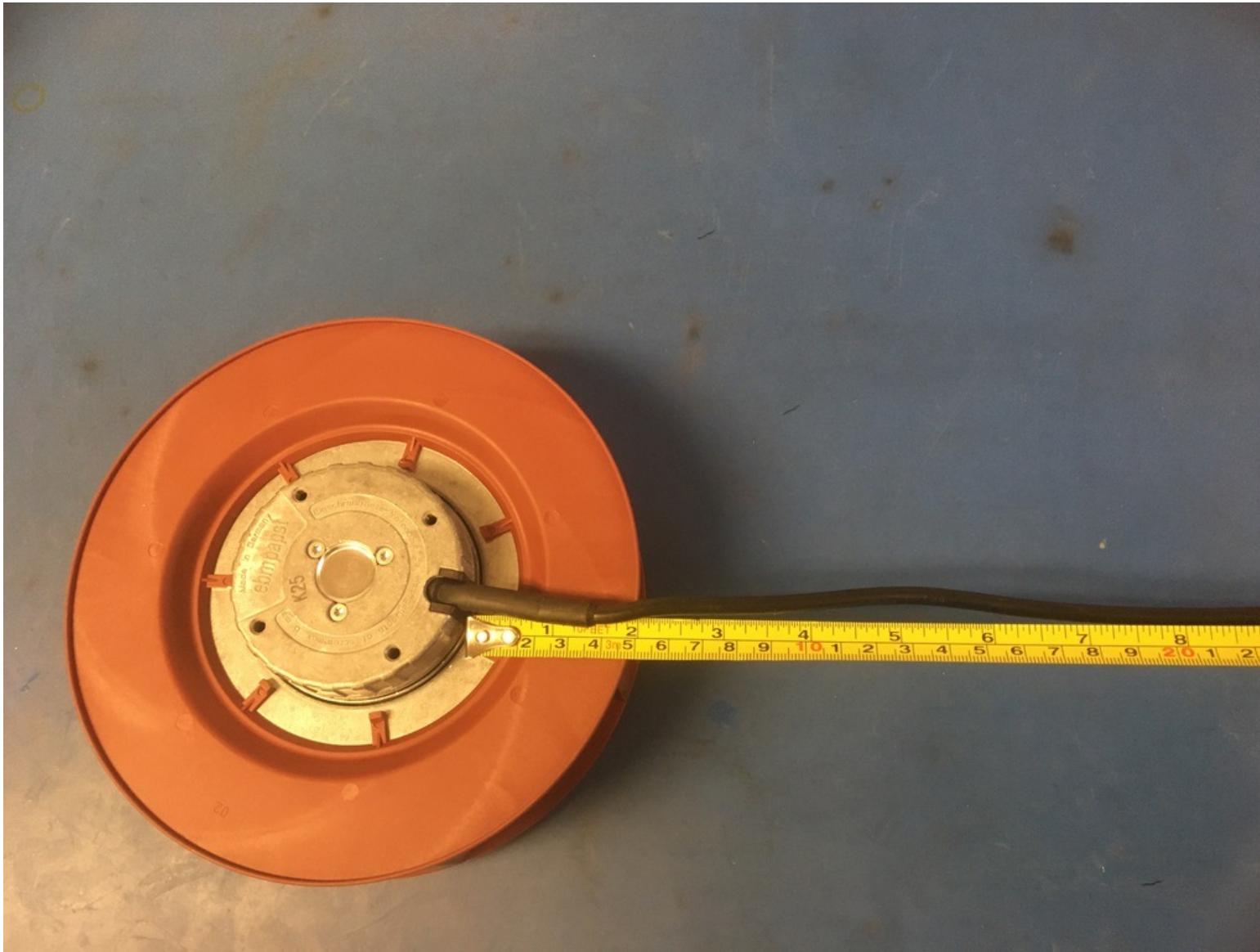


Remove the shrink tube and metal braid.

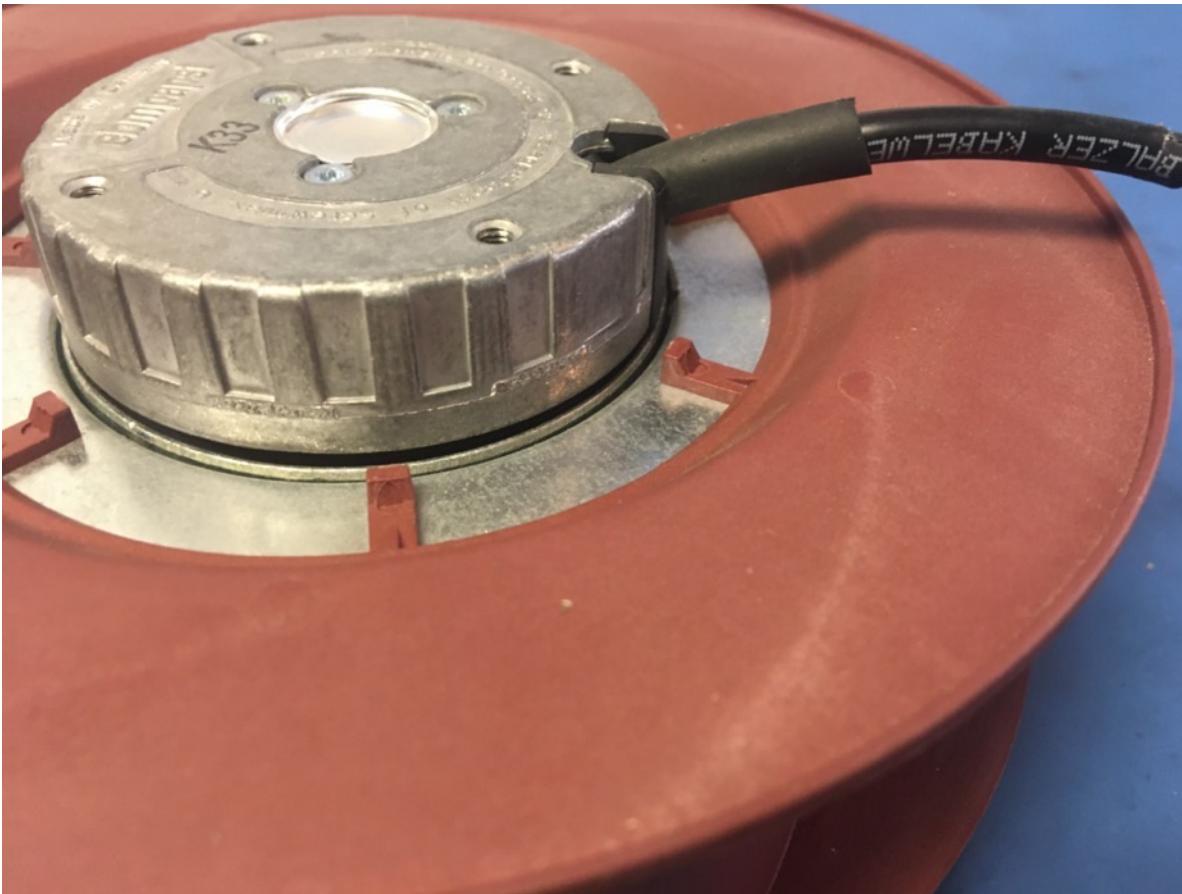


## New fan

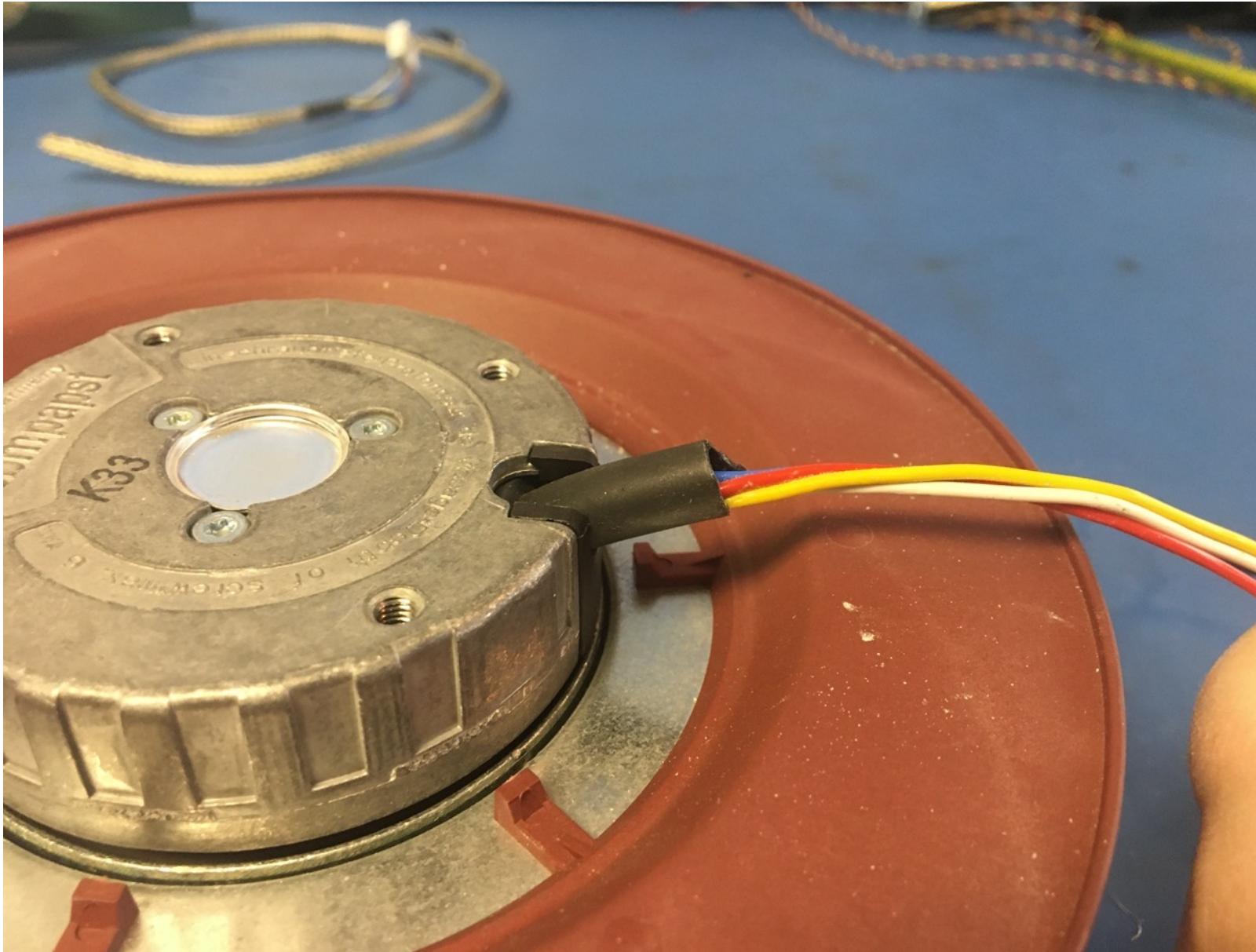
If starting this process with a new fan, trim the existing harness to be 8in long. Remove the the black isolation up until the shrink tube. Be careful not to damage the fan's wires. Skip this slide if the fan is used.



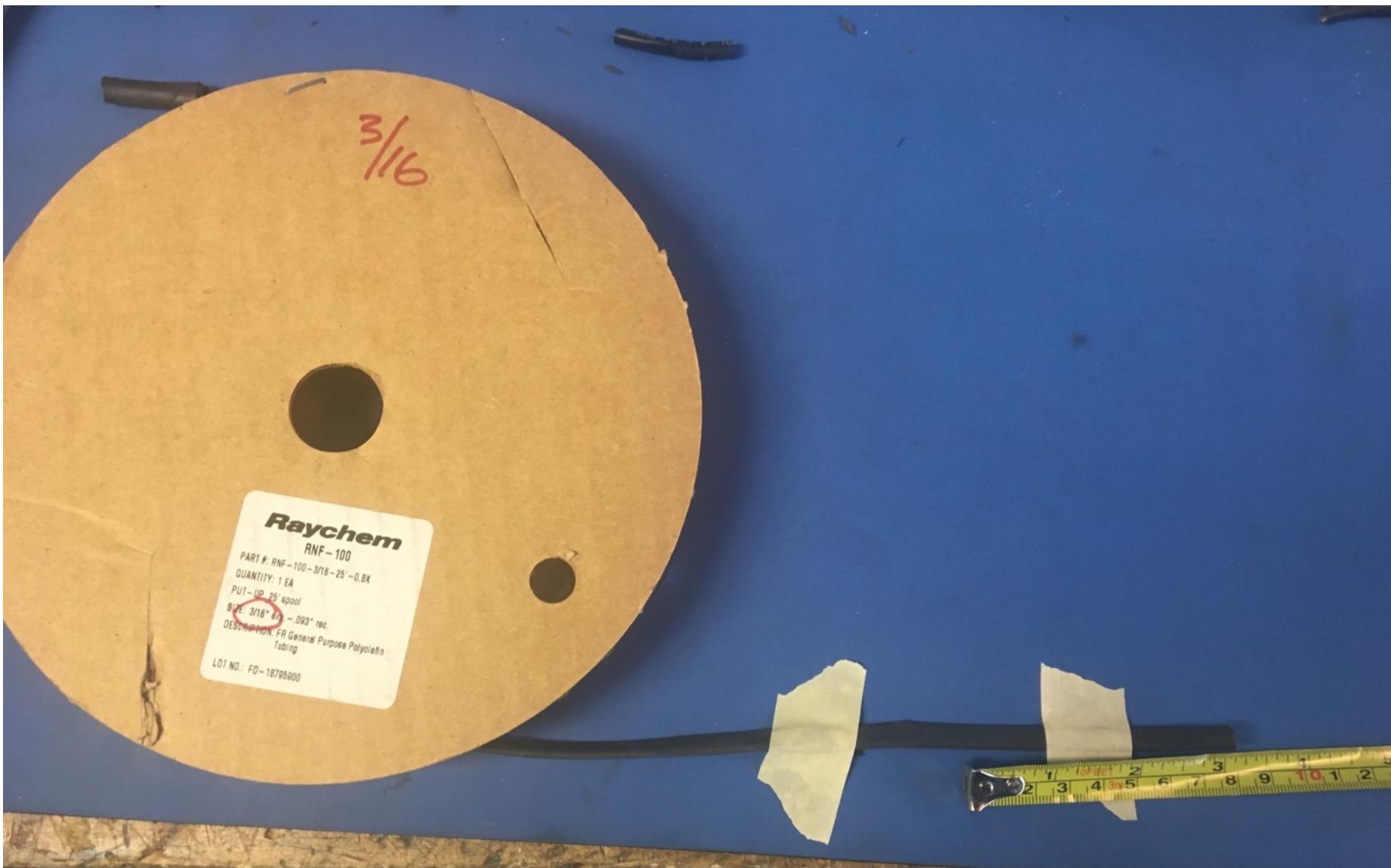
Remove the black isolation. To do this, cut into the shrink tube that's overtop the isolation until the end of the isolation is found.  
Then cut the black isolation free being careful not to cut the fan's wires.



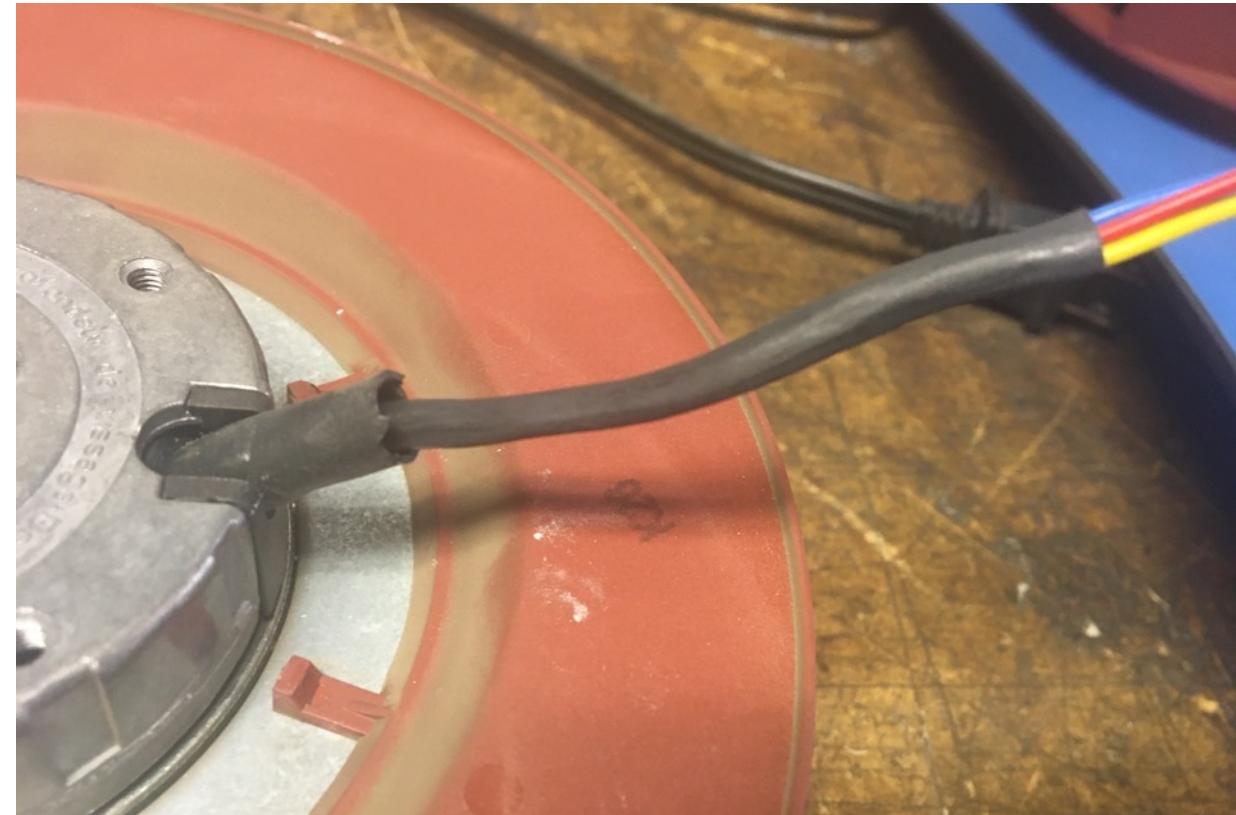
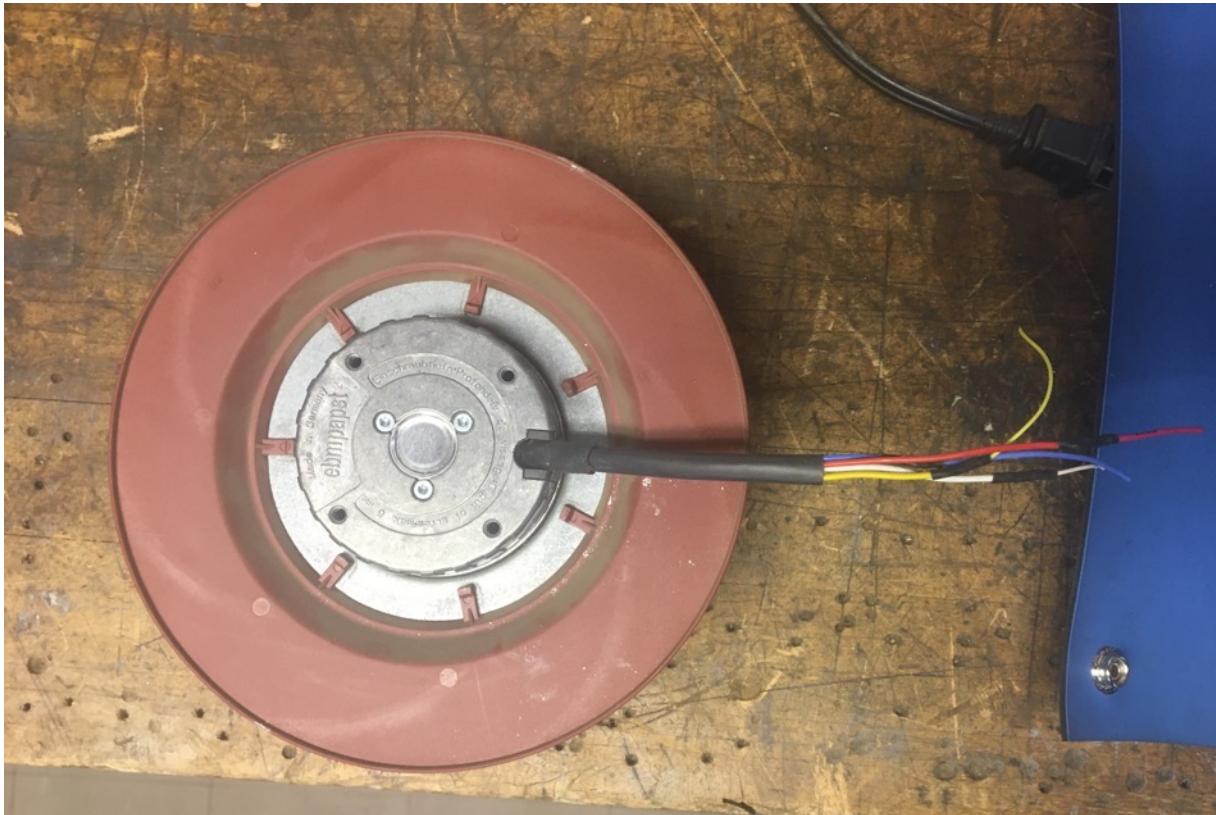
Shorten the shrink tube that was cut into until its parallel with the edge of the metal on the fan.



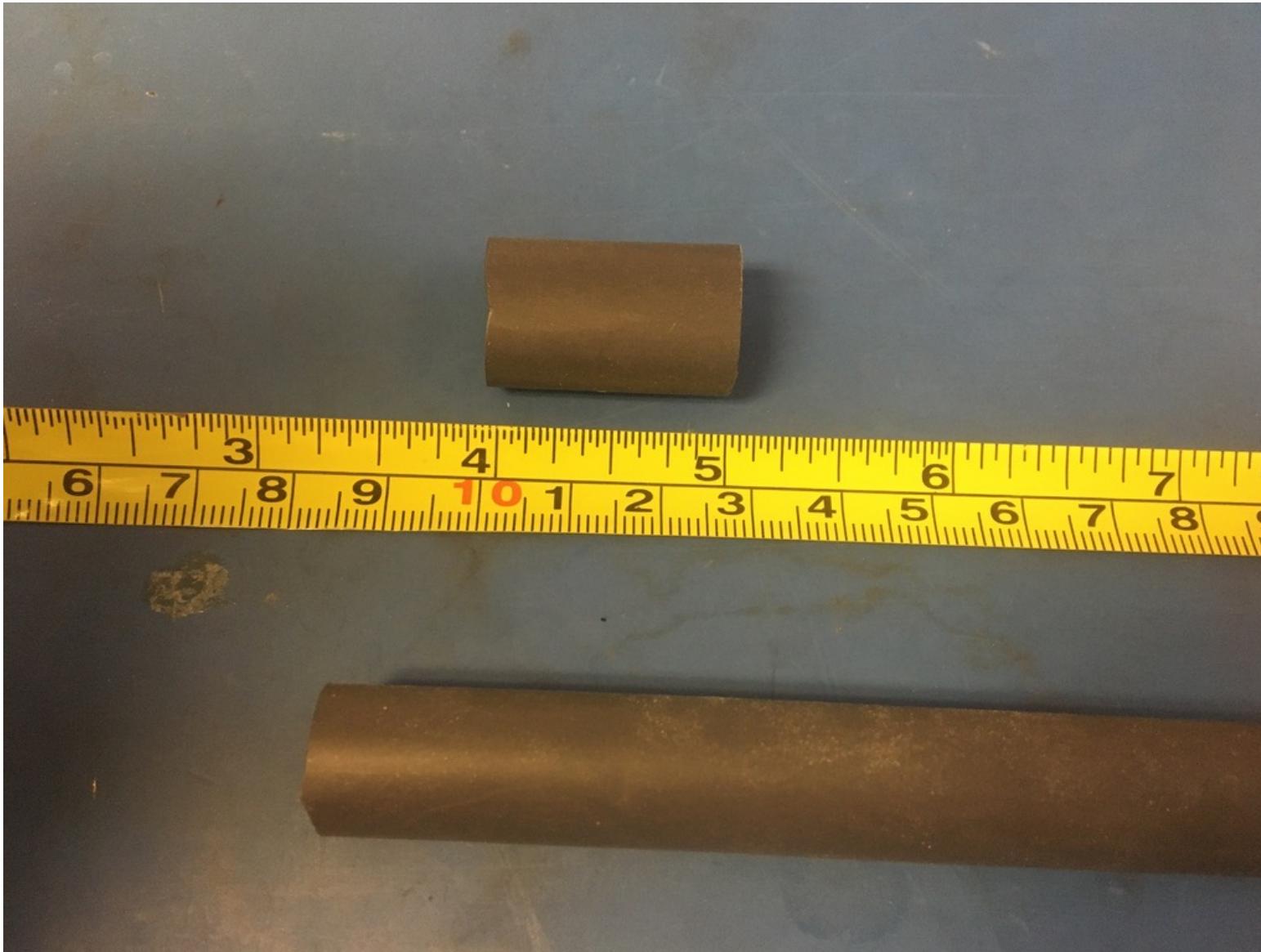
Measure out and cut one length of 3/16in non-adhesive shrink tube that's 3in long.



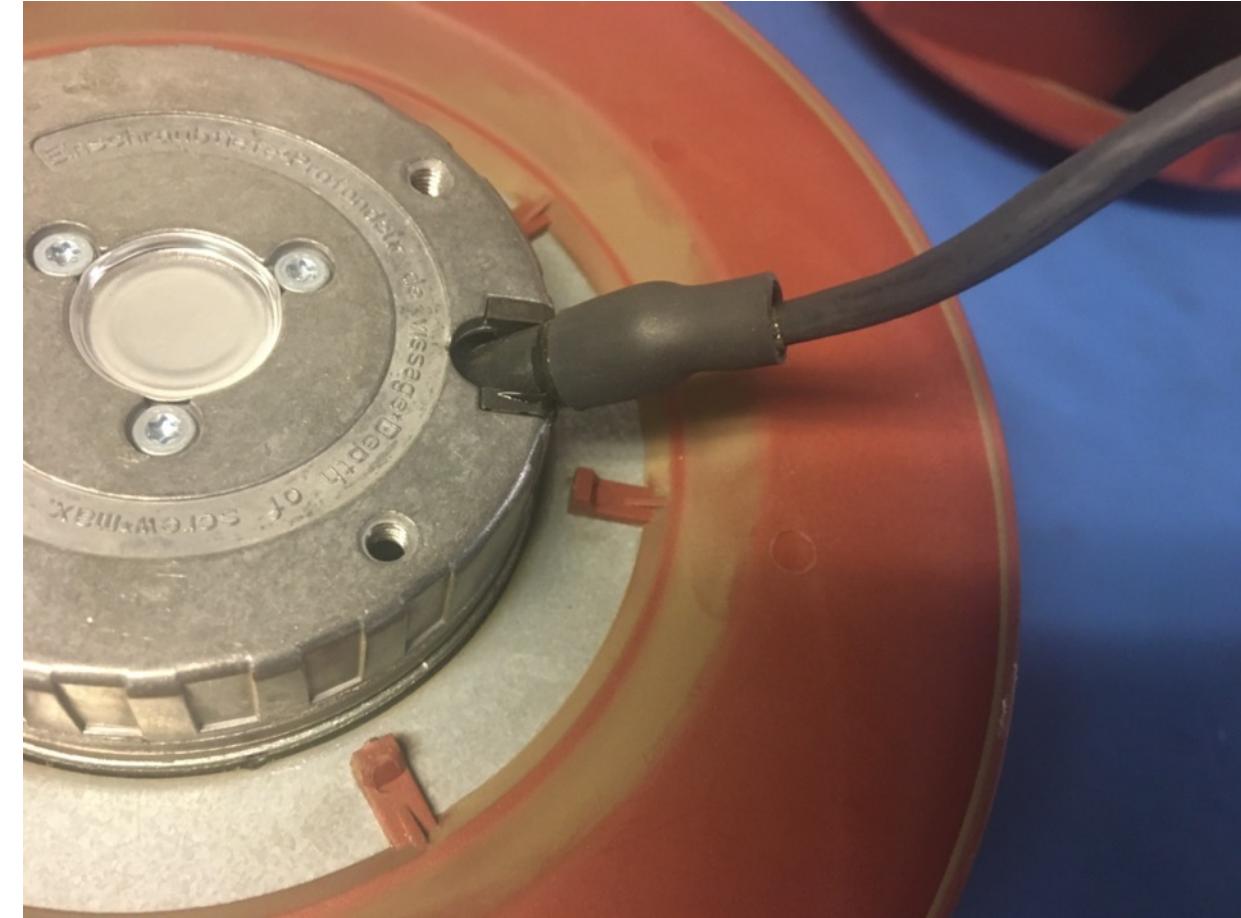
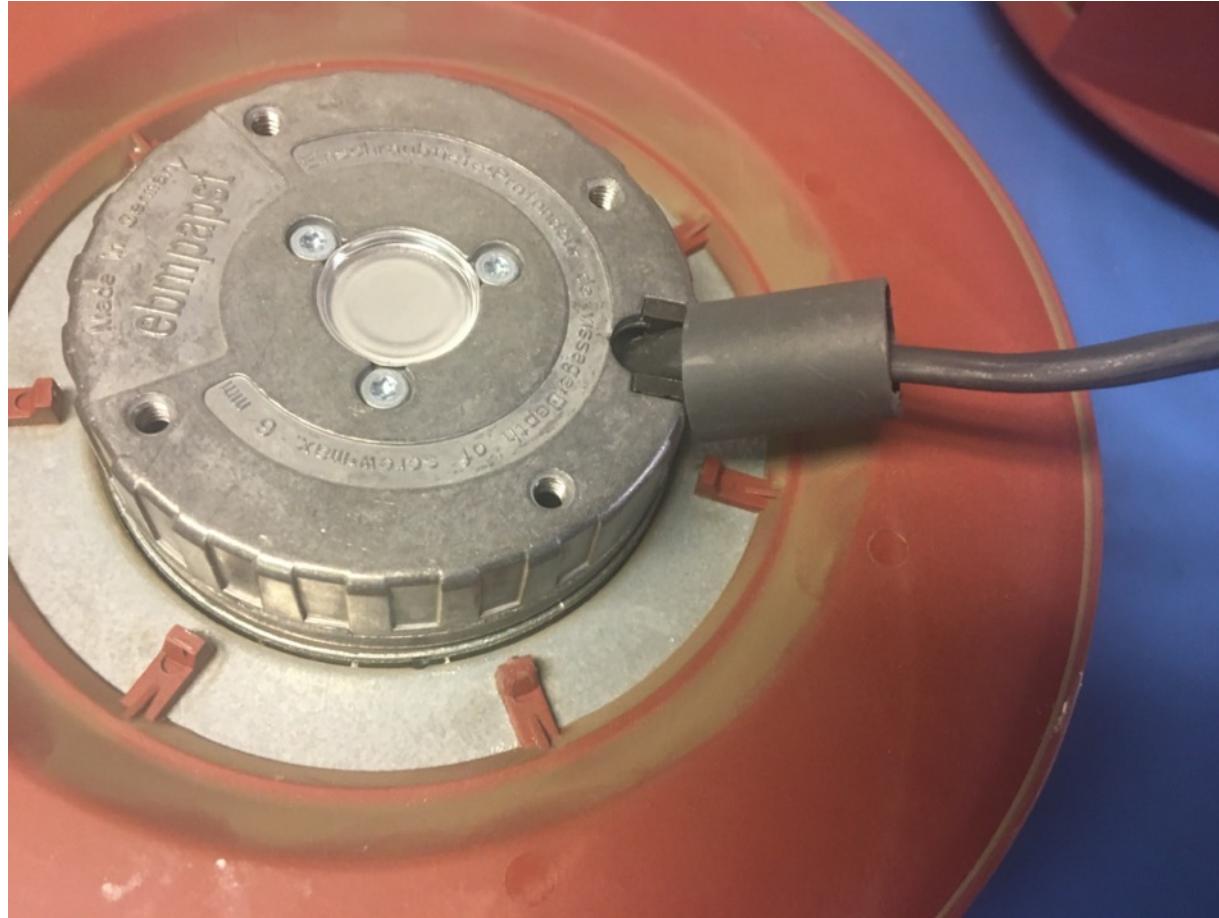
Put the piece of shrink tube onto the fan wires and slide as far as it will go toward the fan. It should even go under the existing piece of shrink tube a little ways. Apply the heat gun.



Measure out and cut one length of 12.7mm adhesive shrink tube that's 1in long.



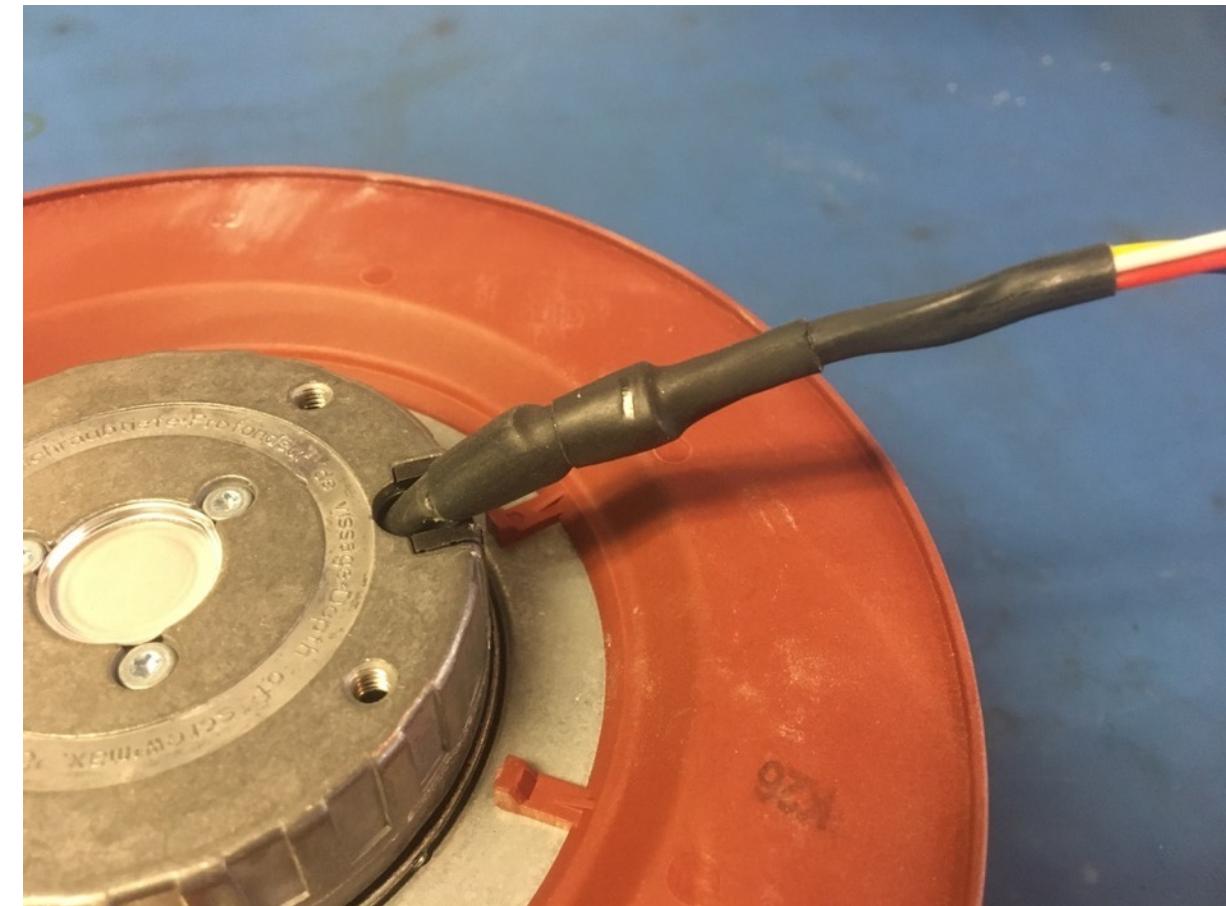
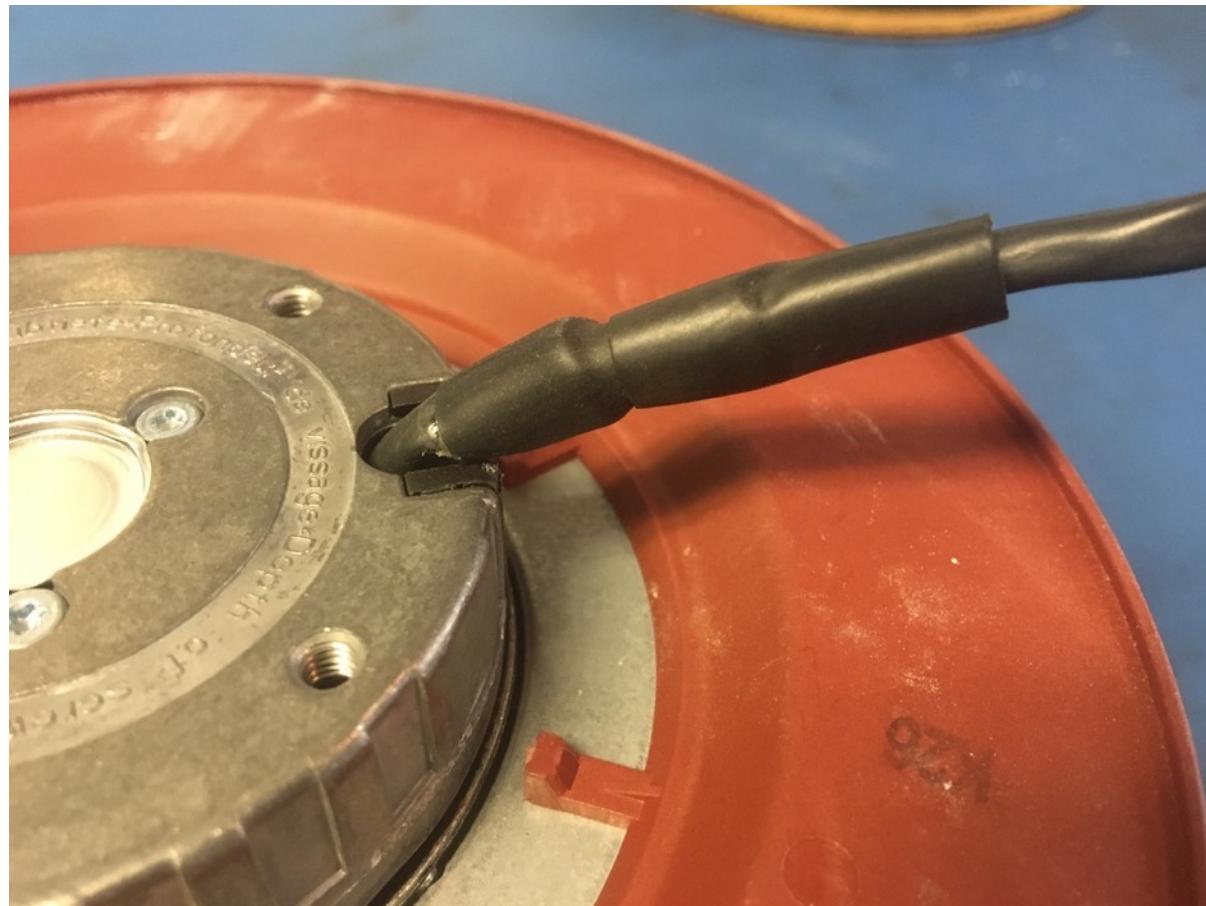
Place the piece of shrink tube over the existing shrink tube and 3/16in shrink tube joint. Apply the heat gun.



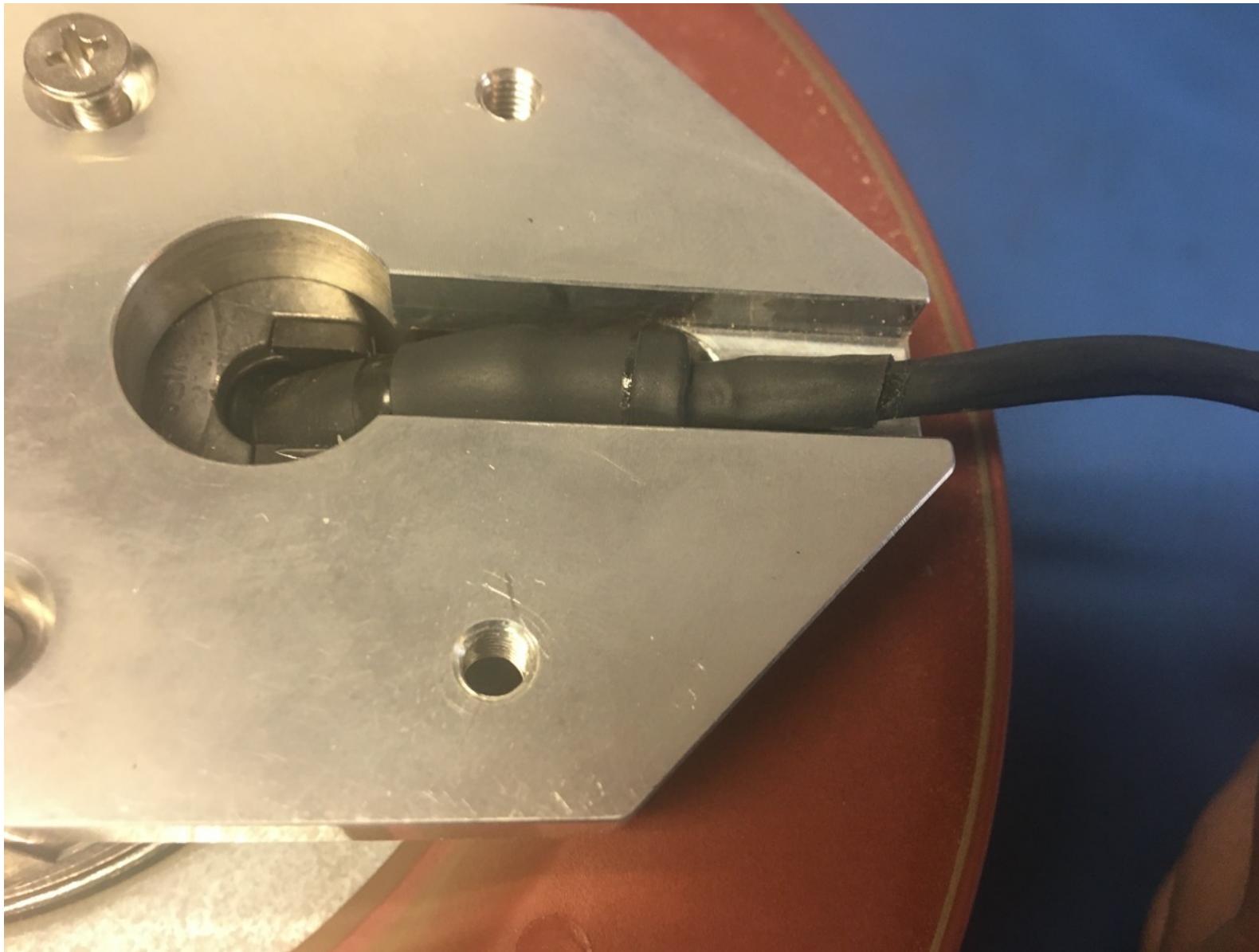
Measure out and cut one length of 6.4mm adhesive shrink tube that's 1in long.



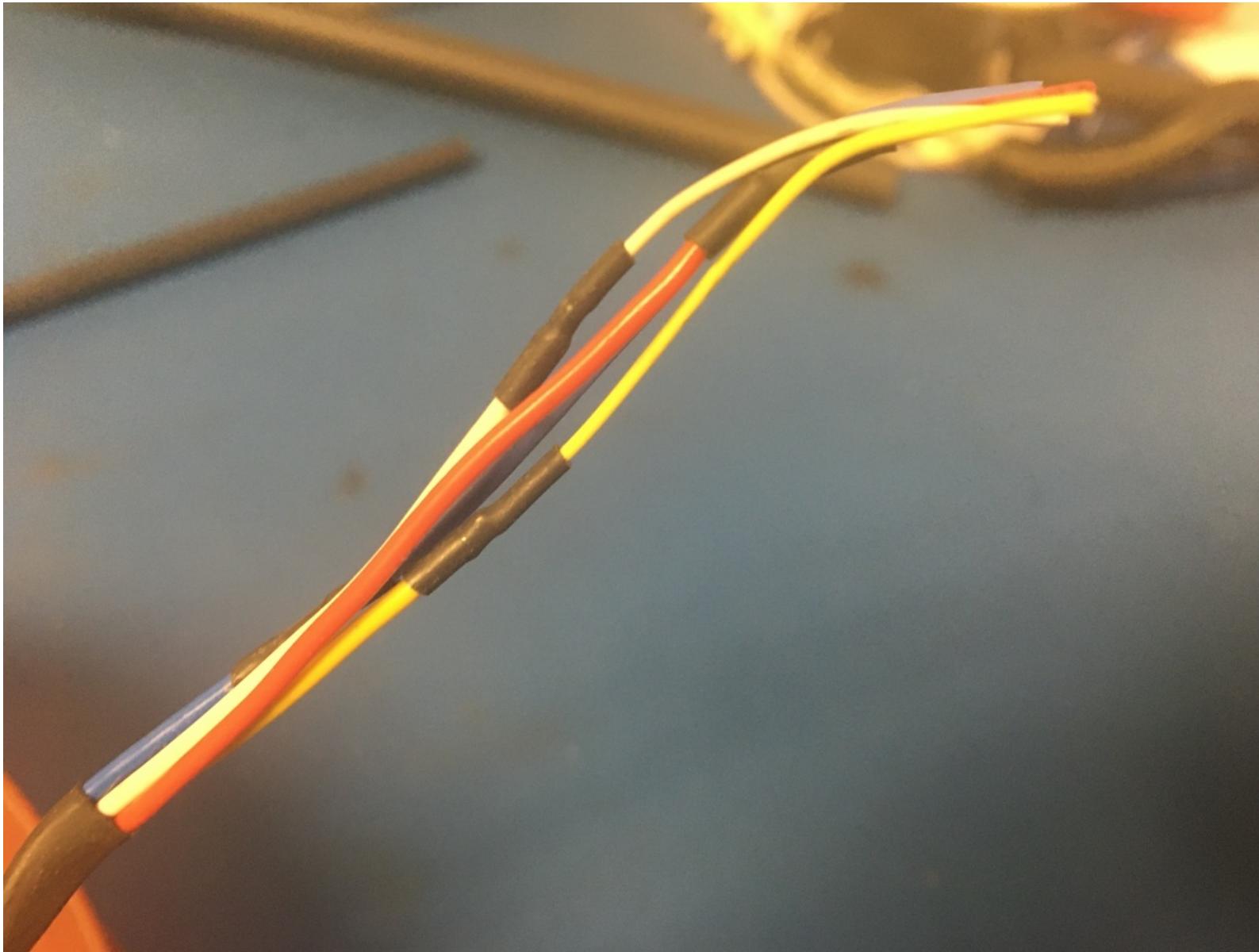
Place the piece of shrink tube over 12.7mm and 3/16in shrink tube joint. Hold the 6.4mm shrink tube in place with the tweezers while applying the heat gun (it's prone to slide toward the 3/16in end of the joint).

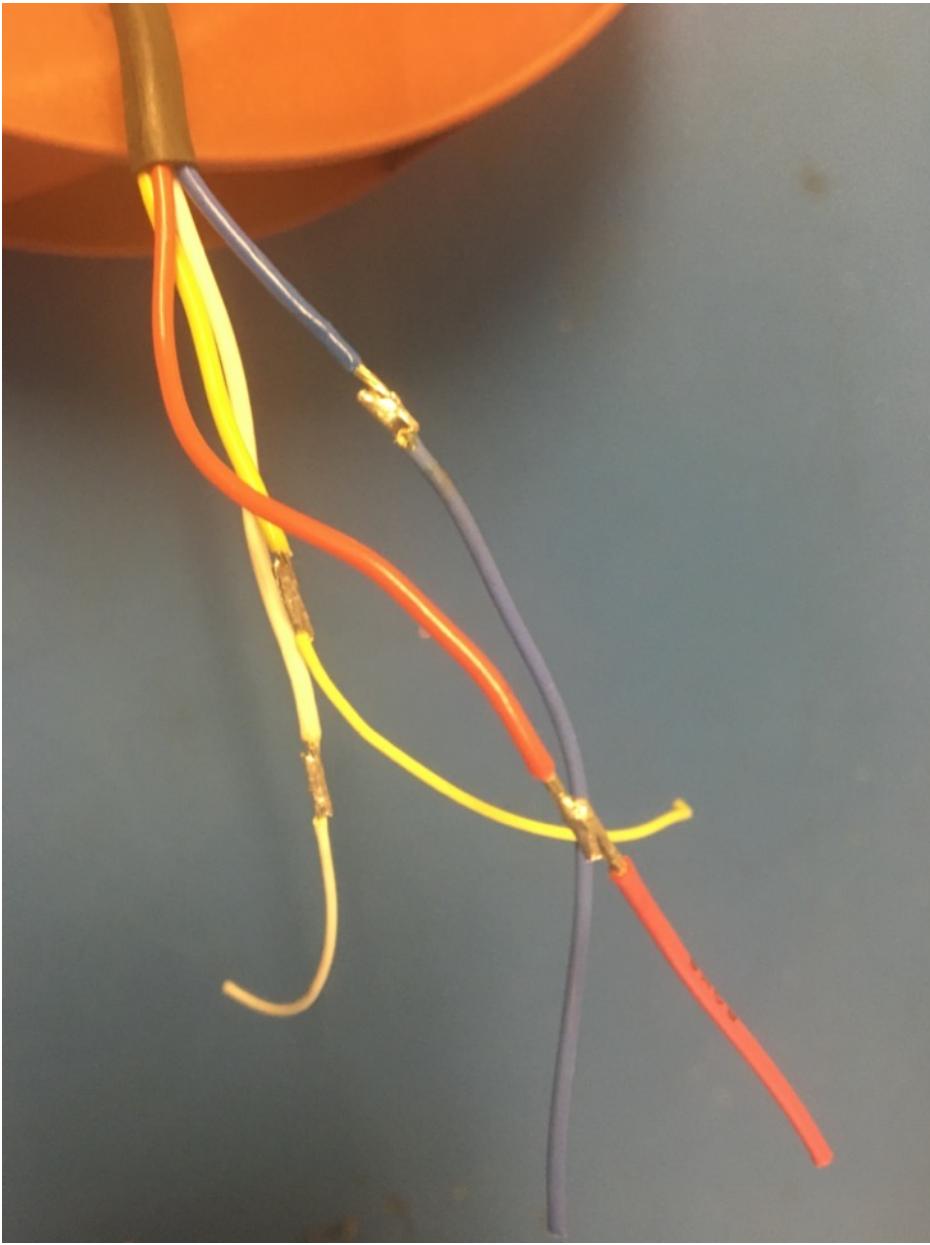


Be sure that all the shrink tube just added fits within the slot of the fan mount. If it does not, the shrink tube must be removed and replaced with smaller sizes.

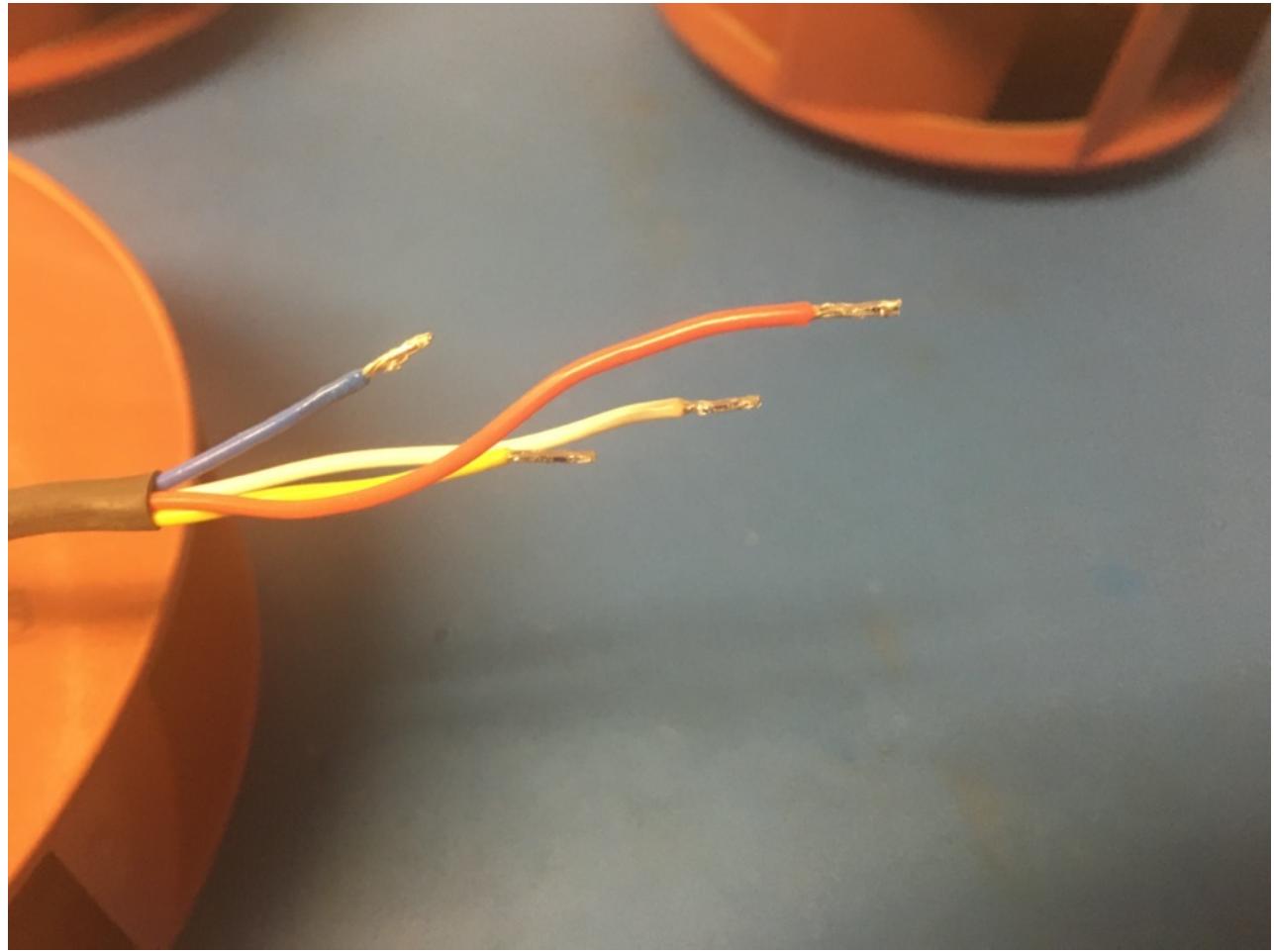


Remove the shrink tube covering the solder joints on the fan wires. If using a new fan, skip to slide 19 as the solder joints are only on used fans.



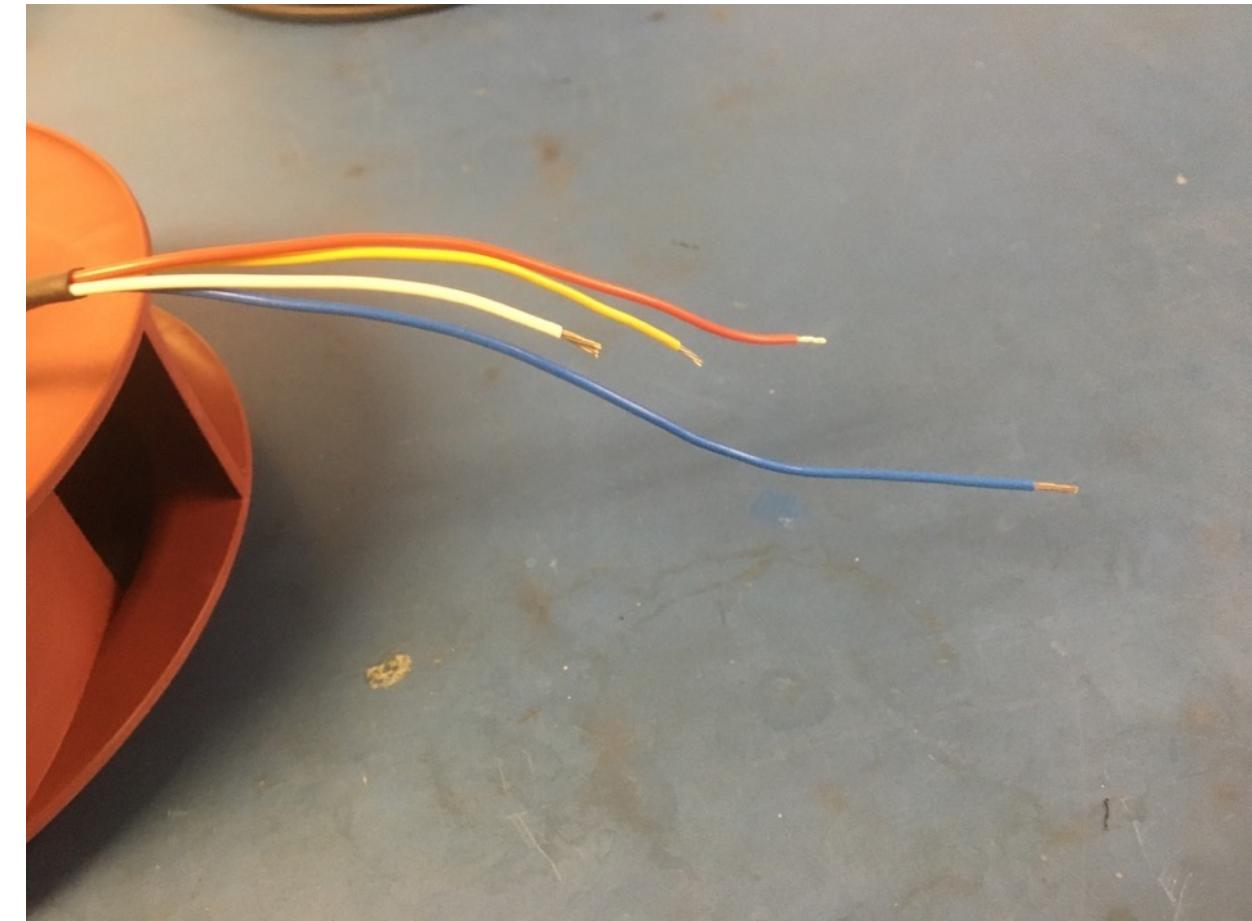
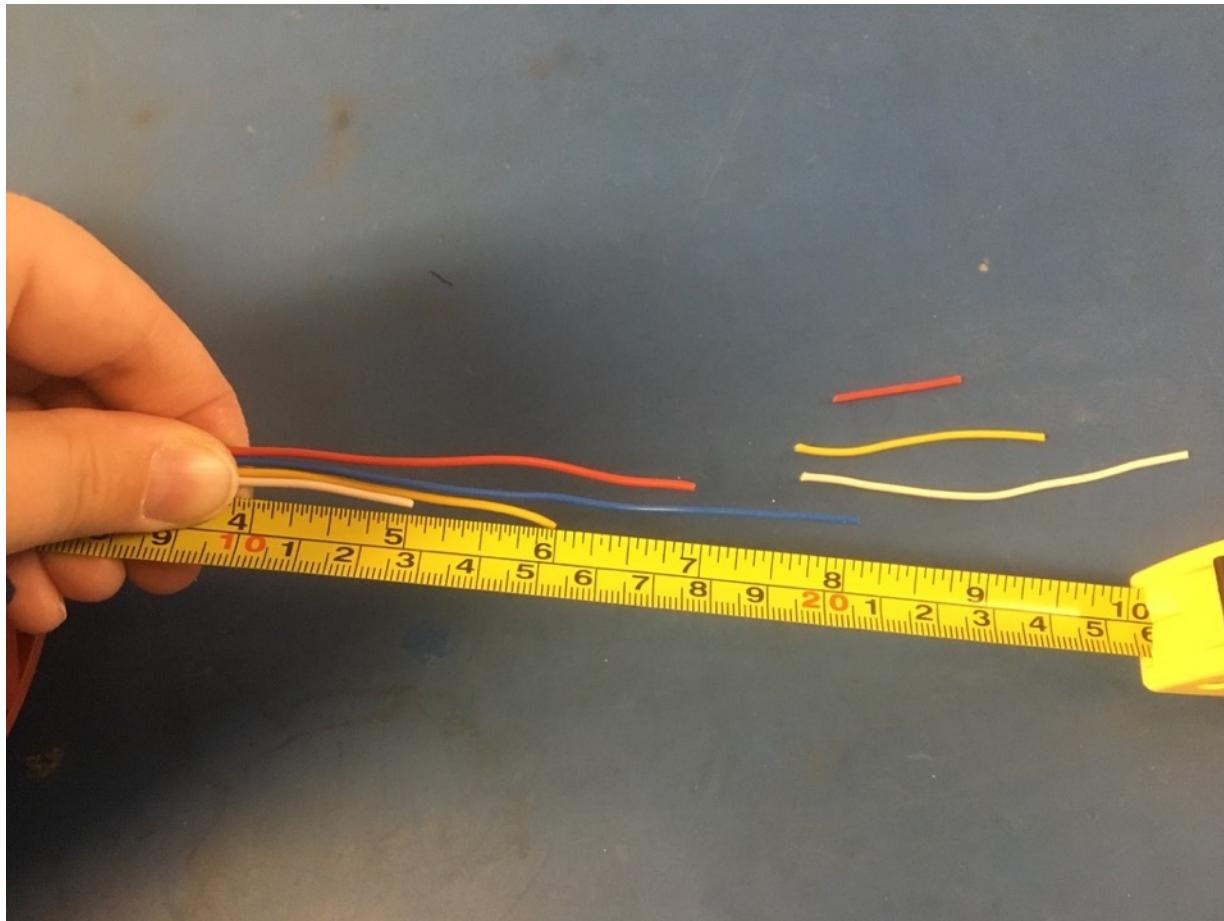


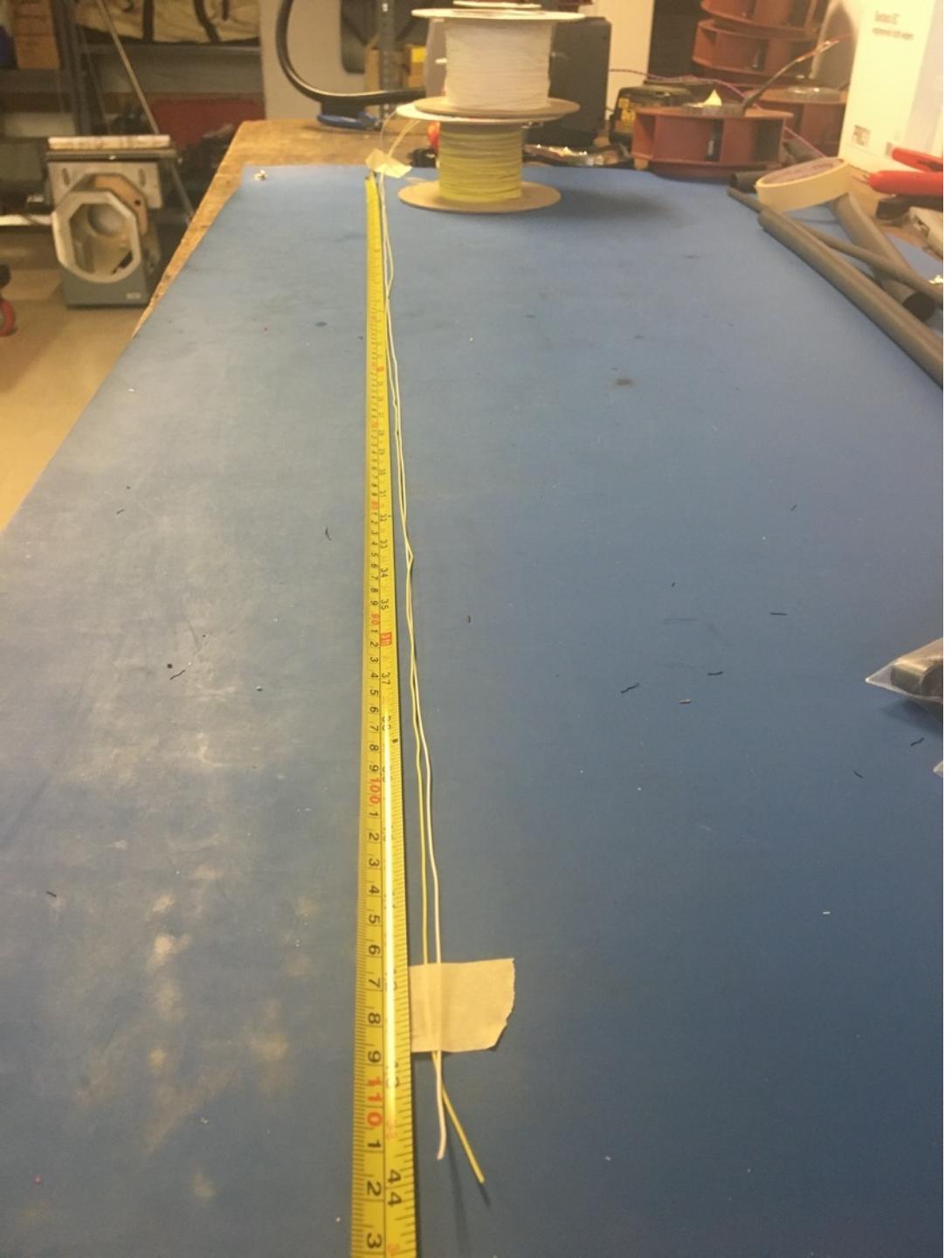
Remove (unsolder) the extensions soldered to the fan wires.



## New fan

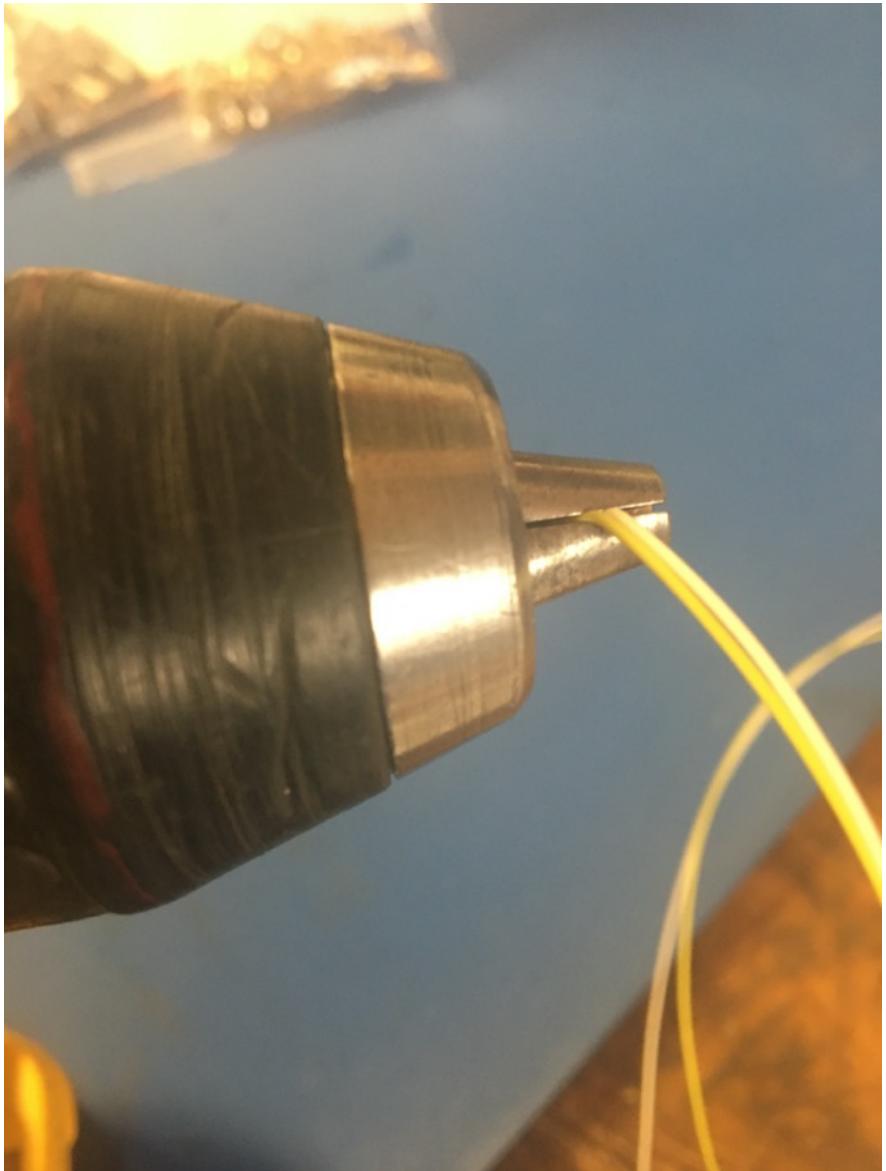
For new fans, trim the wires so that their lengths are staggered by an inch (as shown on the left). Then strip the fan wire ends. If the fan is uses, skip this slide.



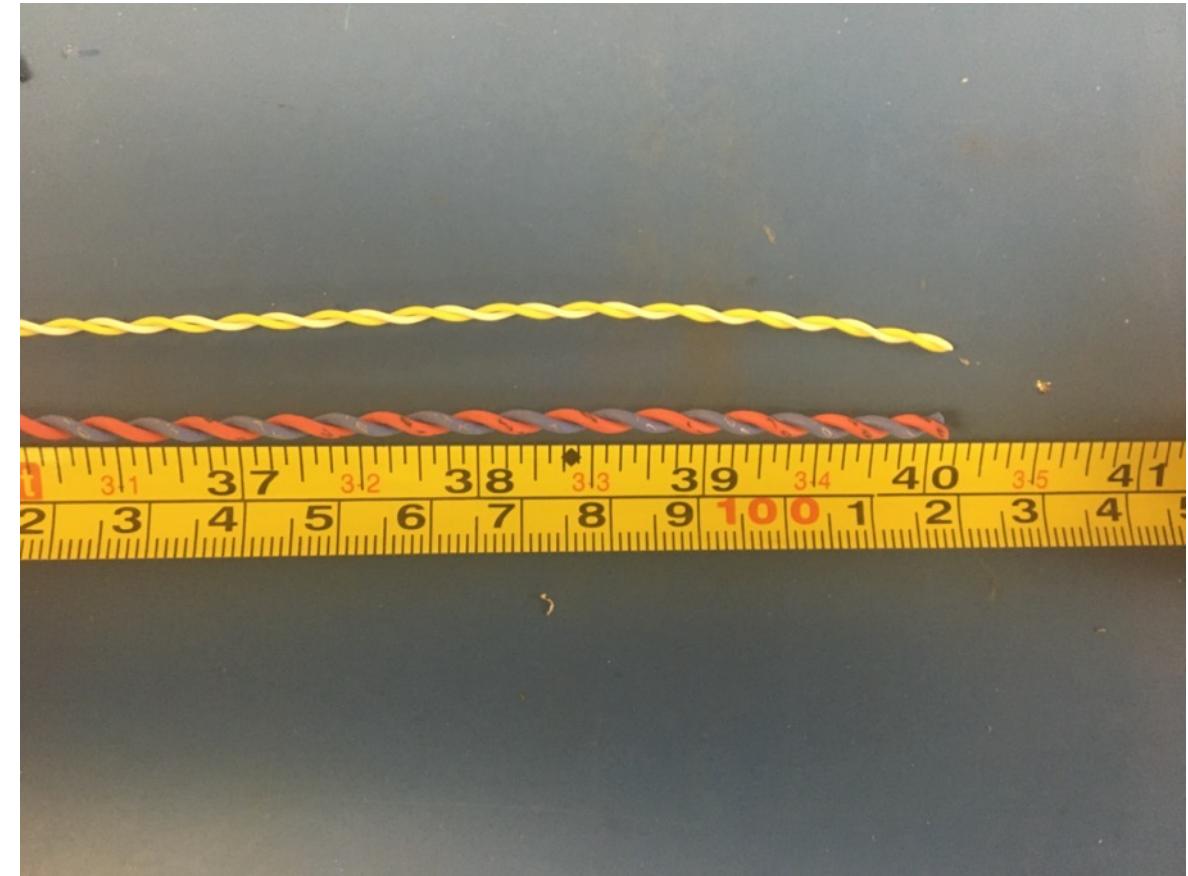
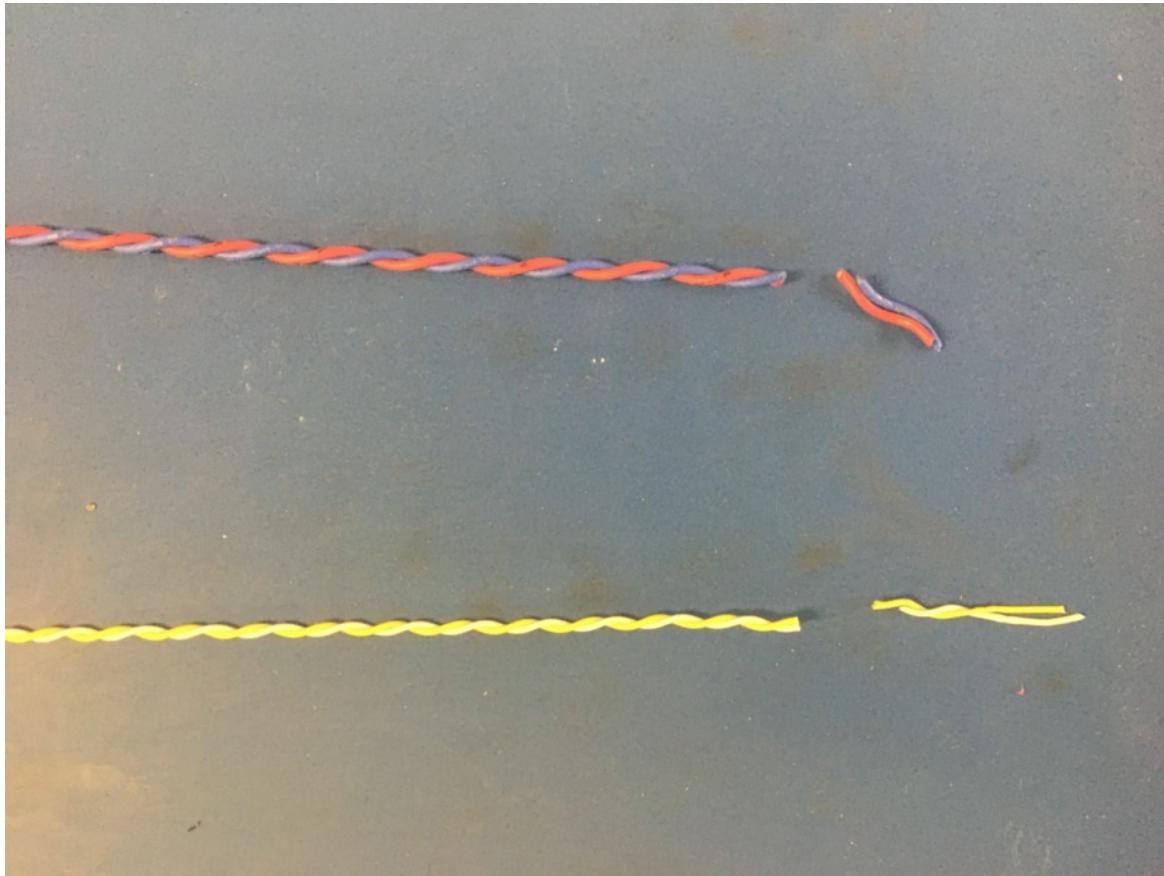


Measure out and cut 44 inches of yellow and white  
28 awg as well as red and blue 20 awg wire.

To make the twisted pair, line the vise with masking tape. Put one end of the yellow and white wires into the vise and the other into the drill. Run the drill till the wires are sufficiently twisted (for reference see the next slide). Repeat with the red and blue wires.



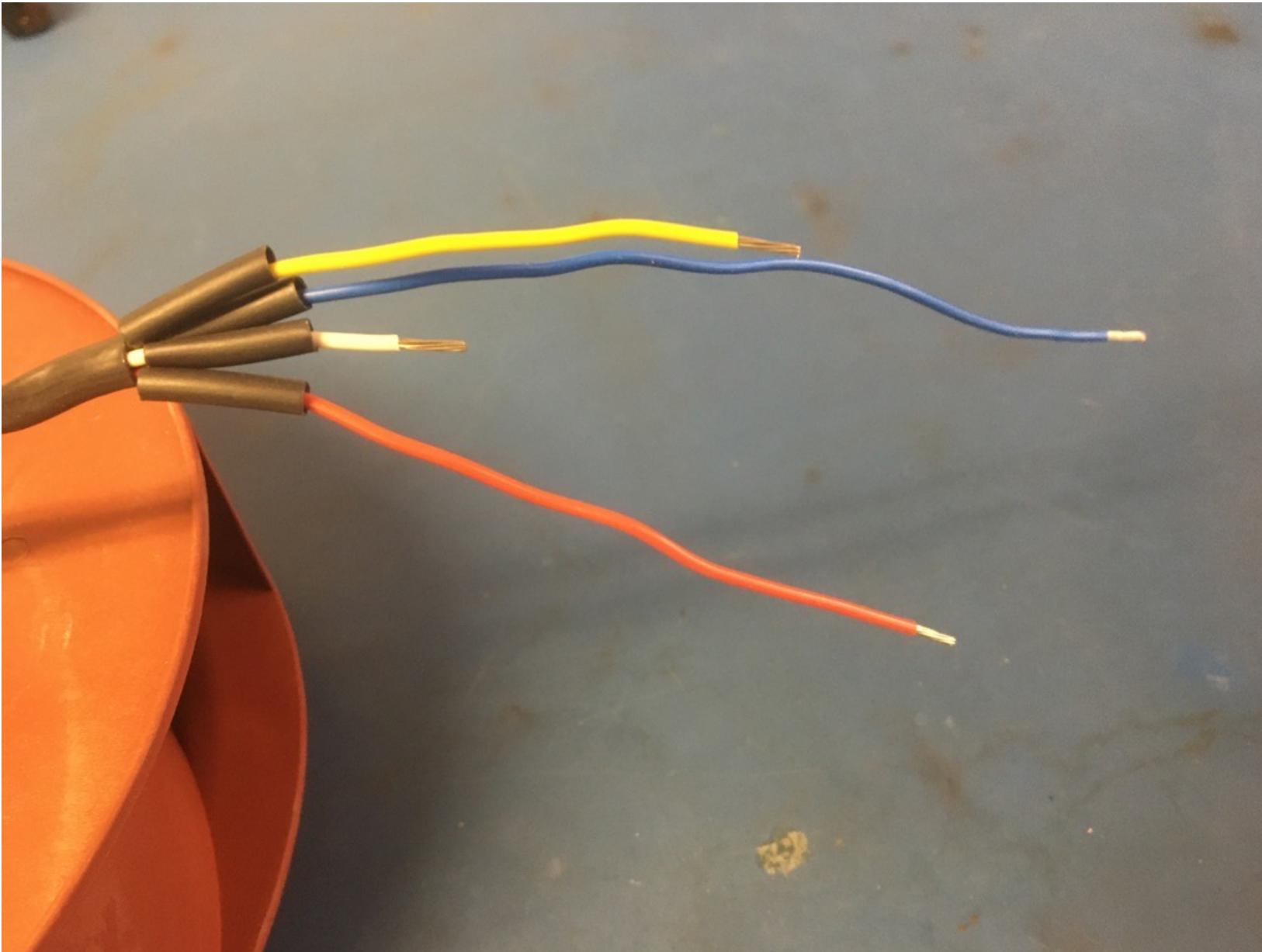
Trim the ends of each twisted pair where they were in the vise and drill. Once trimmed they should measure about 40 inches.



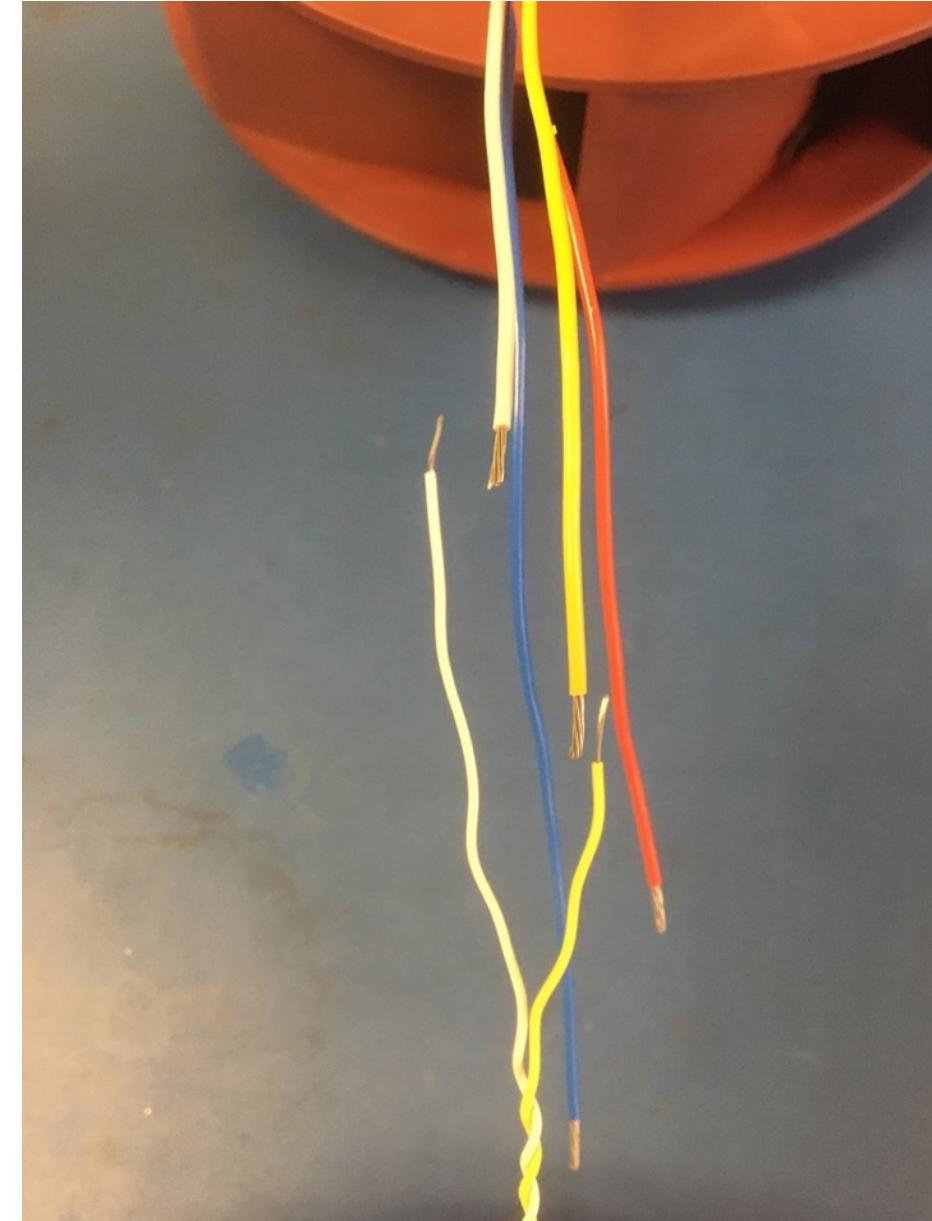
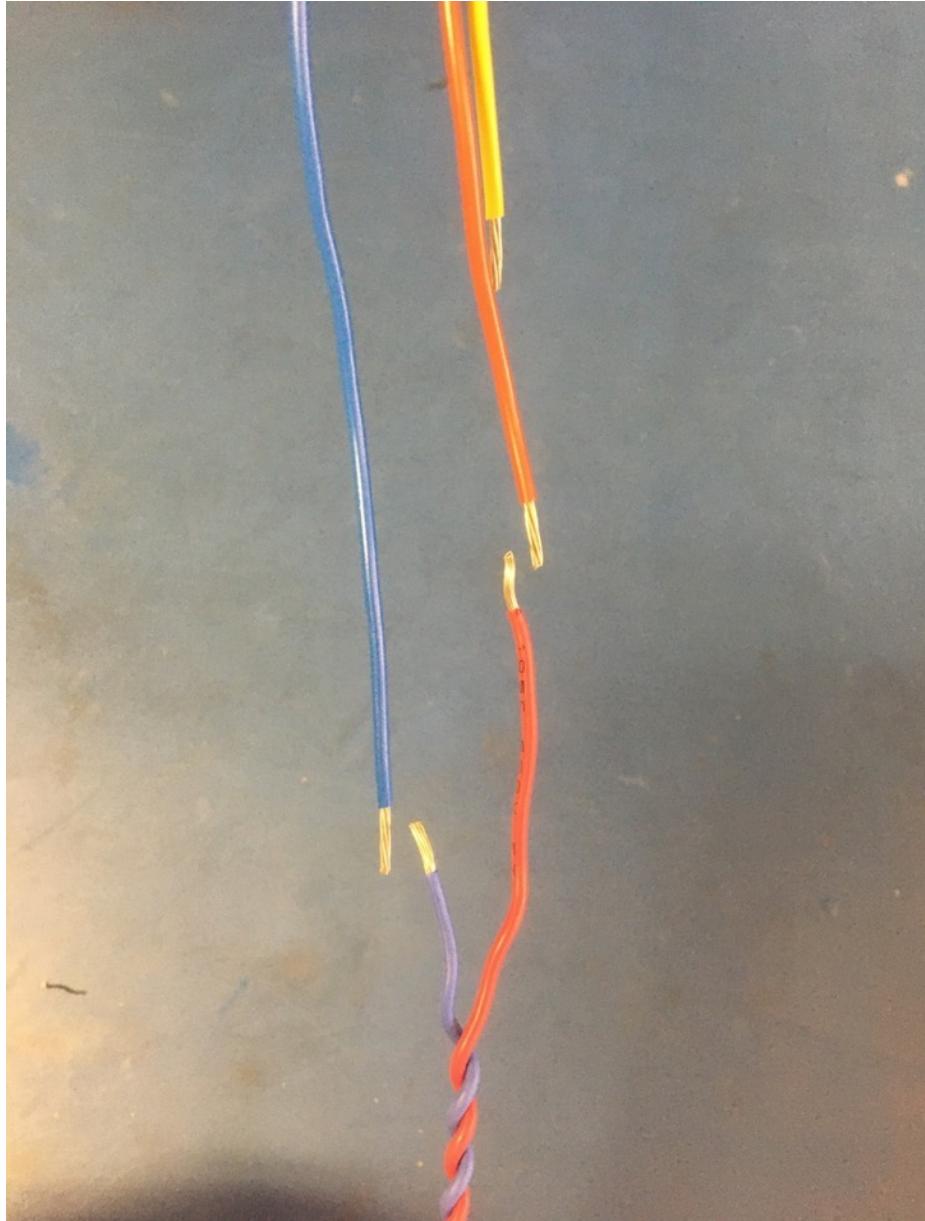
Measure out and cut four lengths of 3/32in non-adhesive shrink tube each 1in long.



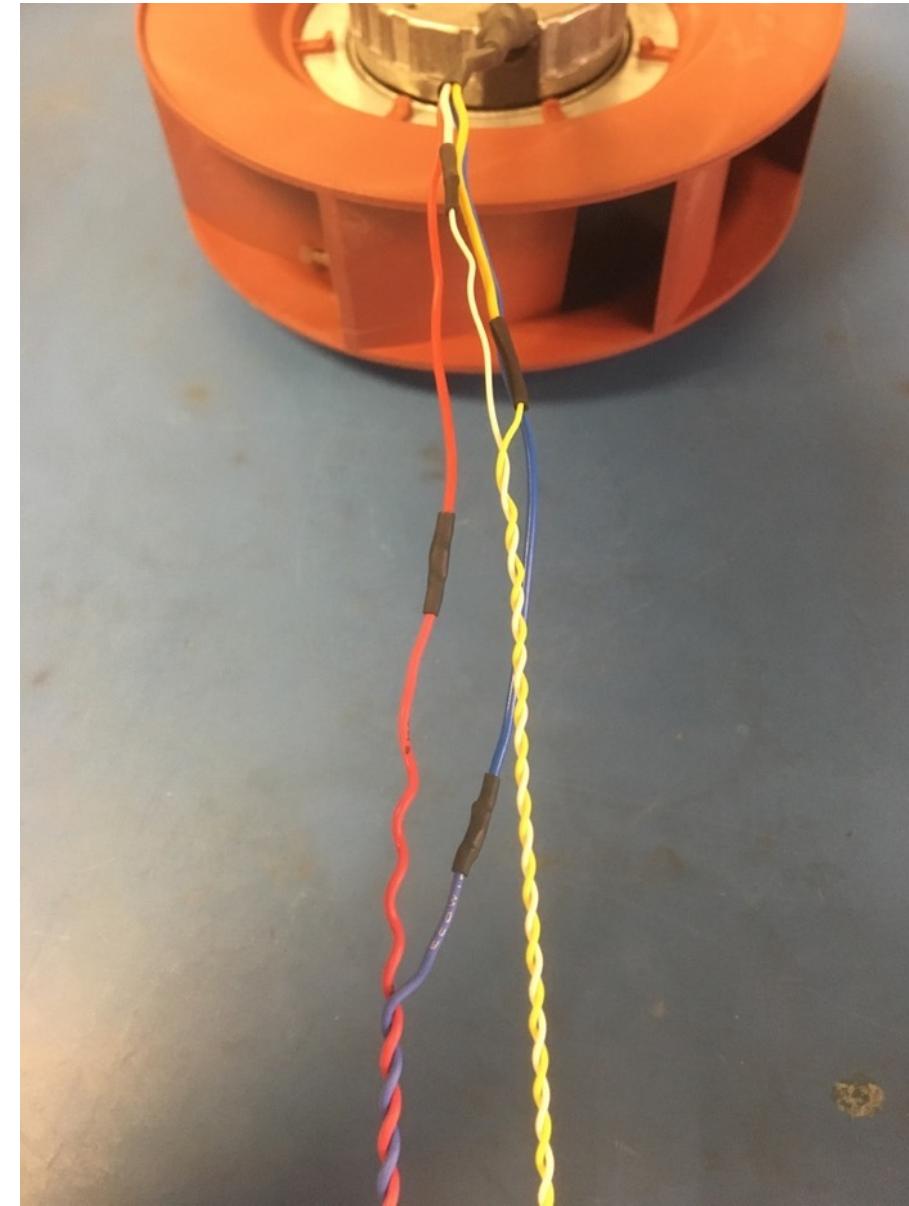
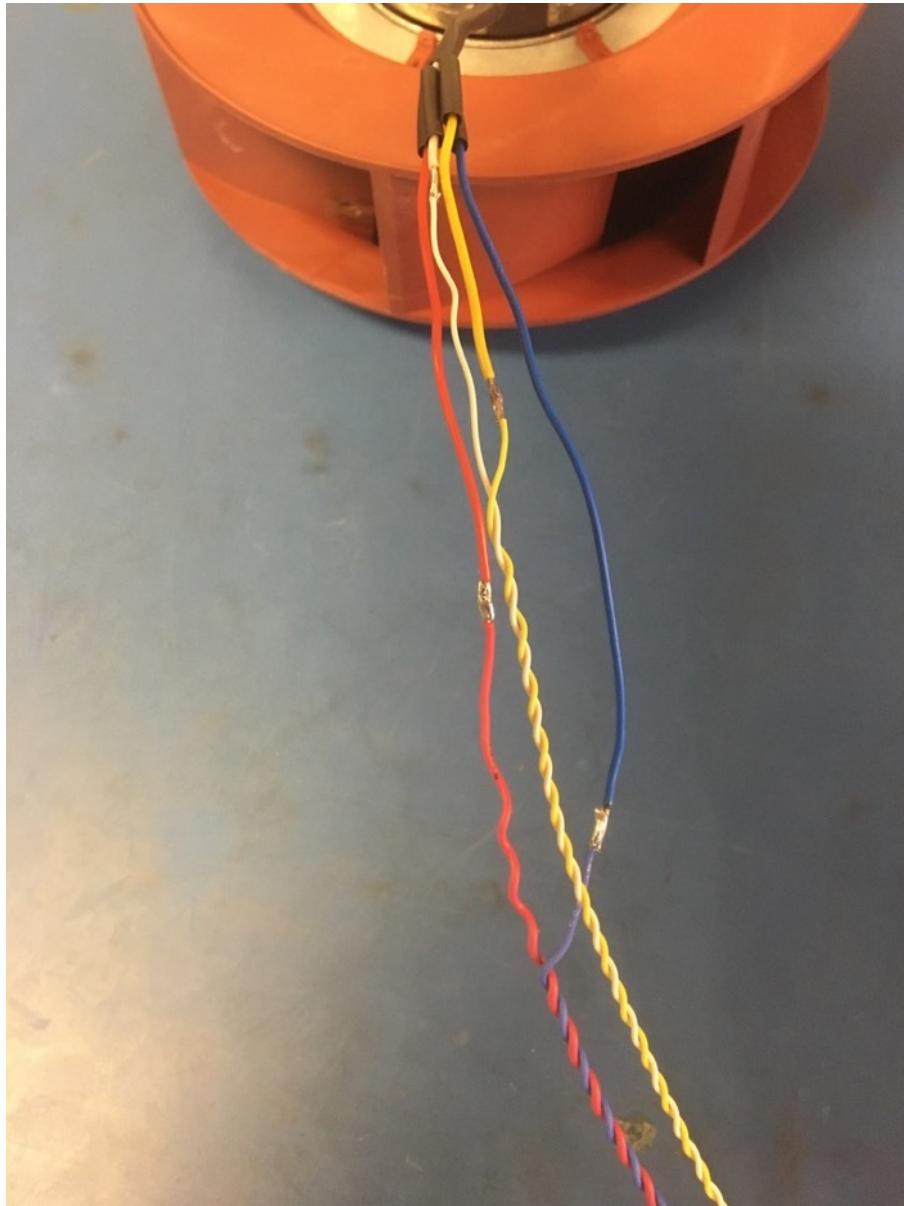
Put the pieces of shrink tube onto the fan wires.

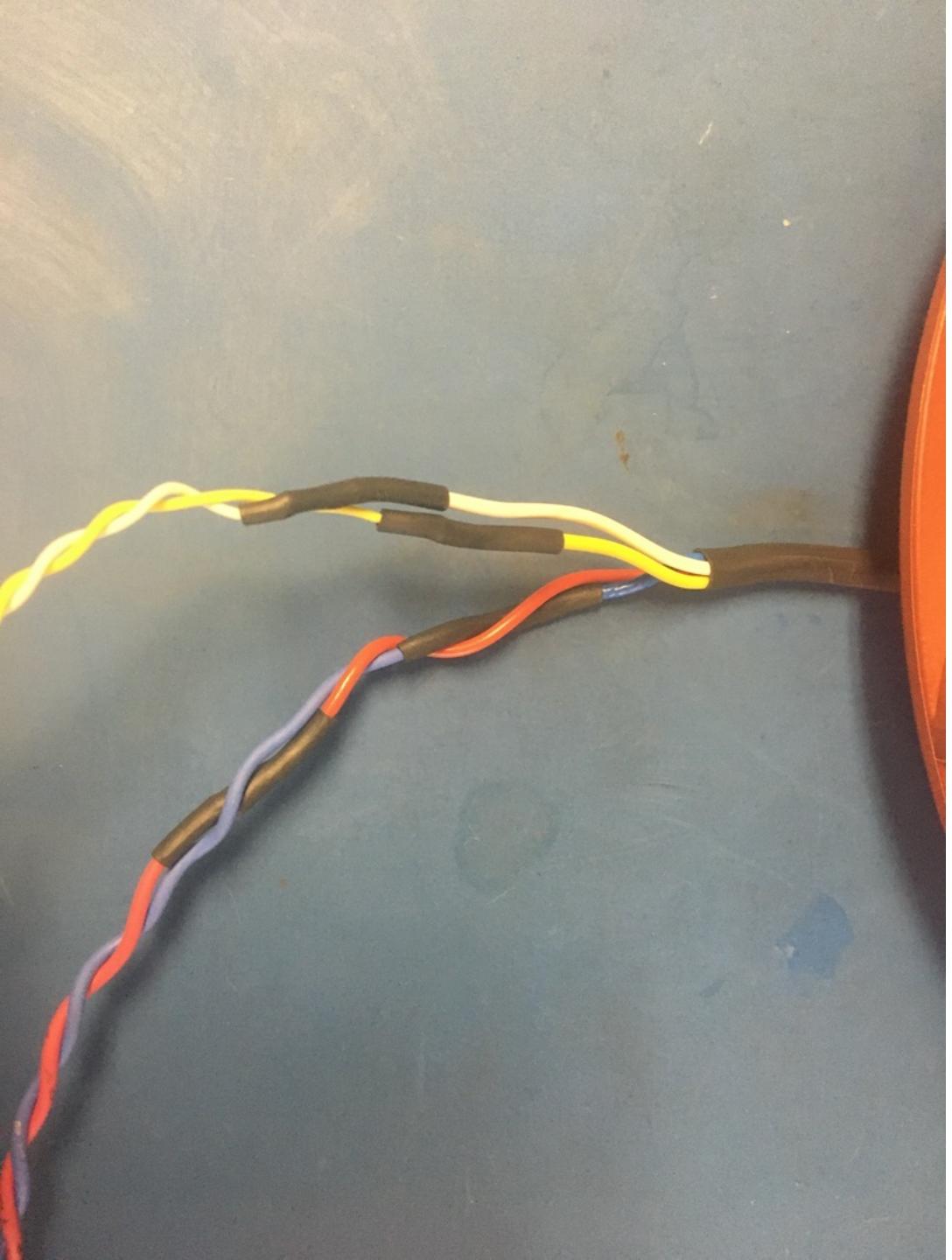


Measure and trim the twisted pairs so they match the staggered lengths of the fan wires. Strip the ends of the twisted pairs.

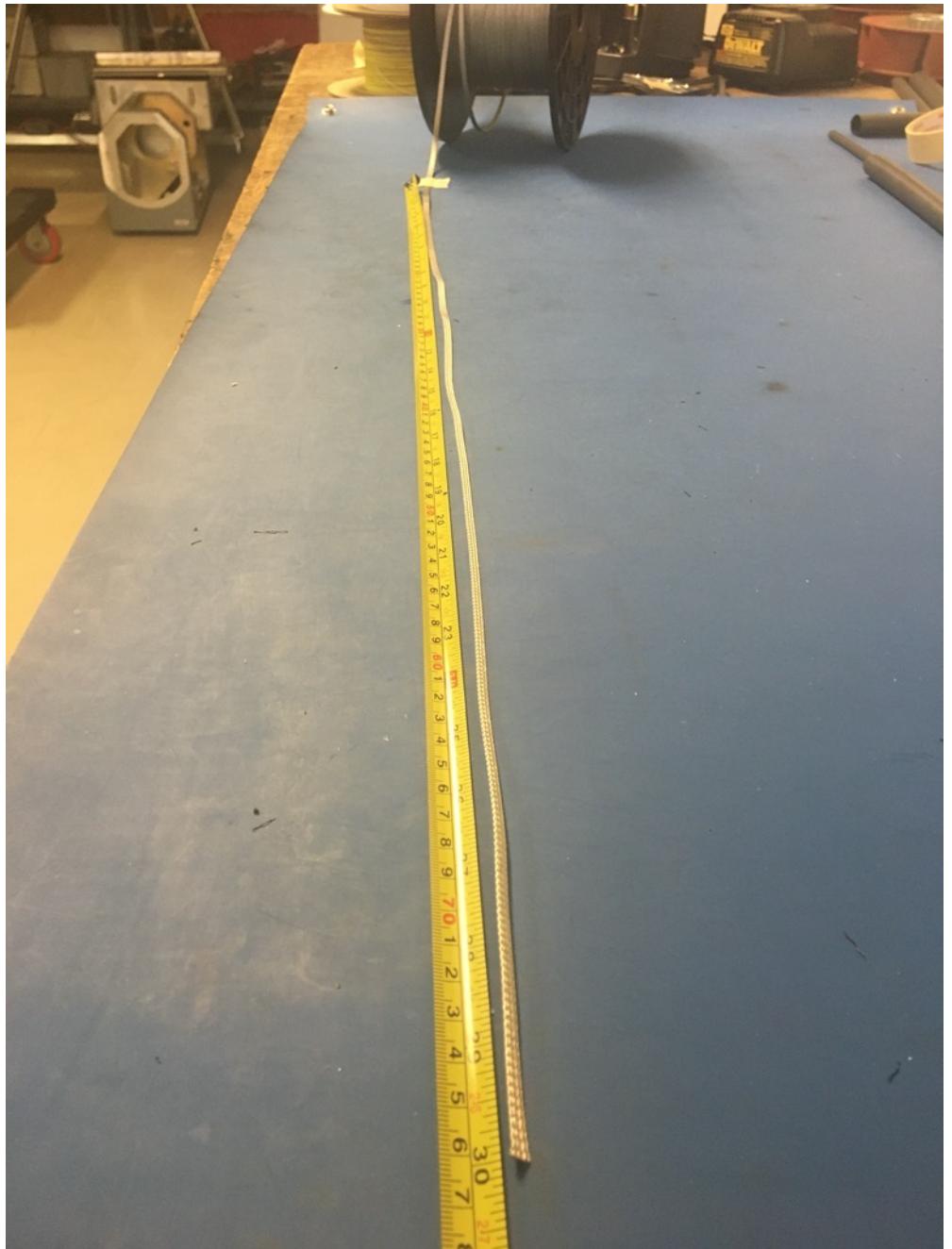


Solder the twisted pairs to the fan wires. Then slide the pieces on shrink tube down the wires and over the solder joints. Apply the heat gun.





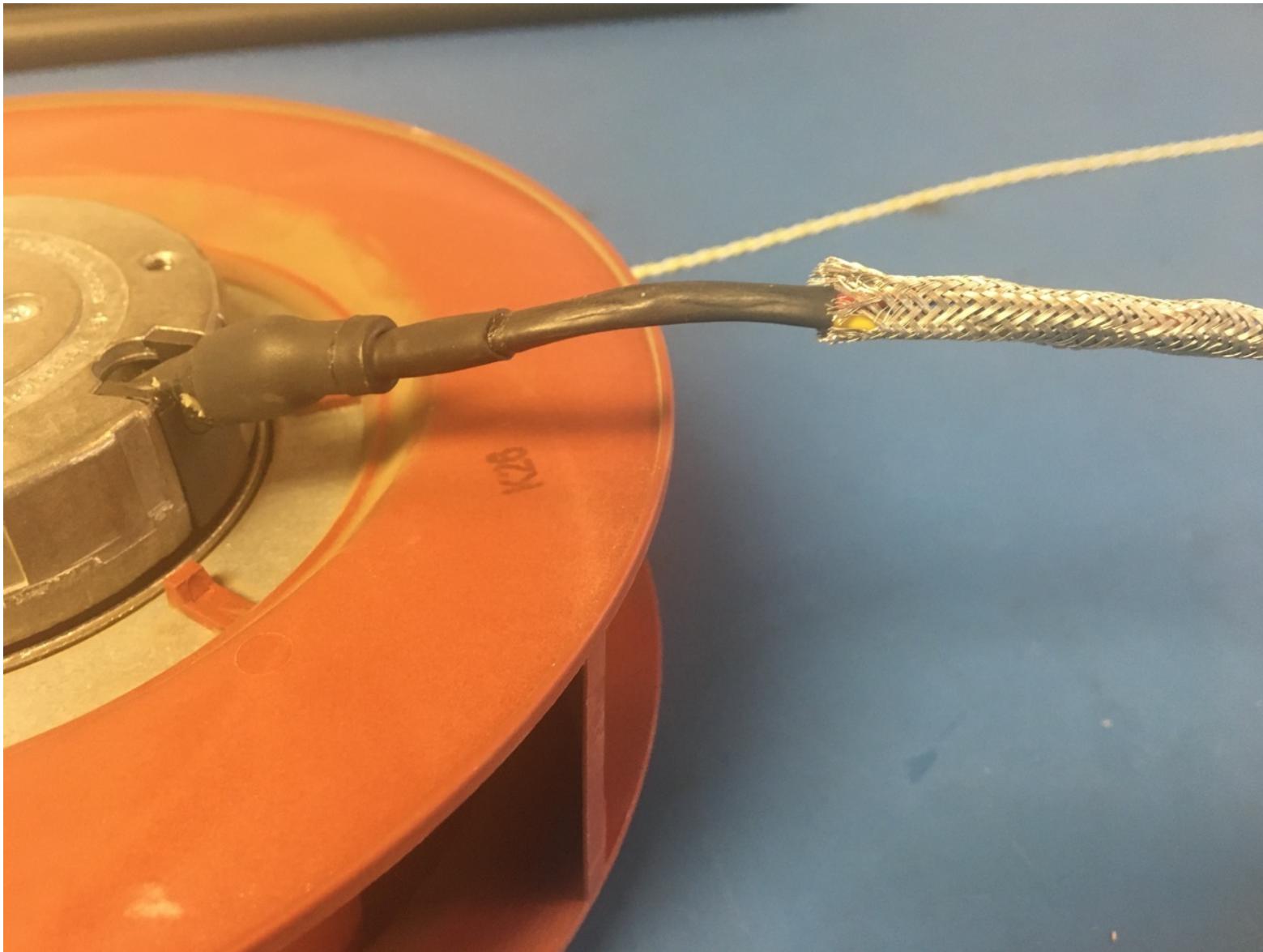
Twist the solder wire joints so they appear as shown on the left.



Measure out 30 inches of the 1/8<sup>th</sup> metal braid. Expand it using the metal rod.



Put the expanded metal braid onto the twisted wires. Slide the metal braid all the way to the end of the shrink tube next to the fan.



Measure out and cut one length of 6.4mm adhesive shrink tube that's .5in long.



Put the piece of the shrink tube onto the metal braid end next to fan. Place the shrink tube such that the metal braid ends midway through it.  
Apply the heat gun.



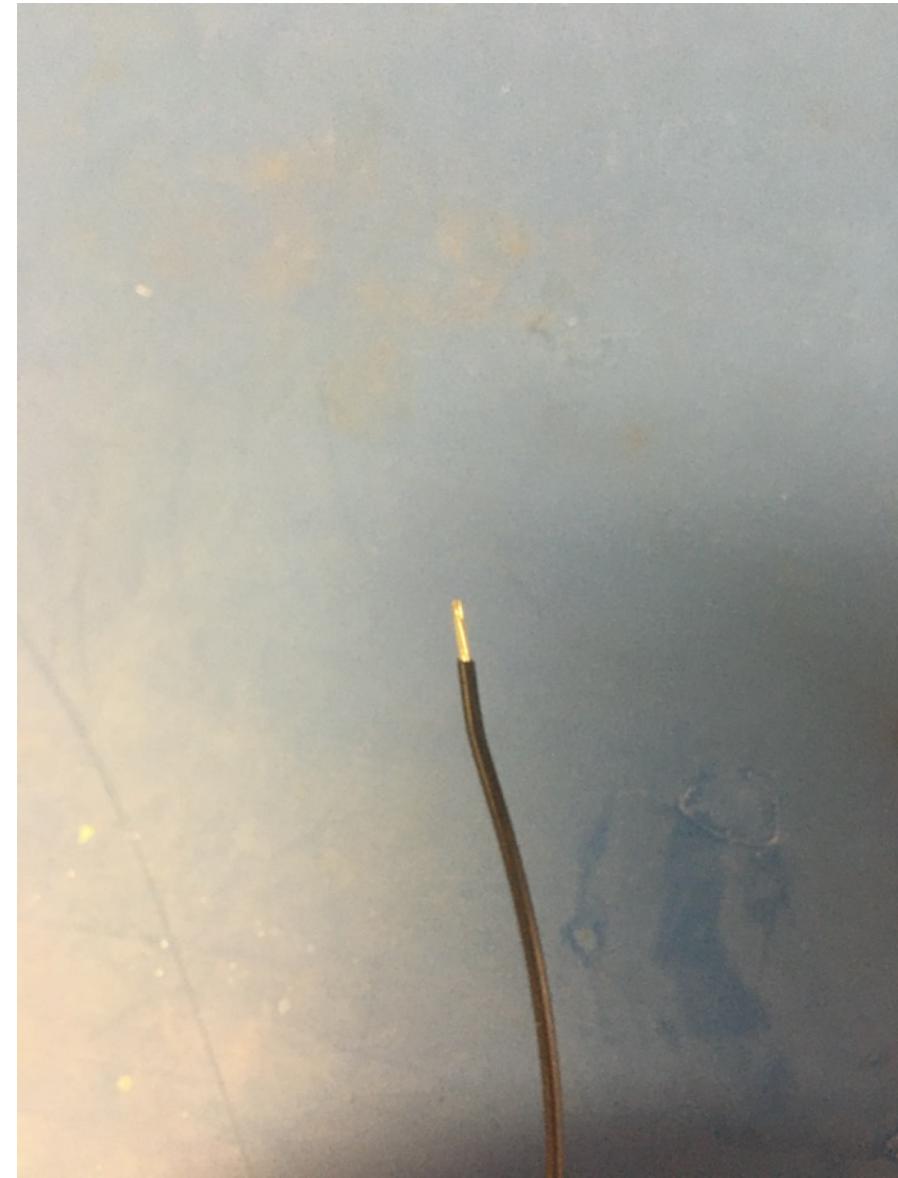
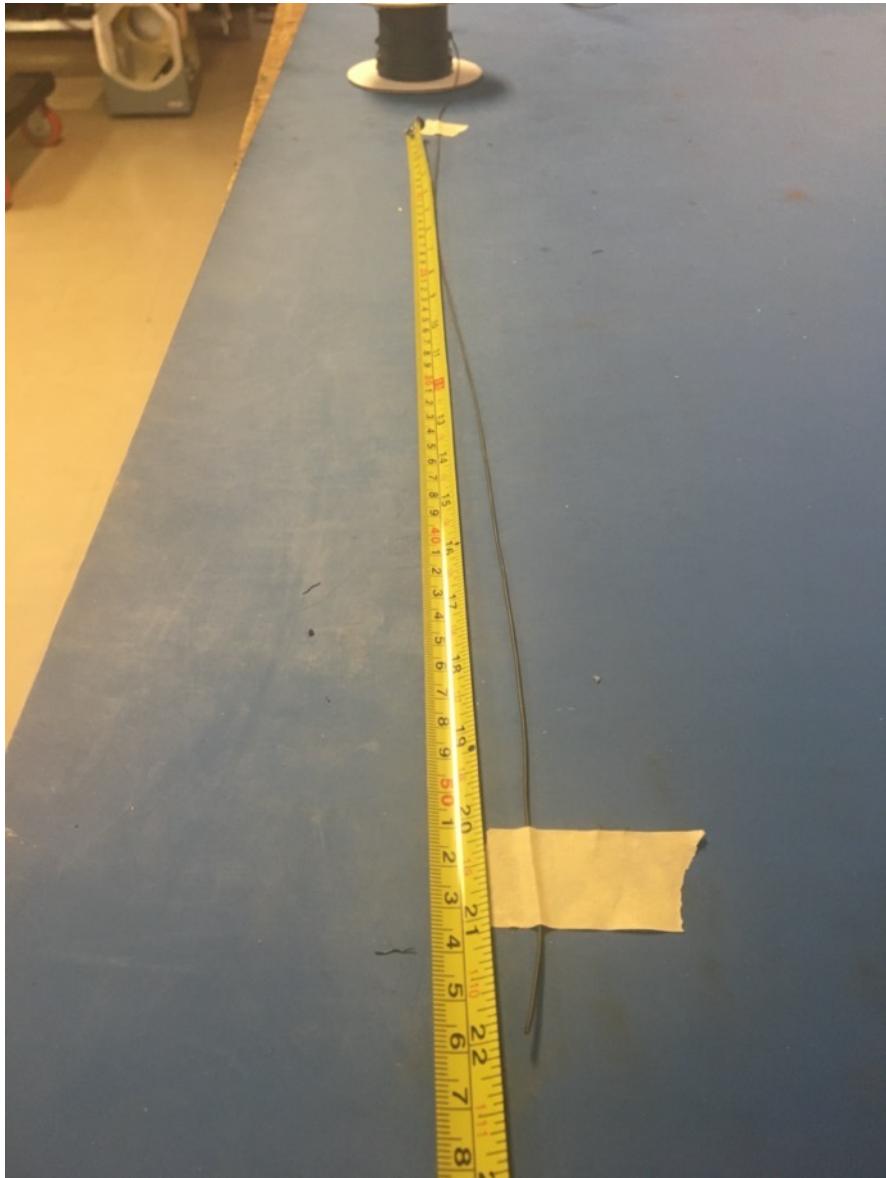
Measure out and cut one length of 4.8mm adhesive shrink tube that's .5in long.



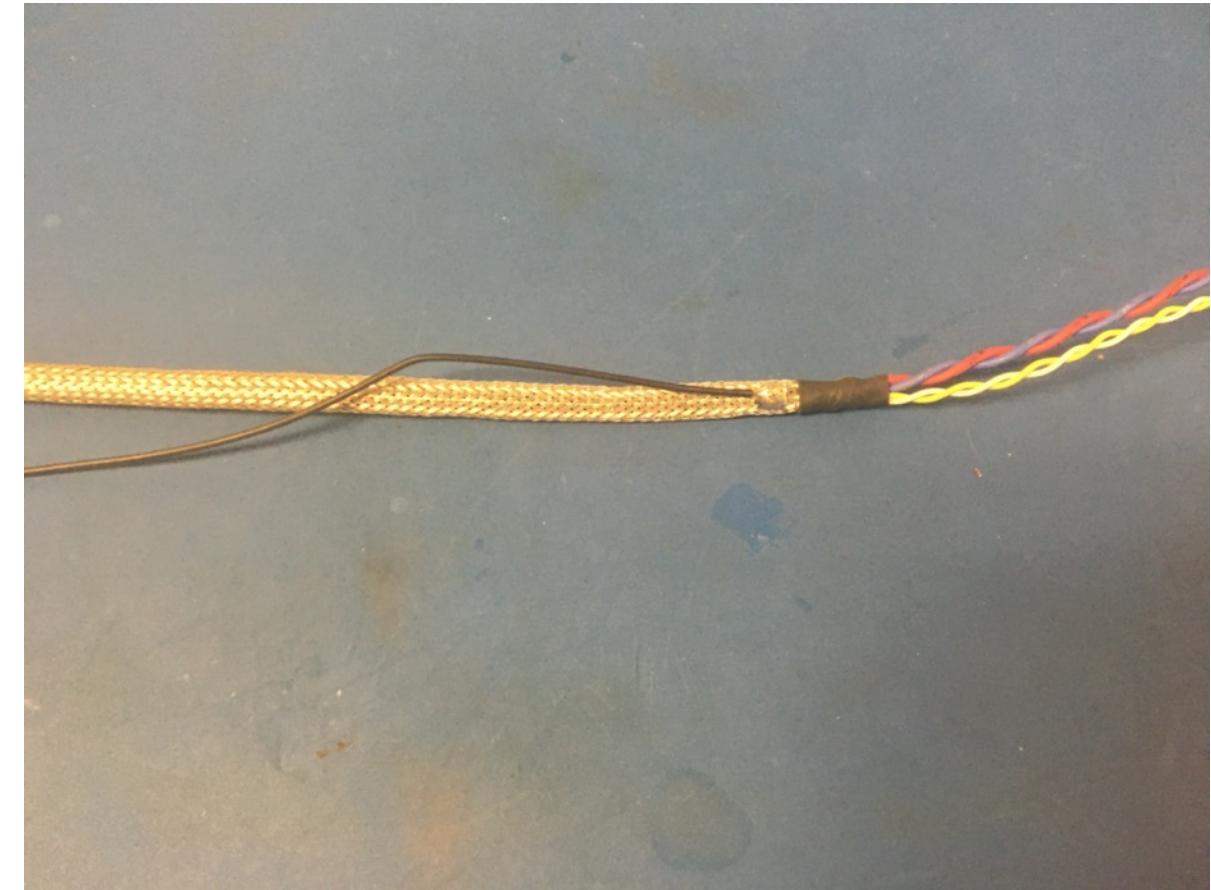
Put the piece of the shrink tube onto the other end of the metal braid (without the fan). Again, the metal braid should end through the piece of shrink tube. Apply the heat gun.



Measure out and cut 22 inches of black 24 awg wires. Strip 3-4mm off one end.



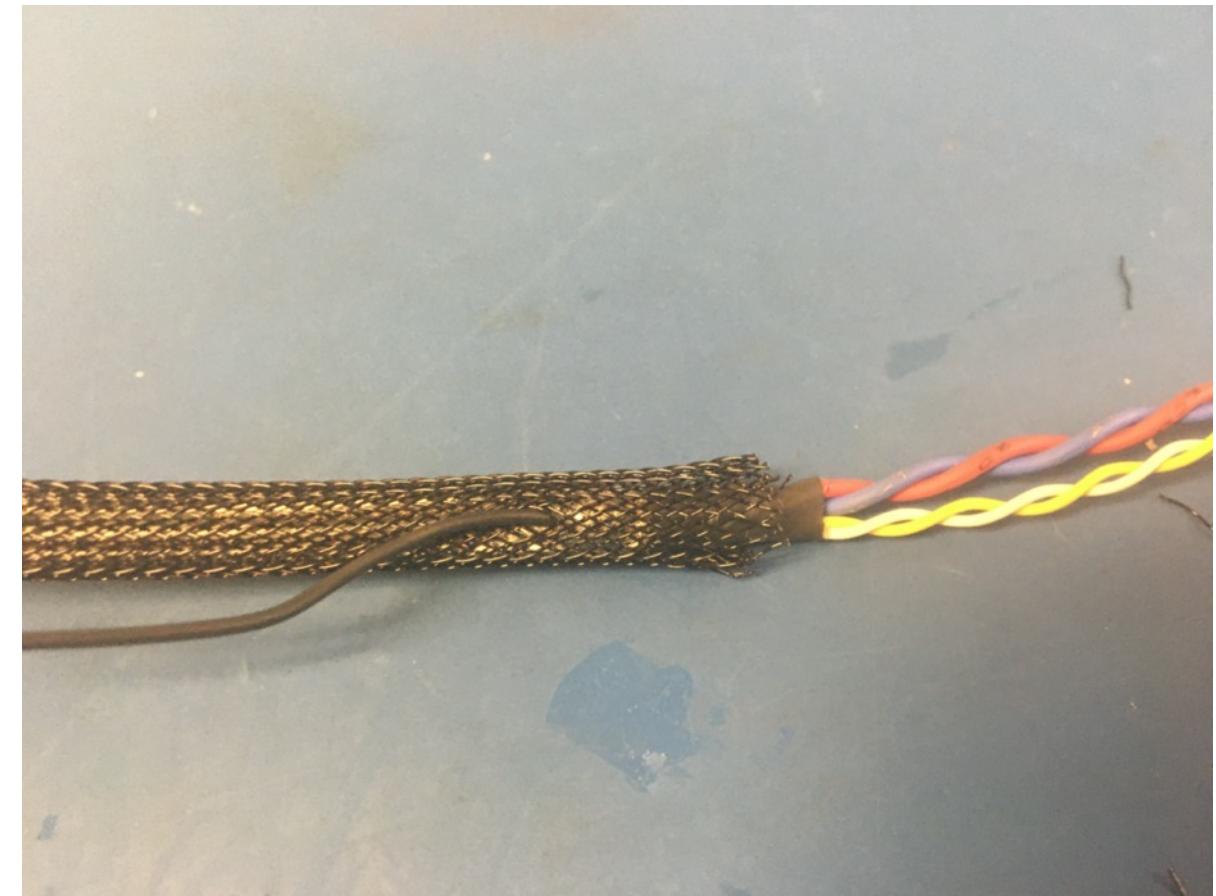
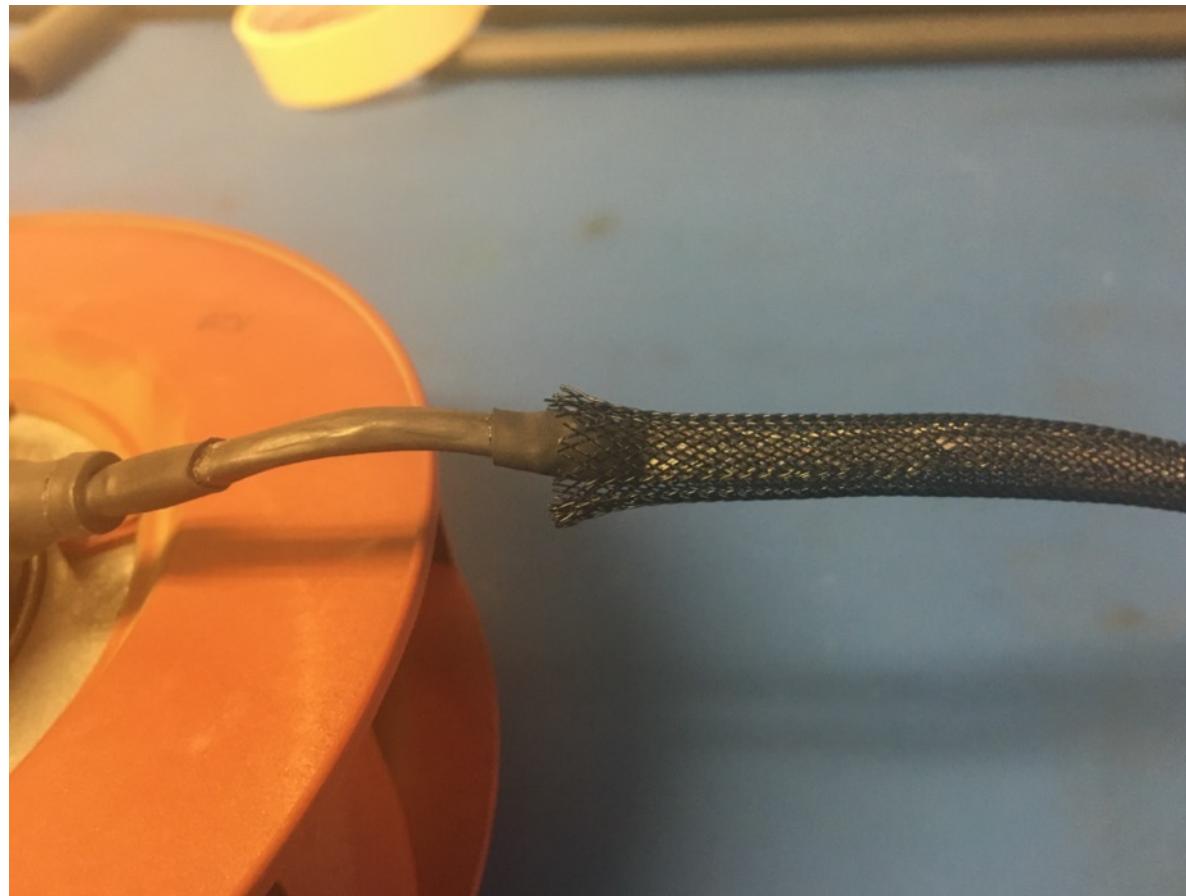
Solder the stripped end of the black wire onto the metal braid near the shrink tube joint furthest from the fan. The black wire should be soldered so that its length runs with that of the metal braid.



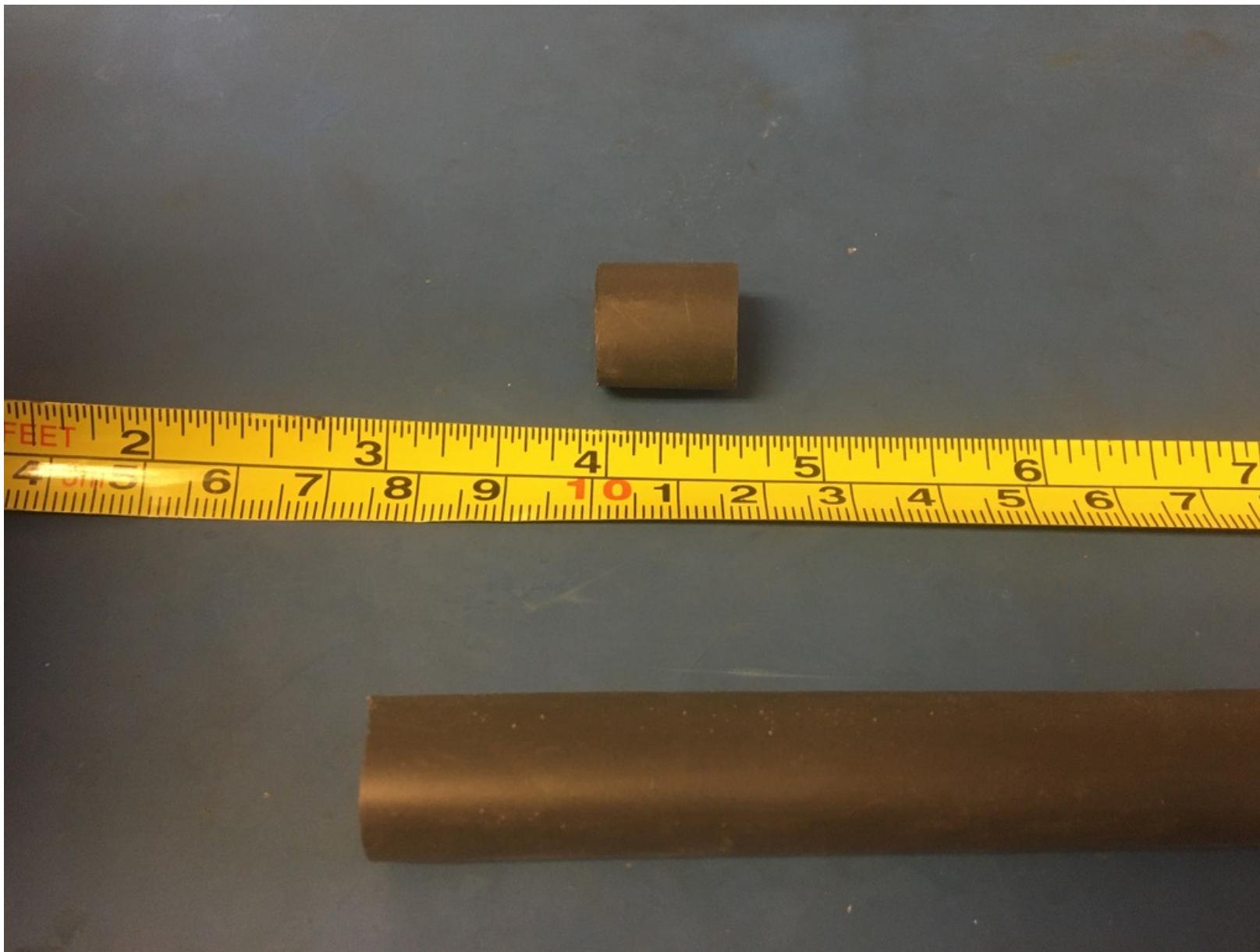


Measure out and cut 29 inches of 1/4<sup>th</sup> plastic braid.

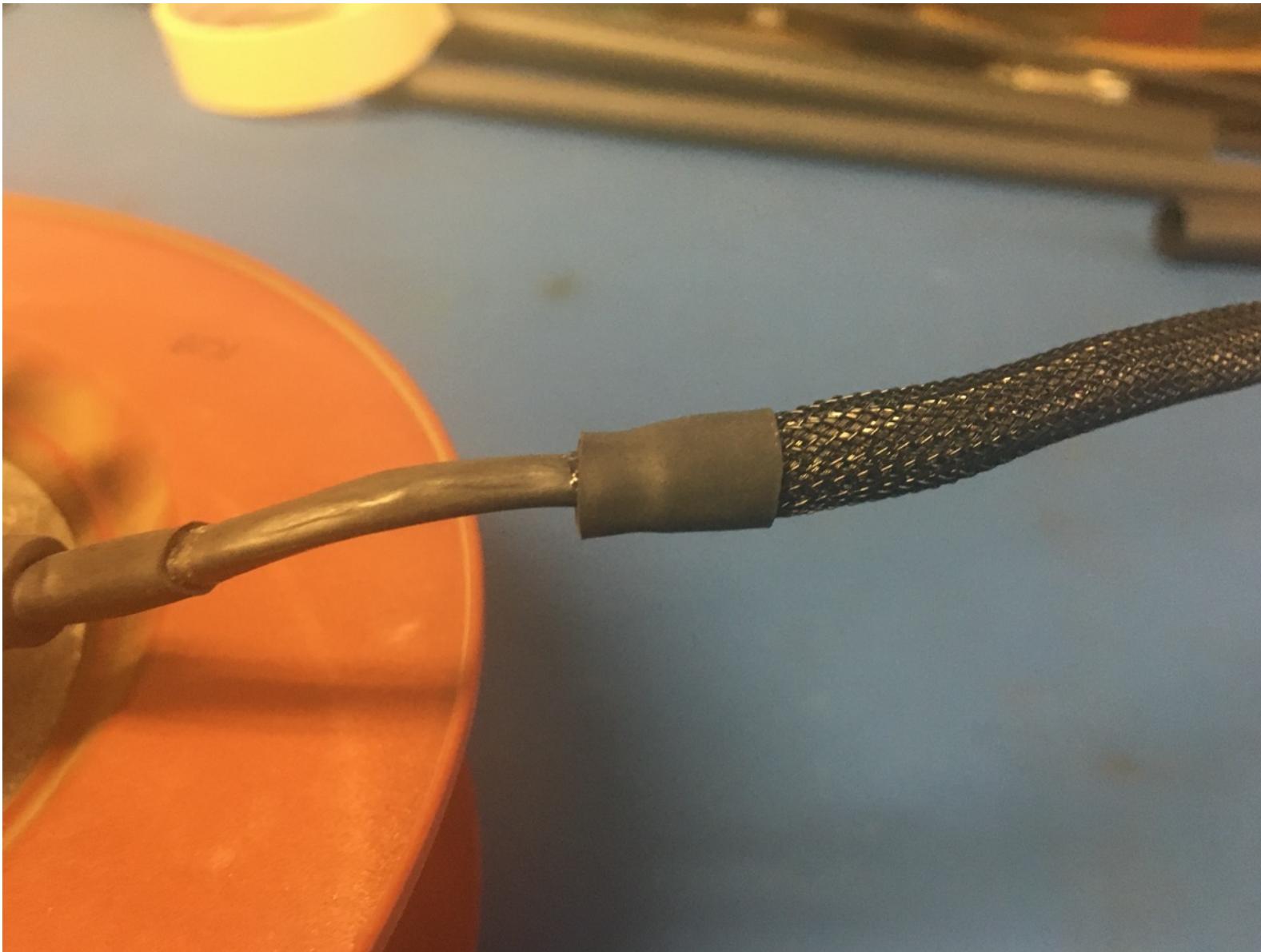
Put the plastic braid onto the wire harness. At each end of the harness, the plastic braid should end midway through the metal shrink tube joints. Thread the ground wire through one of the holes in the plastic braid so it appears as shown of the right.



Measure out and cut one length of 12.7mm adhesive shrink tube that is .5in long.



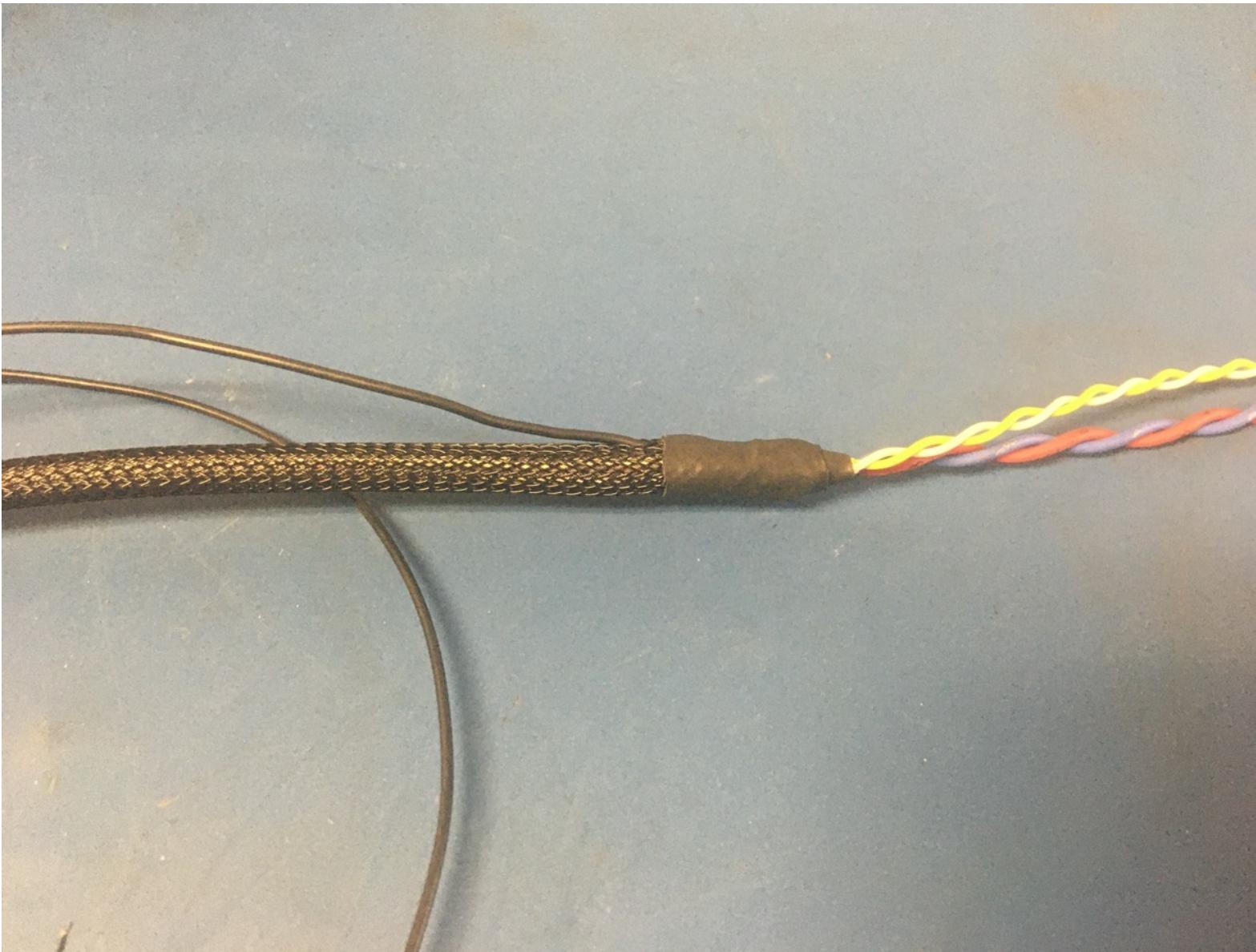
Place the piece of shrink tube onto the plastic braid end next to the fan. The plastic braid should end midway through the piece of shrink tube. Apply the heat gun.



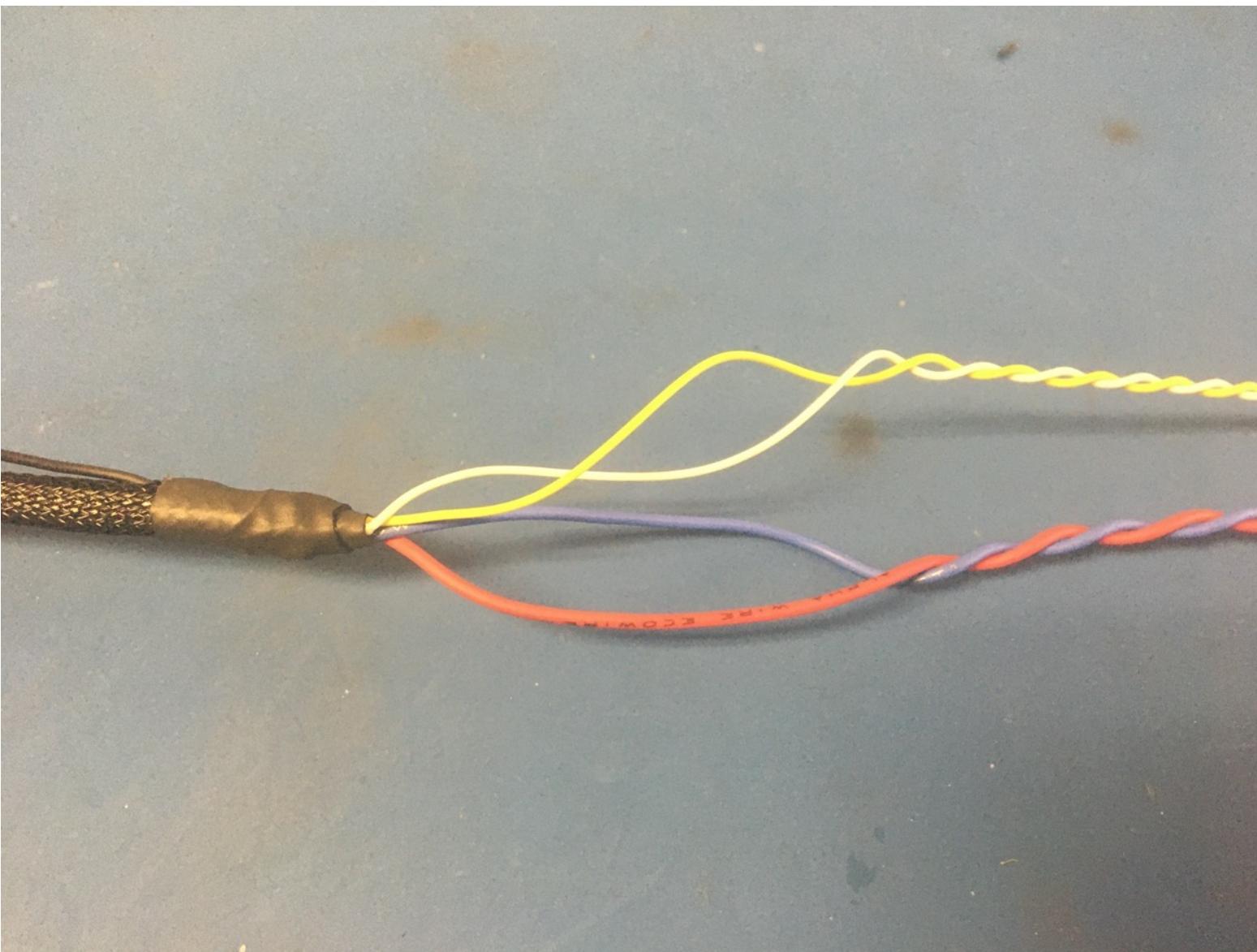
Measure out and cut one length of 6.4mm adhesive shrink tube that is 1in long.



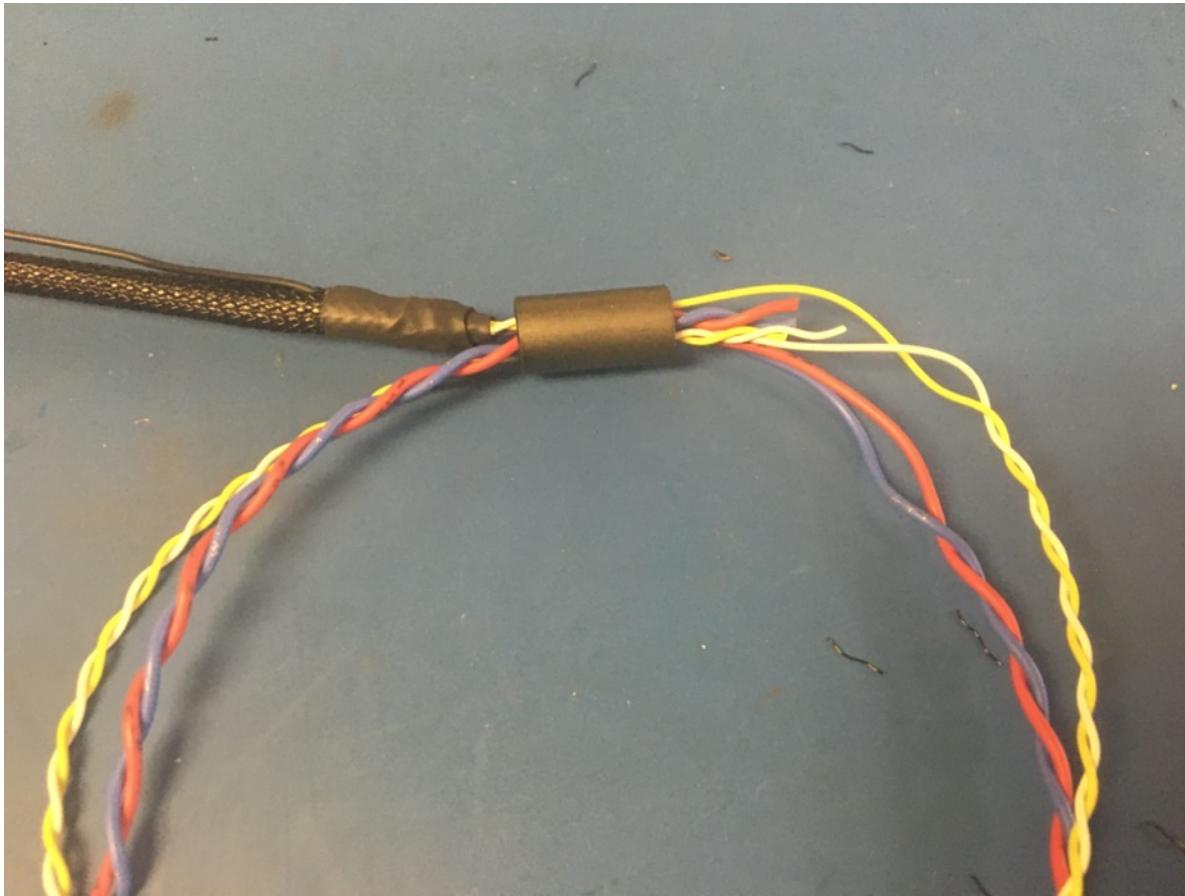
Place the piece of shrink tube onto the ground wire end of the harness. The shrink tube should be placed such that it covers the solder joint and the length of shrink tube beneath. Apply the heat gun.



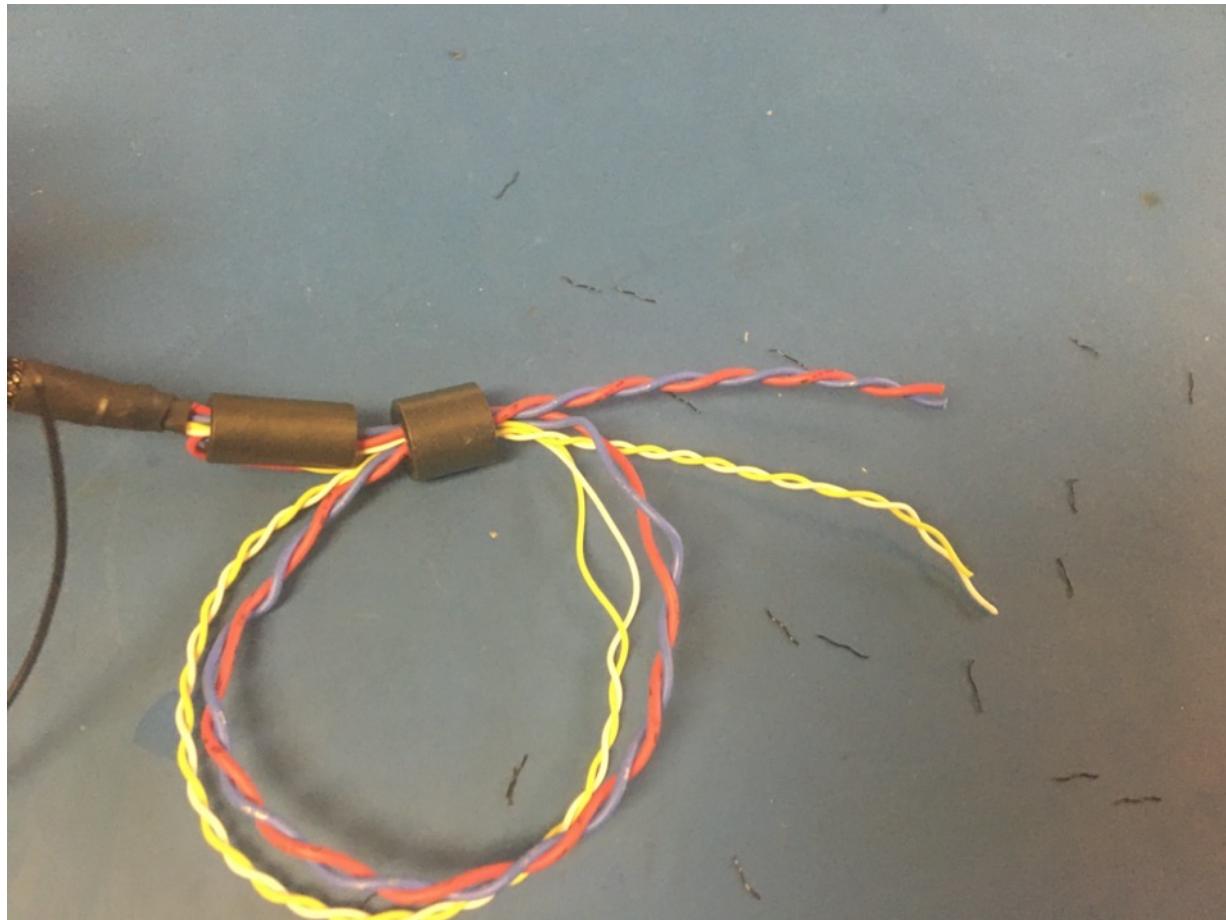
Untwist about 4in of wire next to the ground wire shrink tube joint.



Thread the 75 magnet onto the end of the harness. Then thread the wires back through the bottom of the magnet as shown on the left. Pull the loop of wire taught so the magnet appears as shown on the right.



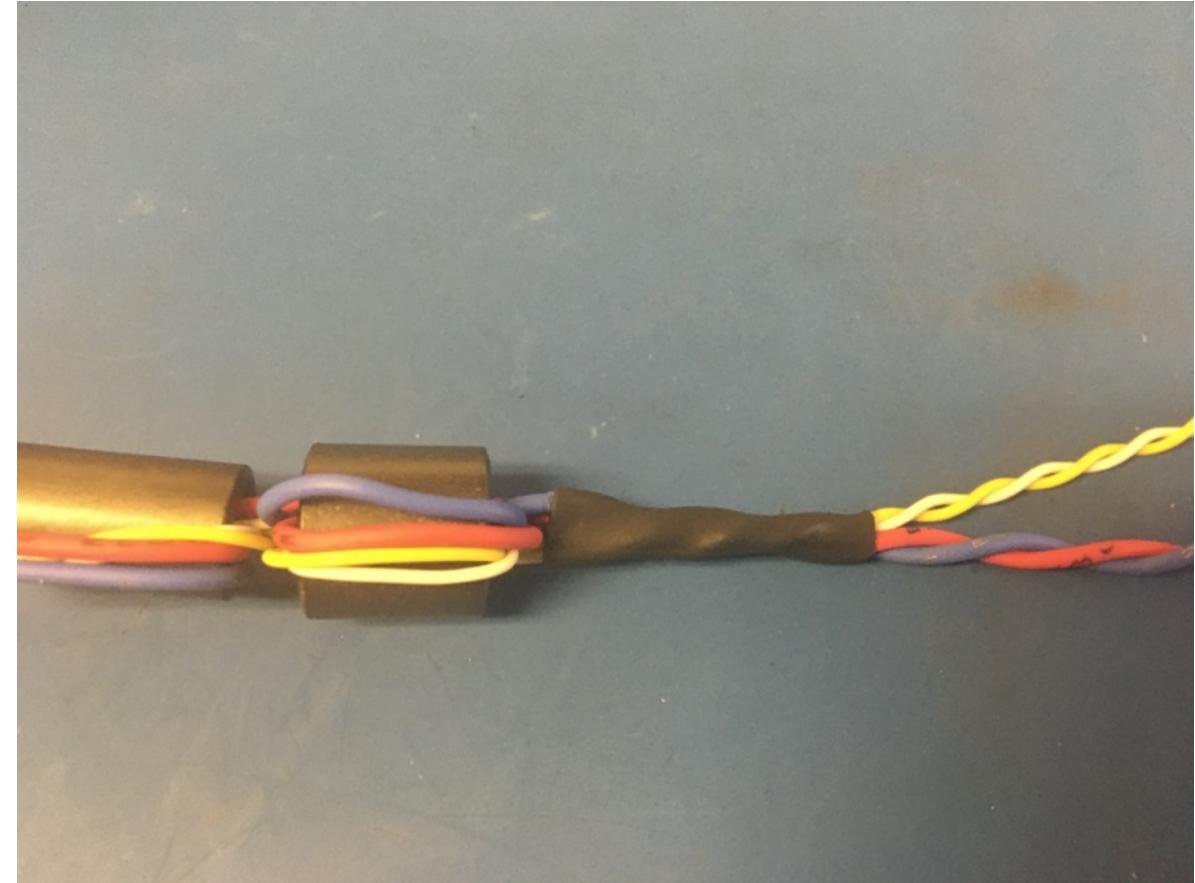
Thread the 43 magnet on just like the 75 magnet. The wires may need to untwisted more for 43 magnet.



Measure out and cut 1in long lengths of 4.8mm and 6.4mm adhesive shrink.



Place the 4.8mm piece of shrink tube onto the wire harness such that it abuts the magnets. Apply the heat gun.



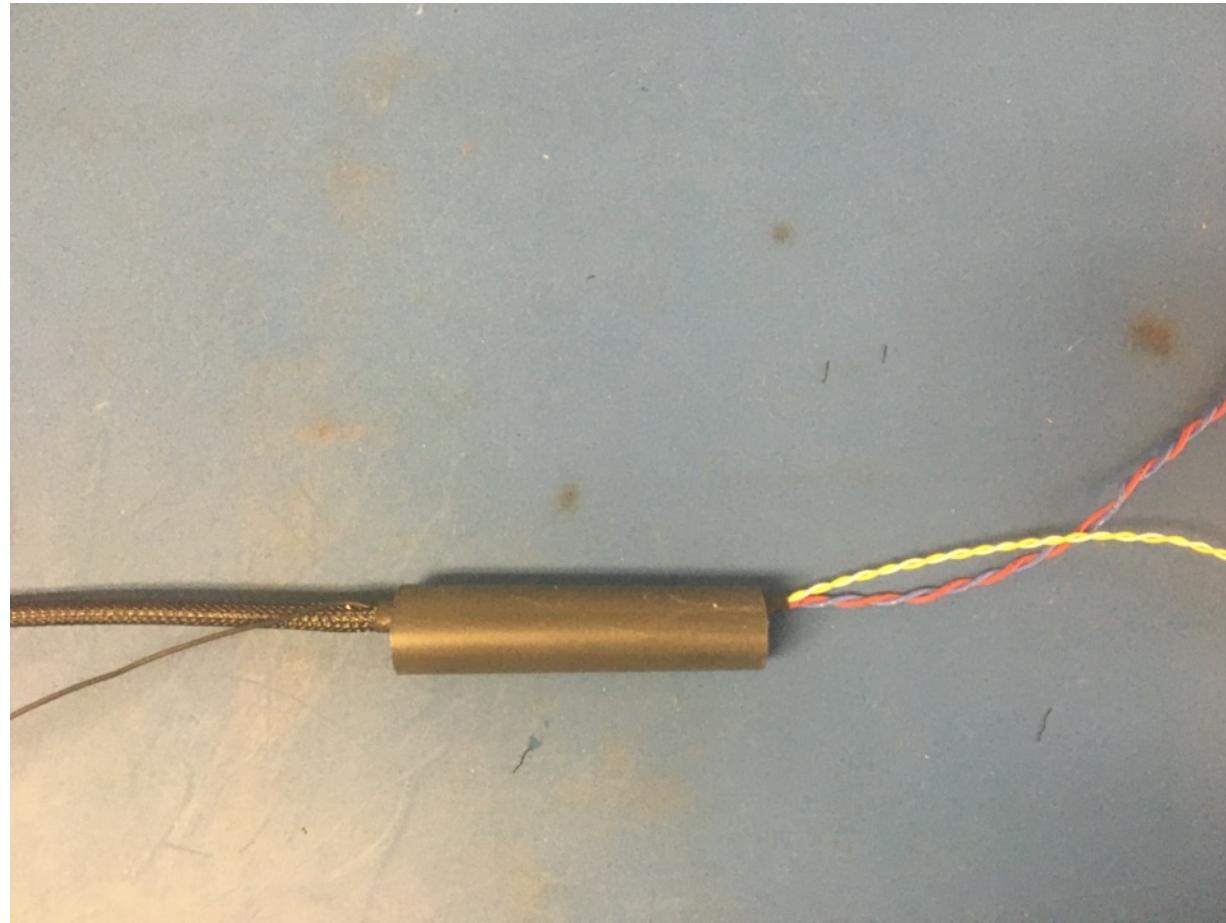
Place the 6.4mm piece of shrink tube onto the wire harness such that it layers atop the 4.8mm piece. Apply the heat gun.



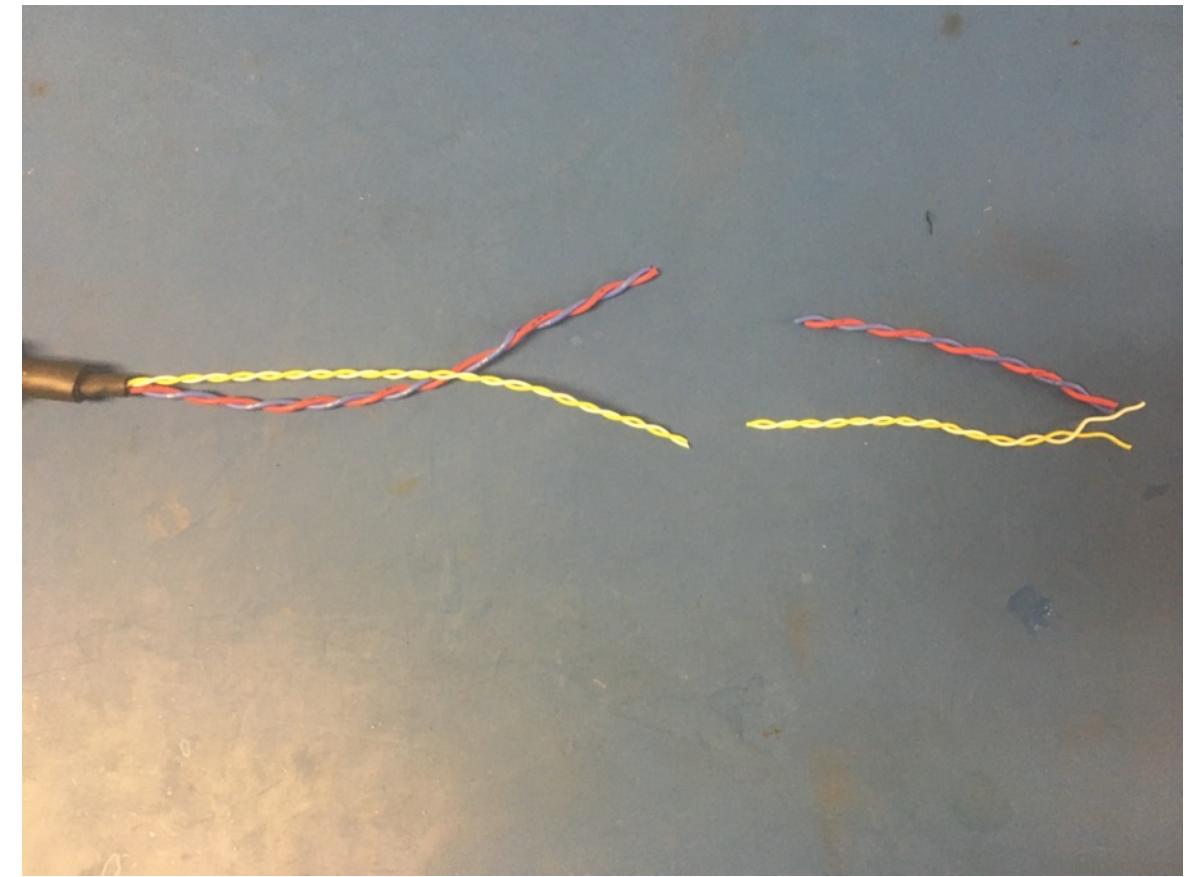
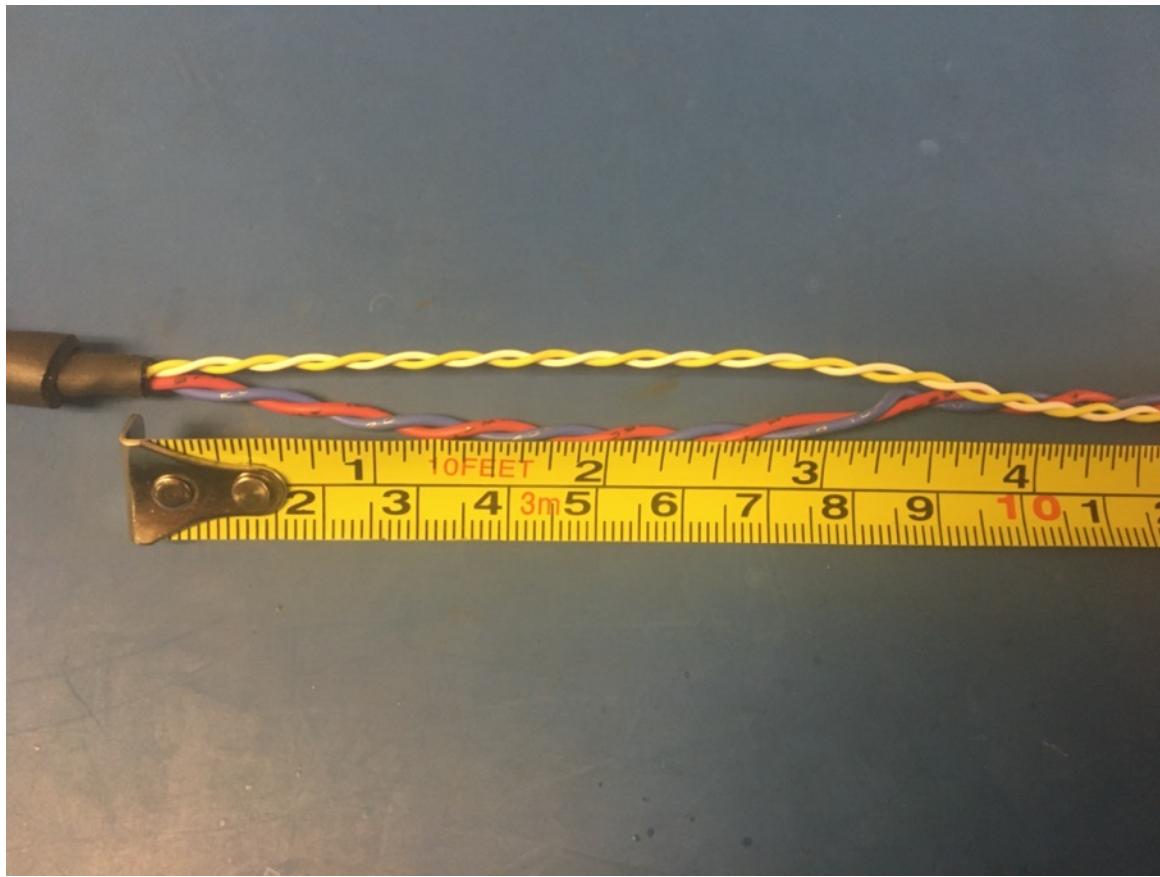
Measure out and cut one length of 16mm adhesive shrink tube that is 2.5in long.



Place the piece of 16mm shrink tube over the magnets so that about equal lengths of shrink tube are visible out of each end.  
Apply the heat gun.



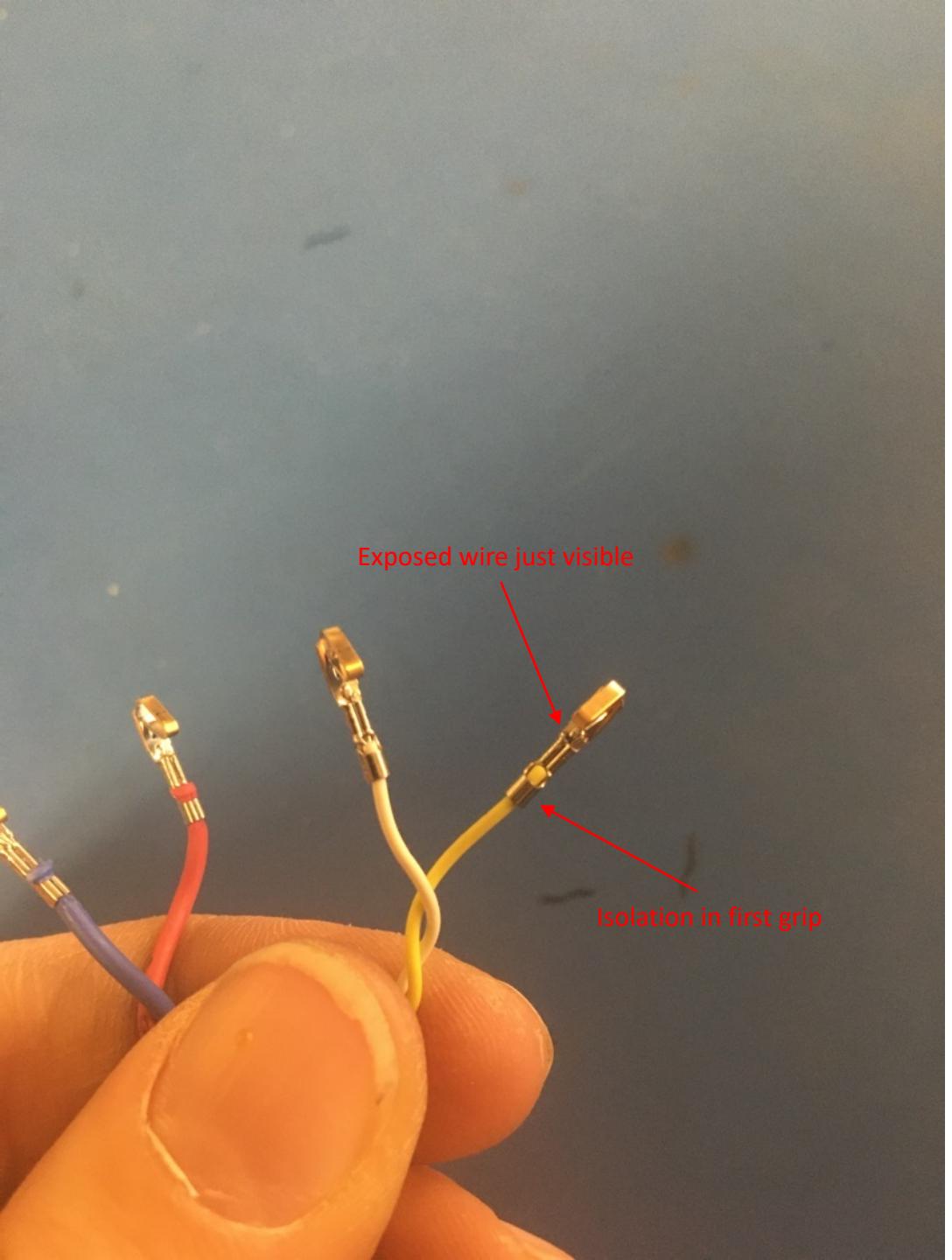
Measure and cut the end of the twisted pair so that they measure 4 inches.



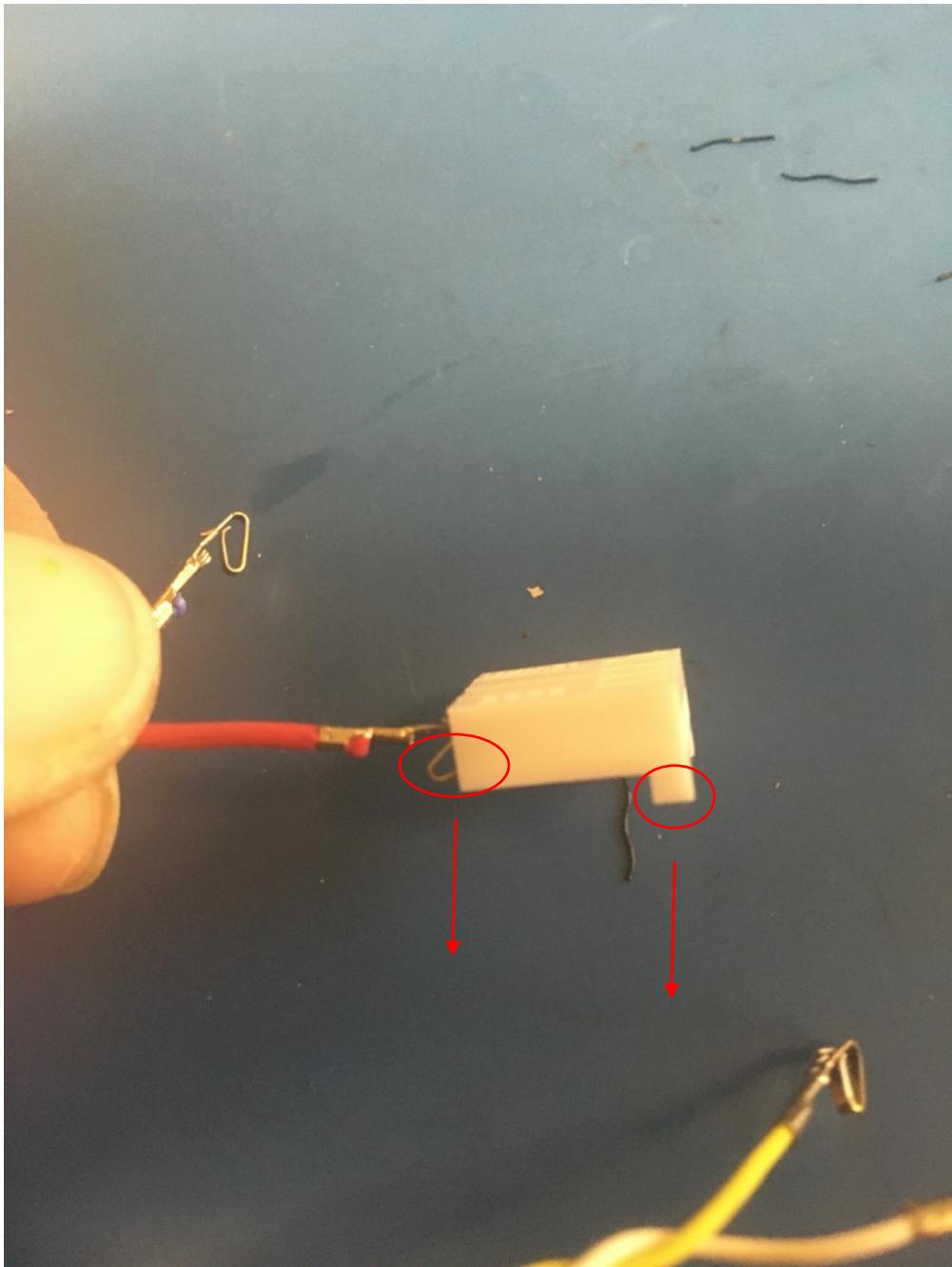


Strip all the wires (about 2-3mm). Using the KK 254 crimper, crimp on KK 254 tips. Be sure to use slot A for the yellow and white wires and slot B for the red and blue wires.

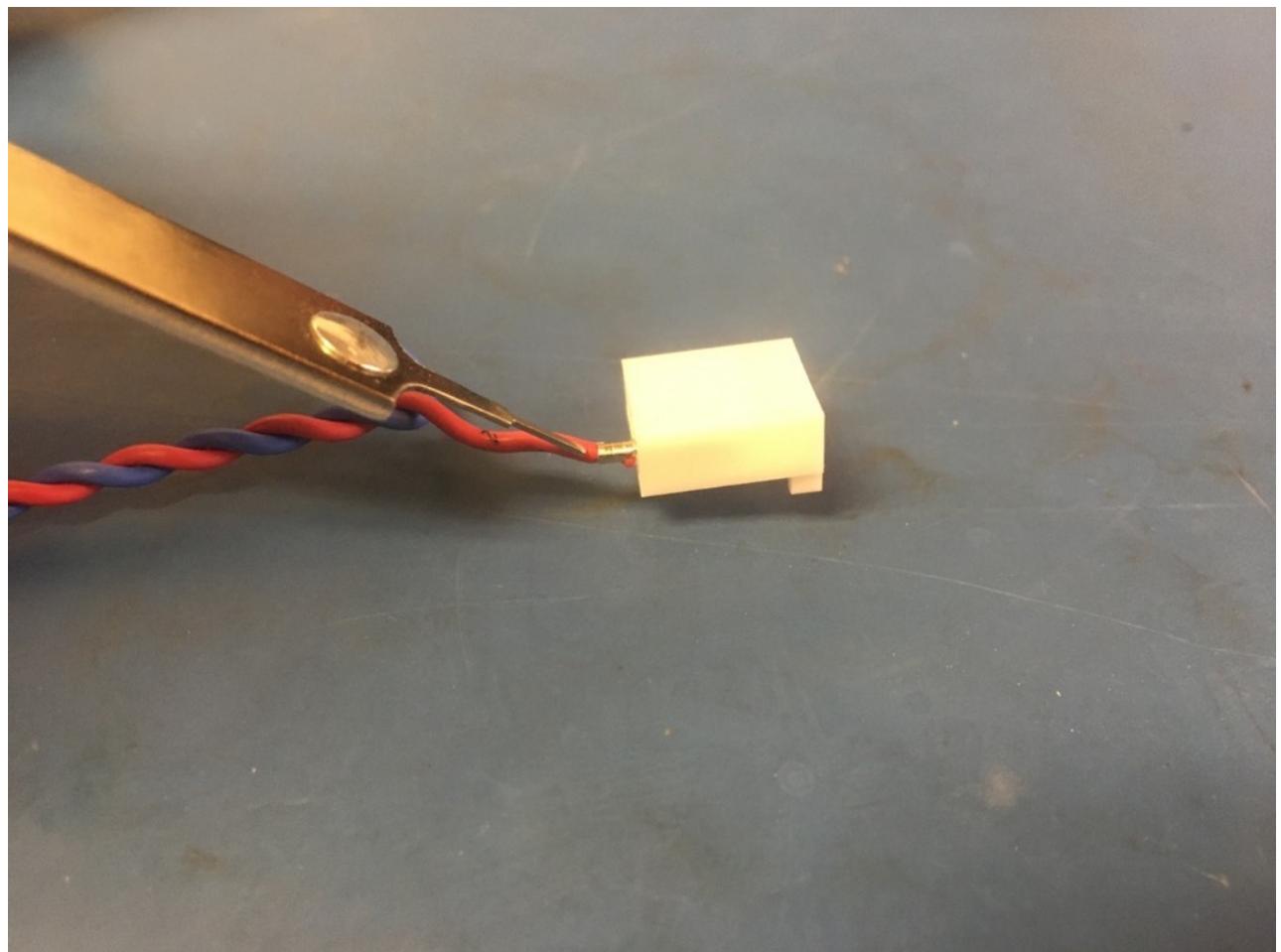


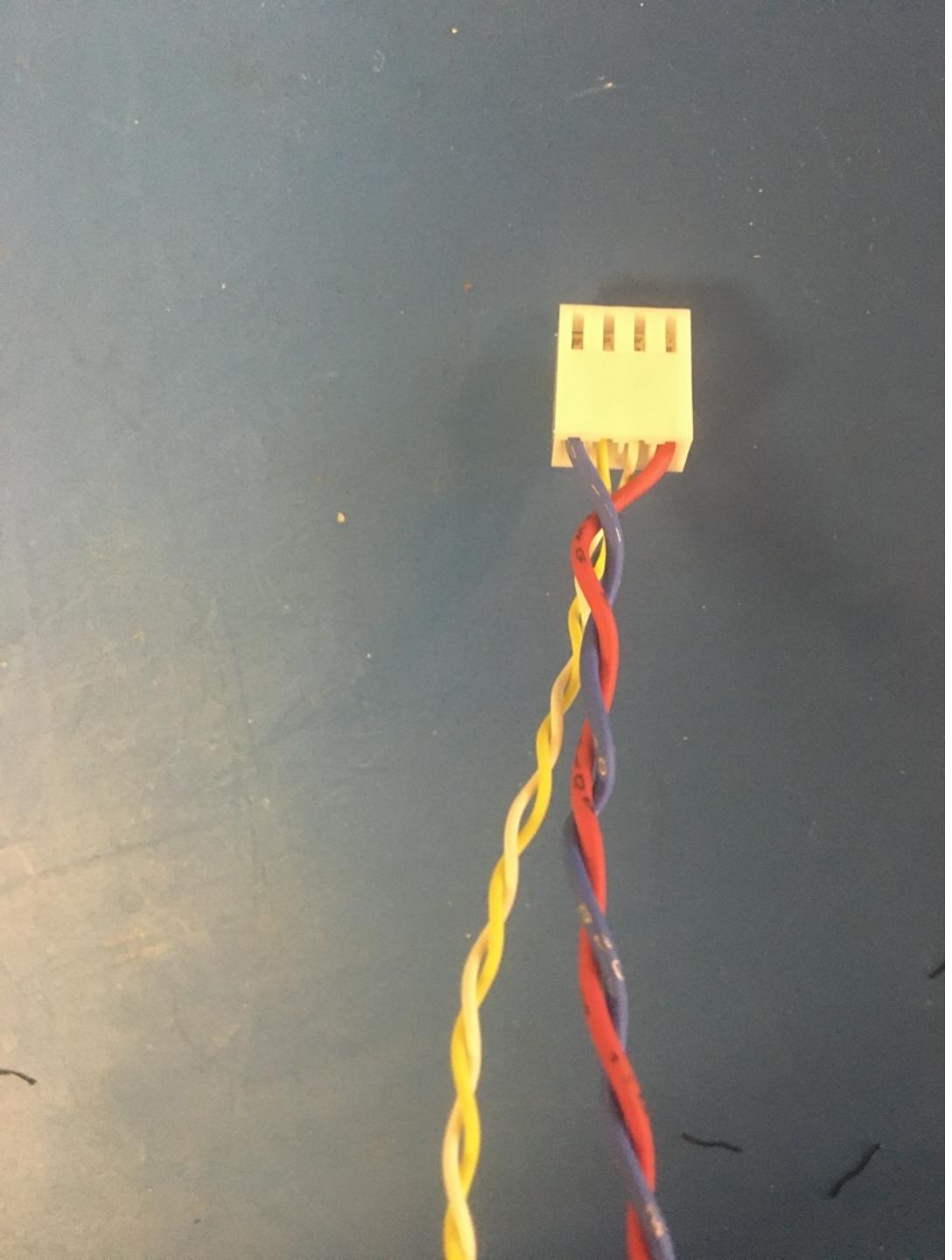


Once the wire ends are crimped, they should look as shown: isolation held by the first grip but not the second and a bit of exposed wire peaking out the end of the second grip.



Before inserting the tips into the connector, have the extrusions of both face down. Then push each tip into the hole of the connector until it clicks. If there are difficulties with pushing the wire tip in by hand, use the metal extraction tool to push on the bottom edge of the it until it clicks in place. Please reference the accompanying pin out document to see where each wire should go.





Once all the wires are inserted, the connector should appear as shown on the left.

Wire harness complete! The ground wire will be given a tip later.

