

## 40M SDR Build Notes

1. Read all steps before warming your soldering iron!
2. Build and test transformer, T1. Refer separate how-to document.
3. Build and test the 5V module
  - i. instal DC power jack J1, D1, C1, C2, and U1 (5V 78L05). Check carefully, U1 looks like a transistor. D1 & U1 need to be orientated the same way as the silkscreen.
  - ii. Apply power to the power jack, anything in the range 6 – 15V
  - iii. Use the schematic to identify the 5V rail, measure and confirm you have 5V
  - iv. Remove the power from the power jack
4. Install U3 & U4 (SA612) if you are using SMD. Otherwise skip this step.
5. Install the axial inductor L1 – it looks like a resistor, just a bit plumper.
6. Install all resistors. R1, R2, R3, R4, R5. R6, R7, R8, R9, R10, R11.
7. Install all capacitors. C3, C4, C5, C6, C7, C8, C9, C10, C11, C12.
8. Install the two transistors. Q1, Q2. Orientate as shown on silkscreen
9. Install the crystal. Y1. Lift it approx. 1mm off the board to avoid any chance of the crystal case touching the solder masks
10. Install coaxial connector J3.
11. Install audio jack J2.
12. Install the 74AC74 IC. U2
13. Install the two SA612 if through hole. U3, U4.
14. Scrub both sides of the board with isopropyl alcohol and a toothbrush. Wipe clean with a cotton bud or soft cloth.
15. Install the four corner posts.

Resistors. I find the colour codes are hard to decipher. Use a multimeter.

Capacitors. Marked with numbers.

- i. 10pF = 10
- ii. 100pF = 101
- iii. 470pF = 471
- iv. 100nF = 104
- v. 330nF = 334
- vi. 1uF = 105

Sockets & jacks. They are all a snug fit. Take your time to carefully align the pins with the holes. Don't force fit, all that is required is a bit of care and patience.

There's a small notch on the short edge of the IC sockets and ICs. When installing, orientate to match the silkscreen. The IC pins tend to be splayed a little more than required to fit in the sockets. Use your fingers and gentle pressure to squeeze the pins in a little, and only a little.

If you need to remove an IC from its socket, use a very thin blade, eg a jeweller screwdriver, on the short edge between the IC and socket. Lift one edge a whisker, then the other edge. The ICs need to be lifted out evenly. If you prise up one end too much the pins at the other end will bend and potentially break (not a good thing).