Assembling VFD Round Clock recommendations

It is quite easy to assemble this clock. Please have a look at circuit diagram and components layout pictures to see what and were components should be soldered in. Here is some recommendation, which I hope will help you to assemble your clock smoothly.

Please note that this clock contains 2 SMD chips, which should be carefully aligned and soldered on the board. If you feel you can not solder SMD components, please let us know and we will supply your kit with pre-soldered SMD chips.

Assembling main uC PCB:

- You are welcome to solder components in any order you would like to do, but below are my recommendations based on the experience I've got assembling this clock.

- Firstly I solder all SMD components I have to. At the current PCB release these are 2 SMD component on the main board – PT6315 and PIC16F648A ICs. Its size is quite small, so make sure you have experience soldering small SMD chips. If not, just let us know before we dispatch the kit to you.
  Just put first IC in the marked position on the board, align it so all its legs step on solder pads, hold it by few fingers and sold one contact. Have a look if its position on the board is OK, then solder opposite raw contact. Again , just check if all IC legs are remains on its solder pads, the solder the rest IC chip contacts. Repeat above for the second SMD IC chip.

- Perform visual inspection of your soldering quality work on SMD components. Use bright torch to illuminate board from beneath, so you can clearly see if all contacts does not have shortcuts between.

- Next step is to solder all low height components, like resistors, diodes, fuse, small capacitors. Please refer to the components layout picture to see were to mount these components.

- Then solder all high height components like electrolytic capacitors, buttons, connectors and buzzer. Please note that buzzer should be installed with correct polarity.

- Solder Transformer. Please note that as transformer was manufactures in China it has first contact on the right bottom row, not as usually in the left bottom raw. Make sure that transformer key matches the key shown on the board.

- Leave display unsoldered yet.

- **Carefully check that all components are soldered to its designed places and they were inserted with correct polarity.**

- **It's worth to check all soldering pads, that it has good contact between board pad and soldered to it component's wire and there is no any shortcuts on the board.**

- Connect your clock to 12DC power supply. Clock should take about 7-10mA. Don't mix polarity on your 12v DC input connection

- It would be good to check the voltages you board is generation now. On Anode D2 diode you should have +5V, on anode of DZ1 or DZ2 zenner diodes you should get about -26V

- Disconnect your clock fro your power adapter and insert VFD display. Carefully align on to the board. Optimal gap between board and display is 3 mm. Solder first and last pins of the display. Double check if display is aligned to the board well.

- Finally solder all display contacts. Make sure you do it carefully and no short cuts left, as display contacts pitch is only 2mm.

- Connect your clock to 12DC power supply. Clock should start running and it takes about 120-130mA at its full brightness.

- Well done! You have successfully assembled VFD Round Clock.

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