QUICK GUIDE TO ALIGNMENT OF TJ2B

（For kits shipped after 16 June, 2013）

Modification: R62 – 680 ohm resistor; D18 – 100 ohm +1N4007, i.e.., parallel a 100 ohm resistor across 1N4007; RFC 4 – 56 ohm resistor; RFC 5 – TDK miniature inductor

Detailed DDS Setup please refer to the Construction Guide. However, when calibrating DDS clock, use 100Hz step, and rotate TUNE until the frequency counter reading is flashing between 11.999999 and 12.000000 for more precise DDS output.

1. Calibrating BFO and IF Transformer

With the 7-wire and the 2-wire speaker cables connected, turn on the power. You don't have to connect the LO cable and the 2-wire MIC now. The MIC wire is not very long, and would limit the PCB movement. Why not use longer cable for MIC? Long MIC wire would pick up noise and interference and cause multi-function. Select LSB. Connect the frequency counter probe to the left side of C40. Insert a 470-ohm resistor between the test point and the probe to minimize the pulling. The resistor value is not critical, 220 – 1k is OK. Adjust L2 until the frequency is 8.99840 MHz. Select USB, and adjust VC1 until the reading is 2.8kHz higher than that of LSB, i.e., 9.0012MHz. You may find that at LSB the L2 slug is almost out, but the frequency is lower than 8.99840 MHz. Don't worry. This means this group of crystals has a lower center frequency. Please adjust L2 until the frequency is 8.99800 MHz, and the USB frequency is 9.00080 MHz. In this case, you have to modify SETUP again. Press SETUP, and enter IF Setup. Modify -1600 to -2000.

Now, adjust the 10k trimmer on CN2 until D4 is the brightest. Rotate AF GAIN to increase the volume. Adjust the slug of T4 and listen carefully. You may find a point at which the hiss sound is the loudest, i.e., to peak the hiss sound.

Solder the DDS LO cable to CN1. Connect the antenna to the BNC connector of TJ2B, You can immediately hear the noise coming form the sky. Rotate TUNE, you can hear broadcast and ham signals.

2. Calibrating IF Trap

Rotate TUNE to reach 8.99800MHz. Use 100KHz step first and then use 10KHz or 1KHz step. 100KHz step makes the tuning faster since TJ2B has no band switch foe simplicity. At this frequency there is usually no broadcast signal. Let's make use of the noise from the sky. Adjust L3, until the received noise is the weakest, -- not to peak the received signal this time, but to suppress the received the signal. Now, L3 is done.

3. Testing Transmission

Plug in CN4. Assemble the power transistor assembly (with the aluminum plate). Solder the power transistor leads. Never try to test transmission without the aluminum plate. The power transistor would be damaged immediately without the aluminum plate. First set the frequency to 40m. Press PTT, and you may notice the needle of your power meter moves forward a little, i.e., a jump, and quickly returns. This indicates the TX unit works! Speak to MIC, the power meter needle swings merrily. Please remember, because of the inertia of the meter needle, the reading can not follow the speech pattern. The reading may be much lower, maybe half the power, i.e., a 2 Watt reading may indicate 4 Watts.