

Thank you for purchasing our kit. We are available for consultation by email at [bd6cr@crkits.com](mailto:bd6cr@crkits.com) and at the Yahoo group [http://groups.yahoo.com/group/CHINA\\_QRP](http://groups.yahoo.com/group/CHINA_QRP).

This quick guide is not a full manual; it only highlights the key points you need to take care during the building of this kit. A step-by-step manual with lots of photos will be available for downloading at <http://crkits.com/knq7amanual.pdf>.

**Notes for parts inventory:** All the resistors, trimmers, potentiometers, and 0.1  $\mu$ F (104) ceramic capacitors are in one plastic bag inside the components bag. A complete part list will be available for downloading at <http://crkits.com/knq7apartlist.pdf>.

#### Notes for PCB v2.1a:

- PCB marking should be self-explanatory, but do not install the components with a \* marking until you read all the manual and understand the reason for the marking.
- One 1.5k resistor near MC1350 and one 10k resistor near TUNE potentiometer are added.
- Removed one 1N5401 and added PCB fuse design near DC IN connector to avoid frequently made mistake while setting bias for final TX amplifier.
- Fixed PCB mistake on previous PCB version, so jumper wire is no longer needed.
- C3357 is the only surface mount component. It comes with RE or RF marking on the body.
- Crystals are marked in two groups Xa and Xb. The Xa marking is for IF filters and BFO crystals, whereas the Xb marking is for VXO crystals.
- IFT marked as DIY7-7\* needs to be reworked first to remove the built-in tubular capacitor.
- Use linear tape potentiometer marked B10K for IF GAIN control and logarithmic potentiometer marked A10K for TUNE control. It helps tuning linearity.
- LPF coils marked as 1  $\mu$ H are wound with 15 turns on the red T37-2 toroids. Previously Chinese NXO-10 toroids with 12 turns are used.
- Transformers T1, T2, and T3 are wound with 5 turns bifilar on the black FT37-43 toroids, connecting two ends of different windings in the middle. Previously Chinese NXO-100 toroids with 5 turns bifilar are used.
- The 7808, D882, and IRF640 semiconductors should be installed on the chassis bottom to help the heat dissipation. The 7808 may be installed directly with an M3x10 screw and M3 nut, the D882 needs to add an insulator pad between the component and the chassis bottom, and the IRF640 needs to add both an insulator pad and a small white insulator washer.

**Notes for assembly:** You will need to drill 7x M3 holes in the chassis bottom by yourself. A drilling template will be available at <http://crkits.com/knq7atemplate.pdf>, and you will need to print on the A4 size paper in 100% scale. Use M3x10 screws and M3 nuts to install the chassis feet and 7808, D882, and IRF640 semiconductors. Use the flat head M3x6 screws and M3 nuts to install the panel-mount SL-16 (M or SO-239 equivalent) antenna connector. Eight black screws are used for the front and rear panels.

**Alignment:** The tuning range can be adjusted by turning the core of the IFT marked DIY7-7\*; turning it deeper means lower and wider frequency range. Turn the RF ATT trimmer to fully counter-clockwise, then peak the RX IFT's with on-air signals. Adjust trimmer capacitor marked VC to proper audio spectrum of about 350~2200Hz. If you suffer from broadcast interference, adjust RF ATT clockwise on board. Preset SET BIAS trimmer fully counter clockwise first and adjust the TX bias current by slowly turning the SET BIAS trimmer clockwise until the current increases 60mA (likely from 0.48A to 0.54A, while you just press PTT and don't speak to microphone). Finally peak the TX IFT's for maximum power.