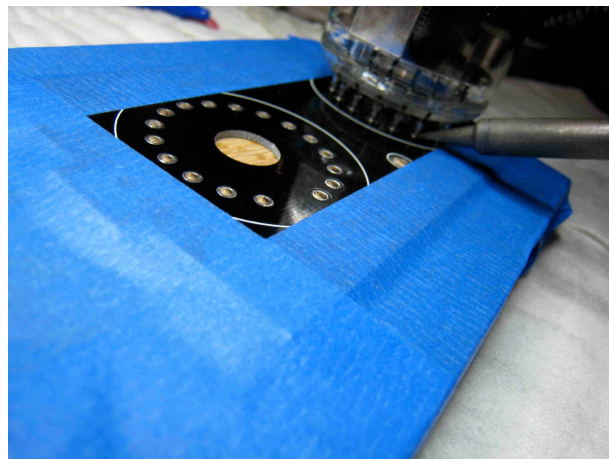
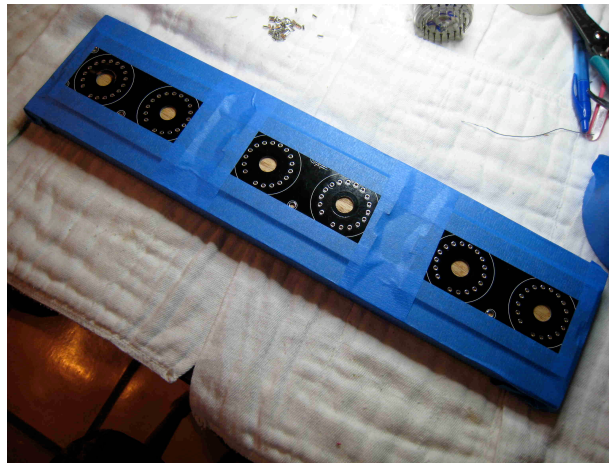


ATTENTION: If you wish to install tube pins raised up vs. flush with the TUBE PCB's you **MUST** install pins first before installing any other components!

Nixie Tube PIN receptacle installation:

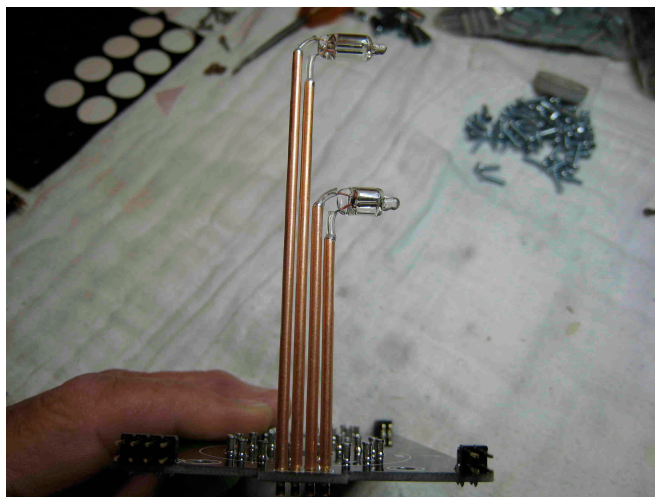
Select a tube with the straightest pins. If any appear bent, CAREFULLY straighten them with needle nose pliers before proceeding. Grabbing the pins too close to the glass envelope can cause breakage. Install a pin receptacle on each of the seventeen Nixie Tube pins, and ensure that all receptacles are completely seated to the base of the pin. With the component side down, place the blank clock Tube boards onto a flat surface. Firmly tape (2" blue Scotch Brand painters tape works well) the edges of the three tube boards to a 'throw-away' section of hardwood, masonite, or smooth surfaced plywood. Be sure to tape the PCBs down very firmly so that they are held flat against the surface and immobilized. Now, position the tube with the pins attached into the hole pattern of one of the tube positions. Press down slightly to make sure the pins are seated into the receptacles and the receptacles are flat against your hard surface and the tube stands straight. Carefully apply heat with your soldering tip to the bottom of the tube pin and the solder tinned pin hole, being careful not to touch the glass tube envelope with your iron. Allow solder to flow into the joint and build up around the base of pin. Do not leave your iron here for an extended period of time. Being careful not to jostle the tube, move to a pin opposite the pin you just soldered and solder that pin to stabilize the tube. Continue the process until all pins are soldered, then remove the tube. When removing the tube, press down on the PCB so as not to break the seal between the bottom of the PCB and the hard surface. Repeat process for the remaining 16 pins.

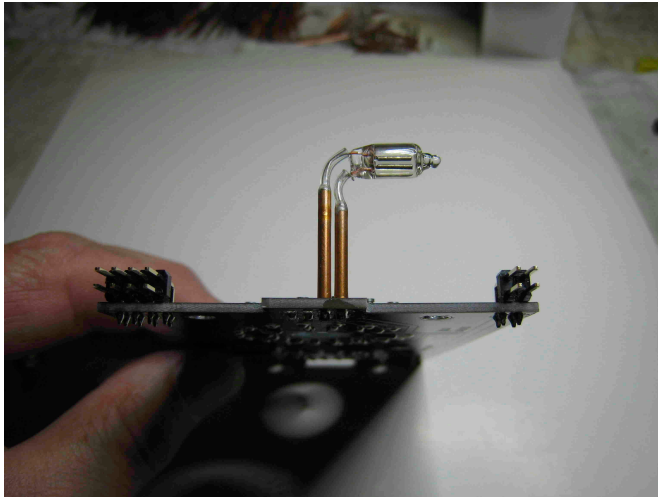




Insert one of the completed upper tower sections in the REAR set of holes marked NE1 on the tube side of the PCB tube board. BE SURE the NE2 is facing forward, as indicated by the arrows on the front of the board. Secure the PCB with the NE2 "tongue" facing standing up and the tower section facing away from you. You should be looking at the solder side of the tube board and the tower section is facing away from you. Take a measurement here. Gently press the tower into the mounting hole so that the bottom of the heat shrink sections are flush against the top of the PCB. Support the tower so that it is as close to perpendicular to the PCB as possible. The horizontal center of the NE2 should be approximately 3-3/8" from the top of the PCB. If it's not, something is wrong. Most likely the heat shrink was cut incorrectly. Correct this before doing anything else or the NE2's will be in the wrong place with respect to the tube numerals. Apply liquid flux to the protruding copper tubing on the solder side of the PCB. Make sure the heat shrink is still flush against the top of the PCB. Even though the tower section is not perpendicular secure the tallest 3.5" tube by applying solder to the joint. This will take a few seconds to become hot enough to solder the entire piece will act as a heat sink. Do not solder the other yet. Position a small machinist square or a small 3" X 3" block of wood you know is square up against the 'down side' of the tower section and the top of the Mouser pins. While reheating the joint you just soldered, gently press the section into 'square' when the joint reheats. Remove the heat and hold for just a second. Do not solder the 3.25" upright yet. Now, insert the lower tower section. Take another measurement. The horizontal center of the NE2 should be approximately 1-15/16" from the top of the PCB. If it is not, fix it. As with the 1st section solder just the rear tube. Now reheat and align to the upper tower section. Eyeball this section to make sure all 4 tubes are in line. If not, reheat and adjust. Once aligned, solder the remaining 2 tubes. Adjust the NE2's until they're right.

Cut the leads on the remaining NE2 to 5/8". Slide the 2 small copper tubing pieces on the leads leaving approx 1/4" from the bottom of the NE2 to the top of the tubing. Solder as before with liquid flux. Apply the 2 small pieces of heat shrink to the AM/PM NE2 again, with the heat shrink up flush against the bulb. Insert the AM/PM NE2 in the forward set of holes next to the Hours/Tens tube and solder from the underside, making sure the heat shrink is flushed up to the PCB. Eyeball till perpendicular to the PCB.





Alternate method

