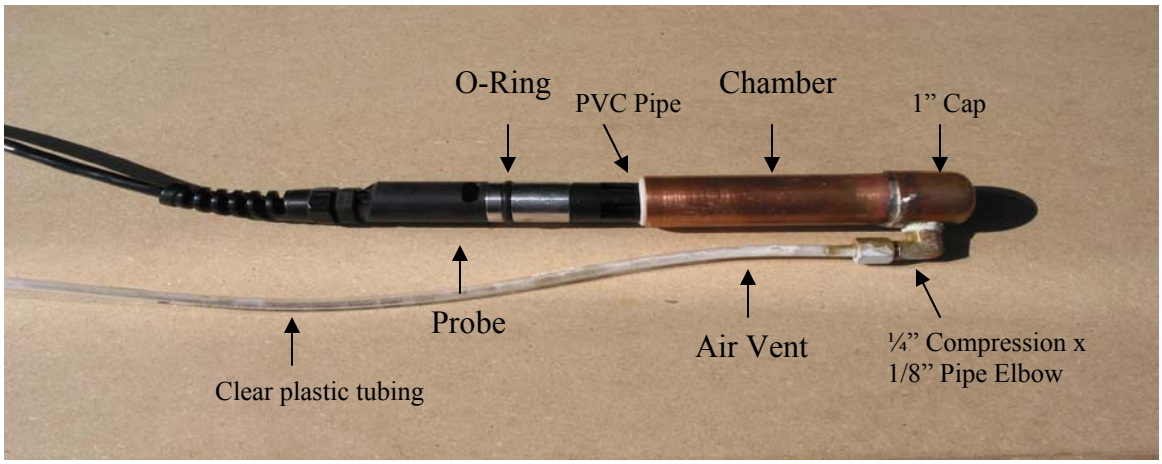

Building a calibration chamber for the YSI-85

Materials needed:

- 3 ½" of 1" Type M copper pipe
- 1" copper cap
- 3" thinwall ¾" PVC
- ¼" compression x 1/8" pipe thread elbow
- thread sealant (Teflon tape)
- 8 – 10' ¼" clear tubing
- 5 minute epoxy
- Sandpaper
- Solder and flux
- Nitrile or latex gloves
- Piece of sponge

Tools needed:

- copper tubing cutter
- sharp knife
- 1/2 round file
- 1/8" pipe thread tap with handle
- 21/64" drill bit and drill
- Drill
- Propane torch

Assembly instructions:

1. Cut 3 ½" piece of the 1" copper pipe.
2. File or sand one end smooth to prevent operator from getting cut on sharp edges.
3. Clean outside of the other end with sandpaper to prepare for soldering.
4. Apply flux to cleaned end of tube and place the 1" cap on this end.
5. Solder the cap in place.
6. Drill 21/64" hole approximately ¾ of the way up from the sealed end of the cap. You will drill through both the cap and the pipe. The threads need the double thickness to hold.
7. Use the 1/8" pipe tap and thread the hole. Be careful as sharp edges will result.
8. Use the thread sealant on the 1/8" pipe thread end of the elbow and screw it into the hold making sure it is tight.
9. Attach the clear tubing with the ¼" compression fitting on the open side of the elbow.
10. Lightly sand the outside of the 3" piece of PVC pipe.
11. Put on the gloves and mix up enough epoxy to cover the PVC pipe.
12. Apply the epoxy to the PVC and insert the PVC into the copper tube making sure it does not cover the elbow on the inside.
13. Wipe off any excess epoxy.
14. Once the epoxy is no longer tacky you can test the chamber.
15. Place the sponge into the chamber and push it to the bottom. Add a few drops of water to moisten.
16. Fill a vessel with water, a five gallon bucket works fine.

Test the chamber:

1. Turn on the meter.
2. Insert the probe into the chamber.
3. Place the probe/chamber into the water and shake to remove any air trapped.
4. Gently blow through the clear plastic tube and watch for escaping bubbles from the chamber.
    a. If you blow too hard there is no way the o-ring will hold.
    b. If the elbow leaks you need to get a better seal.
    c. If the chamber leaks you have two situations.
        i. The epoxy seal was not good enough and you have to start over.
        ii. The o-ring has debris on it and a simple cleaning will do the trick.
5. If the air pressure check works, let the chamber sit for about an hour and recheck to ensure no leaks.