

A PORTABLE ECONOMY PIPING MANOMETER UNDER \$25

Many scientifically-minded pipers like to use a manometer to control how regularly they blow, since uneven pressure in the bag often leads to uneven pitch when playing; I found several how-tos on making a water manometer with coloured water in a tall transparent U-shaped tube, but this is very bulky, awkward to set up and carry around, and you are stuck in one place while using one. So I looked into making one that would pack in my pipe-case and let me walk around while practising,

This meant using an aneroid manometer, but an aneroid-type piping manometer retails at a minimum of \$50 + P&P from piping supplies shops, which offended the frugal inclination of my Scotts forebears.

So I went into Al Gore's wonderful Information Superhighway to gather some ideas, look around for cheap (or free) sources for the materials, and here it is, a portable piping manometer for around \$15 to \$20, or less ! To this end you will need the following:

- One aneroid manometer, as used on blood-pressure testing apparatus (sphygmomanometer). A cheap (read:free) source of usable manometers is from a friendly doctor or health professional who may have some lying around from old sphygmomanometers whose cuffs have perished; if not, search Amazon for "aneroid manometer" in Health and Personal Care, and you should find several offerings around \$10 + P&P each.



- One #0 or #00 rubber stopper, or a cork, to fit the top opening of a drone. Rubber stoppers can be found at your neighbourhood scientific supplies shop, or through mail order: Once again try Amazon, where at the date of writing you can get a pack of "Rubber Stopper, Solid 5Pk #0" for \$4.75 including P&P, which turns out cheaper than ordering a single one directly from a scientific supplies web-site.



- A length of 1 meter of 5 mm inside diameter plastic tubing (40" of 3/16" ID tubing for the Un-Metrical Heathens).

Here again, your friendly doctor could be of help with tubing from an I.V. drip kit; if not, the tubing sold in automotive stores for motorcycle fuel lines should be available in the size you need.



- A 50 cm length of 5mm (40" of 20 AWG) steel wire.

Now, getting all together. You will find the following step easier if you have access to a pillar drill; if not, use a hand drill with due care. Remember you need all your fingers for piping.

- Drill an axial hole through the cork, of the diameter as the OD of your tubing.
- Push one end of the tubing in the hole,.
- Install the manometer at the other end of the tubing, and you are done.



The support, which holds the manometer where you can easily watch it while playing, is made from steel wire shaped as shown in the picture on the left, and fits as shown on the picture on the right: the round loop in the middle fits around the



blowpipe stock, the wide hook at one end around the bass drone stock, and the U-bend is where you clip the manometer on. Shape to fit your pipes, bend so that the manometer face points towards you. I have slipped some plastic tubing over all three curves, to protect the stocks from being damaged by the metal, and to give the manometer clip something to grip on.

To use, remove the blowpipe and put the support in place over the stocks, clip the manometer in position, wind the

tubing a few turns along the length of the middle drone and stick the stopper into the top of the drone.

Random musings and after-thoughts:

- I found no need to put in an elbow to avoid a kink blocking the tubing; that which I got at the automotive store is stiff enough that it curves with no kinking. But watch this if your tubing is thin-walled.
- Rubber stoppers are easier to drill if you keep them for an hour or so in the freezer beforehand.
- There is no need to remove the drone reed, enough air leaks by to give you the pressure reading.
- Drilling through a spare #3 stopper will allow use of the manometer on the bag without drones, when used a a goose for instance.
- If you want to compare your readings with those obtained from a water-tube manometer, a reading of 10 millimetres of mercury on the manometer equals 13.6 centimetres (5.3") of water pressure.
- Remember that unless you use the pressure reading to order reeds of a given stiffness, the precision of the instrument is not very important, what really matters is that the pressure should remain constant (=manometer needle not moving) while you are playing.

As seen from the driver's seat.



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