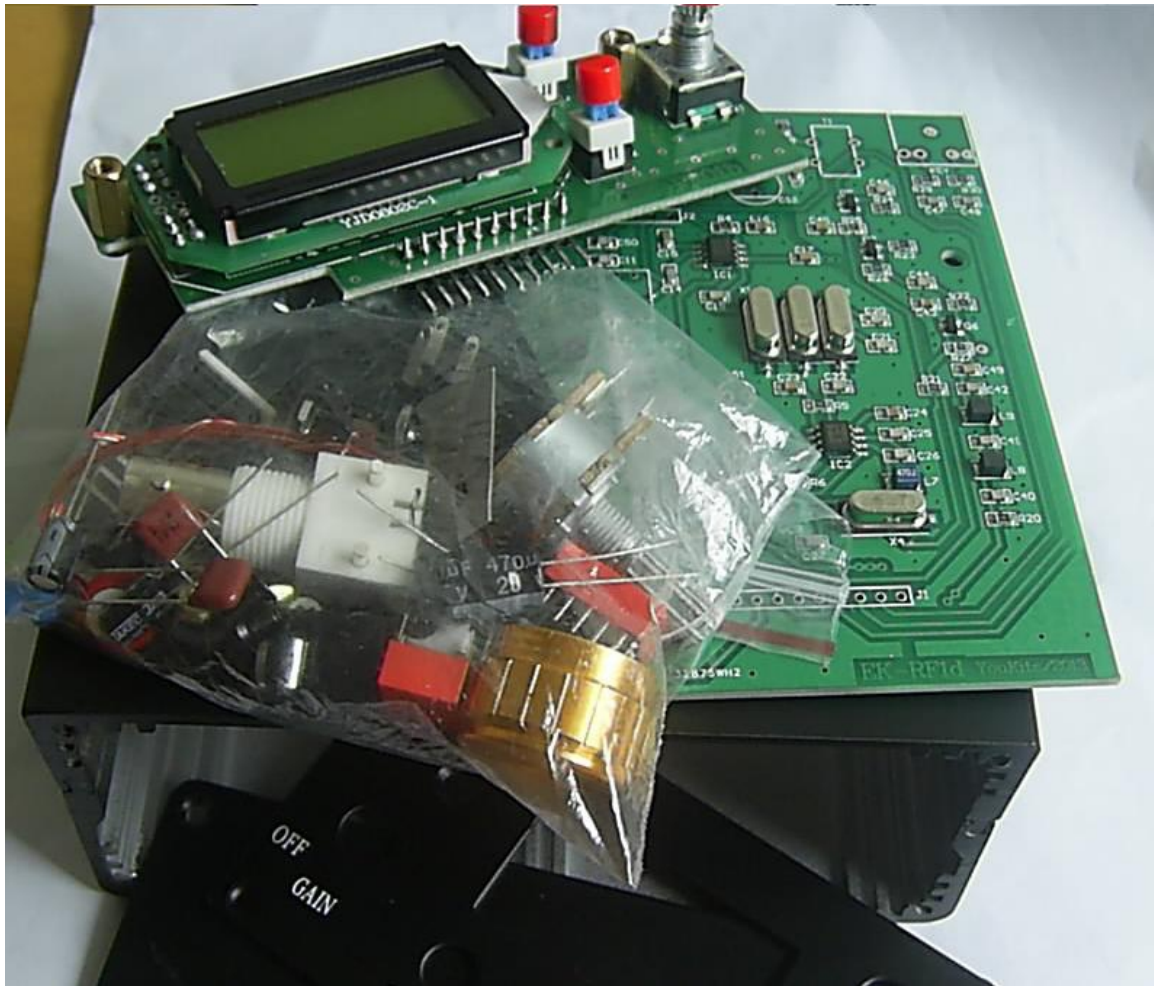


# **EK-1B 3 Band CW QRP Transceiver kit**

## **Assemble manual**

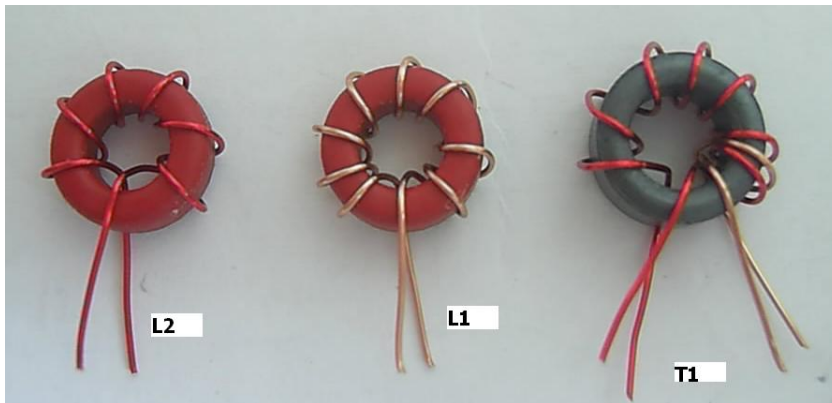


EK-1B 3 Band CW QRP transceiver kit is easy to build, it has SMD finished by the factory. There are 2pcs of PCB, the main board and display board. To guarantee the building success, the display board and main board have been assembled and tested including the MCU, LCD and DDS.

## EK-1B part list

| Name                    | Description               | QTY | Mark             |
|-------------------------|---------------------------|-----|------------------|
| Encoder                 |                           | 1   |                  |
| Volume adjustment       | 1K with on/off            | 1   | AF/SW            |
| Volume adjustment       |                           | 1   |                  |
|                         |                           |     |                  |
| Q9 mounts               |                           | 1   | ANT              |
| Battery socket          |                           | 1   | BAT              |
| Power jack              |                           | 1   | +V               |
| Headphone jack          |                           | 2   | PHONE、KEY        |
|                         |                           |     |                  |
| I-inductance            | 10uH                      | 1   | L3               |
| Electrolytic capacitors | 470uF                     | 1   | C52              |
| Electrolytic capacitors | 100uF                     | 3   | C33、C37、C51      |
| Polyester capacitors    | 0.01                      | 2   | C35、C36          |
|                         |                           |     |                  |
| Toroid                  | Black core                | 1   | T1               |
| Magnetic inductance     | Red core                  | 2   | L1、L2            |
| enamel insulated wire   | red、yellow 0.5meter each  |     |                  |
| Transistor              | 2078                      | 1   | Q9               |
| regulator               | LM2940CT-12               | 1   | Q10              |
| relay                   | EA2-12                    | 2   | K1、K2            |
|                         |                           |     |                  |
| 3mm*8 screw black       | Secure 2078 and regulator | 2   |                  |
| 3mm nut                 | Secure 2078 and regulator | 2   |                  |
| 3mm*5 screw black       | Secure enclosure          | 10  | Countersunk head |
| insulation pad          | Secure 2078               | 1   |                  |
| Insulating particles    | Secure 2078               | 1   |                  |
| feet                    |                           | 4   |                  |
|                         |                           |     |                  |
| Display board           | Assembled tested          | 1   |                  |
| Main board              | SMD finished              | 1   |                  |
| enclosure               |                           | 1   |                  |

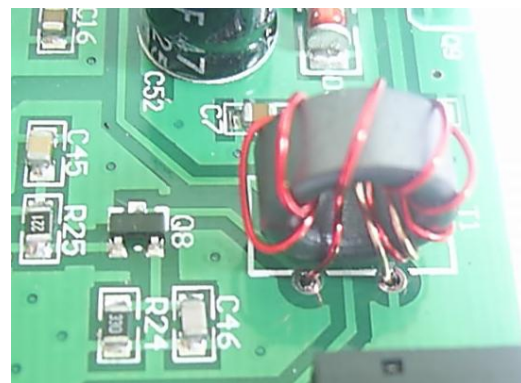
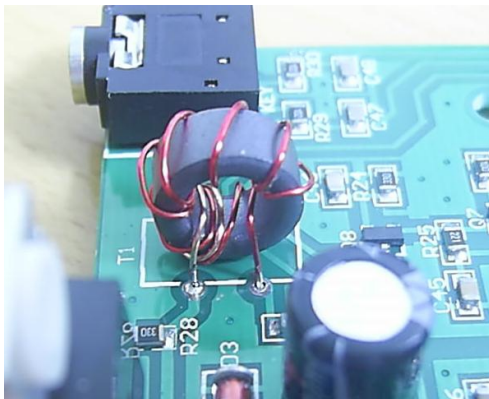
3 cores need to be made by builder:



Magnetic inductance L1: please use yellow enamel insulated wire, about 15cm, make 9 turns.

Magnetic inductance L2: please use red enamel insulated wire, about 15cm, make 7 turns. As above.

T1 transformer is 8:2, please use red enamel insulated wire, about 15cm, make 8 turns as primary. Use yellow enamel insulated wire, about 6cm, make 2 turns as secondary. Connect primary to the 2 pads connected to C7 and Q8, secondary to the pad connected to R28 and ground. As below.

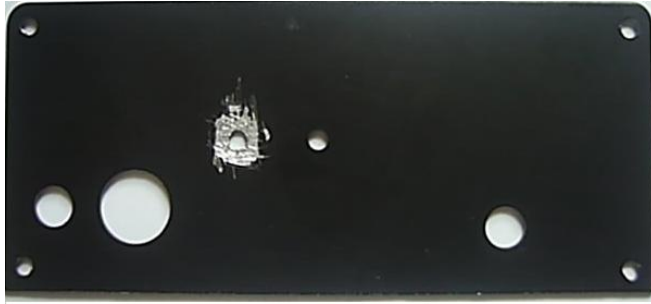


Please install all other parts except Q9 and Q10.

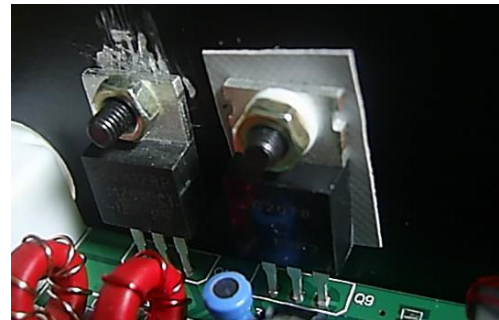
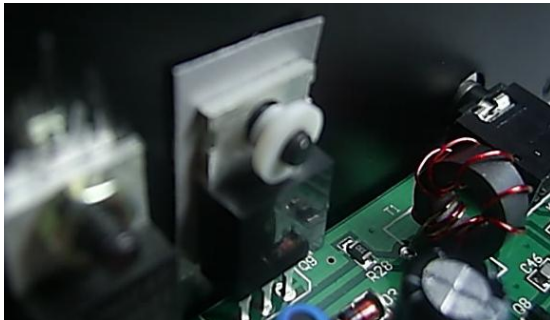


Notice:

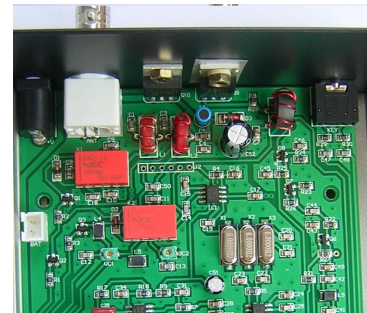
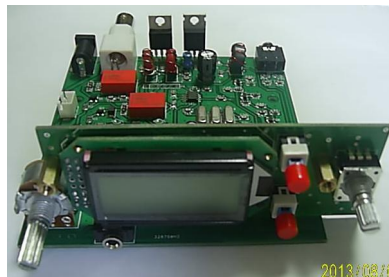
1. Please notice the direction of Relay K1 and K2, also the direction of Electrolytic capacitors C33、C37、C51、C52.



2. Before install Q10, please scratch the install position on the back cover to Q10 has a good surface contact.



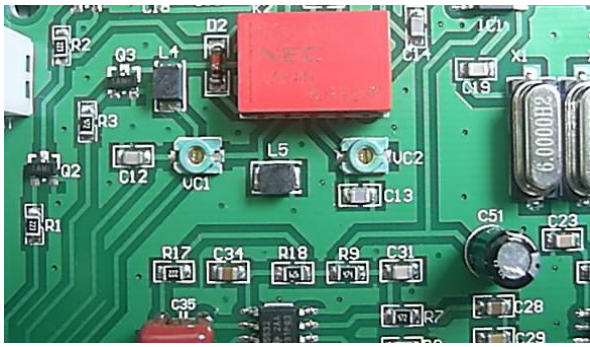
3. After installing all other parts, please install the the back cover and secure the Q9 and Q10, solder them to the PCB and cut the extra leads. Then secure the Q9, but use insulation pad and insulating washer then secure Q10, as above.



Testing:

Double check all the soldering point then connect power and turn it on. If the current is around 120mA, it's OK to proceed. Current higher or lower than 120mA, there are issues that must be corrected before processing.

Plug your headphone to phone jack, put signal generator to ANT, put generator with a 5uV signal, adjust frequency to 21.100Mhz or close to this frequency, put EK-1B on same frequency, now adjust VC3 to receive a 700Hz beat frequency, then adjust VC1 to max the receiver sensitivity.



Adjust signal generator frequency to 14.100Mhz or close to frequency, put EK-1B on same frequency, now adjust VC2 to max the receiver sensitivity.

Remove the signal generator then connect a dummy load to the antenna connection.

Please plug your key to Key/Paddle jack, test key, if it's OK then testing finished. Now we can finish the assemble.



Secure the back cover with screws, put studs on the display board and then secure the front cover. Install two knobs, assemble finished.



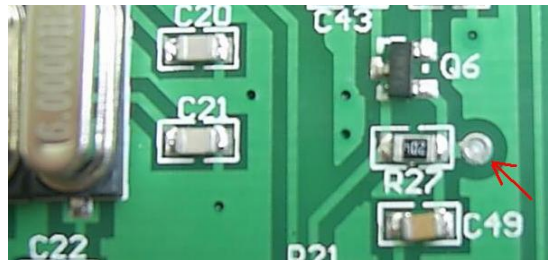
## DDS Calibration

DDS has been calibrated in factory, if a calibration is needed, please follow below:

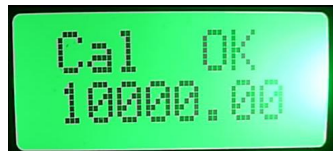
1. Power off, press and push V/M/SAV and RIT/SET then power on, showing below on screen then release these two buttons.



2. Waiting for 2 second, display change to below. Put your frequency counter to DDS testing point, the pad close to R27.



Now the frequency counter reading should be same as screen display (10000.00KHz), please adjust the tune knob if adjustment needed, pressing V/M/SAV for 2 second, the screen display below release, push V/M/SAV again to end.



The 10 memory position will also be reset back to factory when you do the DDS calibration.

Youkits

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