

Builder's tips for Softrock Ensemble RXTX kits:

Equipment:

- Get a good, ESD-safe, soldering iron. I have a Weller WES51. I tried 2 Velleman's \$20 irons - fail.
- You'll need a tiny tip (1/64" conical) for the smt chips. A larger tip may suffice for thru-hole components.
- Radio shack 0.022" lead-based solder will be OK.
- Rosin pencil (for occasional use)
- Solder Sucker
- Desoldering ribbon
- Kronos Helping Hands or equivalent. You'll be repositioning the board with each component, so a board vise may be overkill. You will need this sparingly.
- Non-magnetic curved tip forceps.
- Magnifying lamp.
- Surgeon's forceps (different sizes, tips).
- ESD wrist-strap.
- Volt/Ohm/mA meter. I have a Klein MM200 from Home Depot. I never had to use this feature, but it also measures capacitance. (Once the SMT caps get out of the strip, they all look alike!)
- Single-conductor "power pole" wire (for current draw testing).

Most of the tips are based on the idea that a mis-installed thru-hole component can lead to a disaster. Take every step to prevent this from happening, and make sure every component you install can be identified and removed.

You may want to sort the parts on arrival. If you have cramped work environment, this may be counterproductive. However, do segregate the 10K resistors immediately. Also, on each paper tape of capacitors, find the marking, and write it clearly on the paper.

Do not count on your ability to distinguish red and brown bands. Trust only the ohm meter!

Check each resistor value with an ohm meter immediately before installing. When you measure resistance, (if possible) do not even think of the value it's supposed to be. Just read the meter.

Many of the "hairpin" sides of the resistors are used as test points. All resistors should be oriented exactly as indicated on the board. I also install them so the bands read from the top down.

If a thru-hole component must be removed, it is better to risk smashing the component, but preserve all of the lead no matter what. If the lead becomes stuck in the hole, it could be "game over". With this in mind, leave a tiny amount of lead exposed for each component. You only need enough to grip with the surgeon's forceps.

When winding the bifilar turns of a transformer, remember that it will be impossible to count them when you're finished. Do not succumb to distractions while you're doing this part.

I found it convenient to wire both pairs of jumpers straight. If necessary, cut up an audio cable and switch the channels. Unless you're doing critical listening or audio mixing, the cable will still be ok for other uses.

The DC, RF, Audio, and USB connectors are held in place mostly by solder, so really lay it on.

Follow basic ESD precautions. Have your ESD wrist strap on before you take components out of the ESD-safe package.

Some chips do not have a "0" mark. With the lettering right side up, it would be at the lower left corner.

Do not rely on visual inspection of solder connections to inductors. Enamel beats solder every time.

I use Power Pole connectors for all my DC wiring. I have a heavy wire with red Power Pole connectors at each end. I connect this red-to-red, red-to-red, then measure current draw by connecting the mA meter to the 2 black Power Pole connectors.

When tacking the first lead of an SMT component, I found I had a tendency to let go of the piece so it falls into the melted solder. Instead, push down on the lead with the soldering iron tip. Also, I found tinning one lead was sufficient. Some people recommend tacking 2 opposite corners.

Take your time.