

# Digital Thermometer Build

December 10, 2012

This is how they start – Taylor 9840N.



Sliding a fingernail between the plastic and the cardboard package results in this.



The thermometer itself comes apart with a coin or your fingernail. The “guts” of the thermometer can be a little tricky to remove given the presence of glue used during original build. A hot air gun and steel picks usually will do the job.



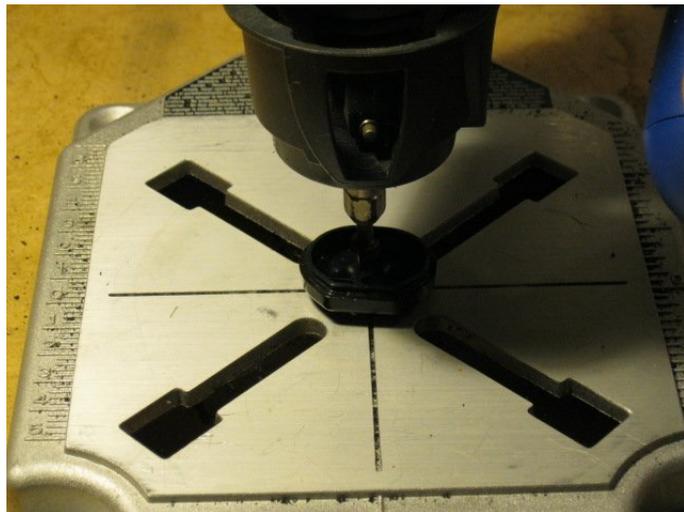
The head is removed by pulling and twisting while the probe housing itself is held firmly in the vise. Lately I have been sticking the removed head in the freezer for a day or so to make the glue removal much easier.



The wires are twisted together in a tight braid to both reduce the overall length and make case fitment easier – a tricky operation as the solder joints are a little fragile.



The body of the thermometer is machined for increased internal clearance.



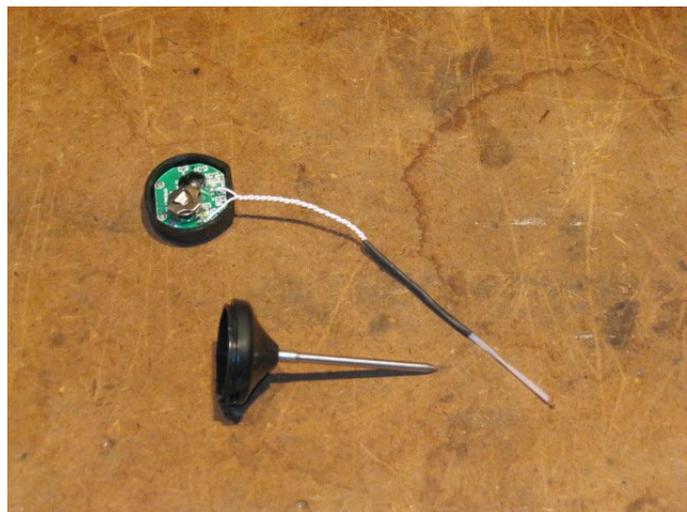
The body is reamed to ensure a tight fit with the custom probe housing.



The custom probe housing is tightly fit into the thermometer body. Depending on mfg tolerances, a little quality adhesive sometimes needs to be used between the probe and the body.



These parts are almost ready for assembly.



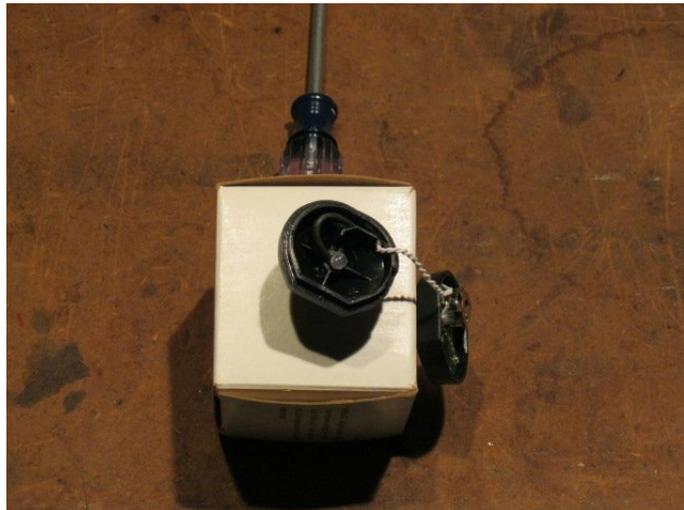
A dab of thermal paste is applied to the thermistor bead to ensure good thermal conductivity between the stainless steel probe housing metal and the thermistor.



The wiring is inserted into the body & probe and is secured by a tapered tack (box and screwdriver used as photo props).



The wiring is wedged between the body and a plastic piece which ensures that the thermistor tip is "bottomed out" in the probe housing.



The completed thermometer (box and screwdriver again used as photo props).



OK . . . Yes, it can be user switched to display degrees Centigrade.



The Digital Thermometer Adaptor Assembly and a pic of the spare parts bag minus a pic of the spare battery.



This is a pic of a replacement thermometer "kit" but also a thermometer prior to installation into the adaptor.



The thermometer inserted into the custom adaptor shown with the plastic thread protector (removed).



Some of the tools used to build the Digital Thermometer Adaptor Kit. It's a little more involved than what one would think.



All thermometers are tested in a “steam bath” whose temperature varies with barometric pressure. I maintain a chart of these temperatures for easy reference based upon my altitude in Silver Spring, Maryland above sea level (300 ft.).



All thermometers sold direct come with a calibration tag showing what the thermometer read and what it was supposed to have read in addition to the date tested. Thermometers destined for countries other than the US **TYPICALLY** have centigrade calibrations also.



OK . . . sometimes, I get carried away. Picture shows about 25 thermometers with their very own calibration tags.

