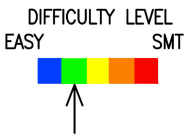
QRPGuys K8TND AM BCB Receiver



First, familiarize yourself with the parts and check for all the components. If a part is missing, please contact us at ***grpguys.parts@gmail.com*** and we will send you one.

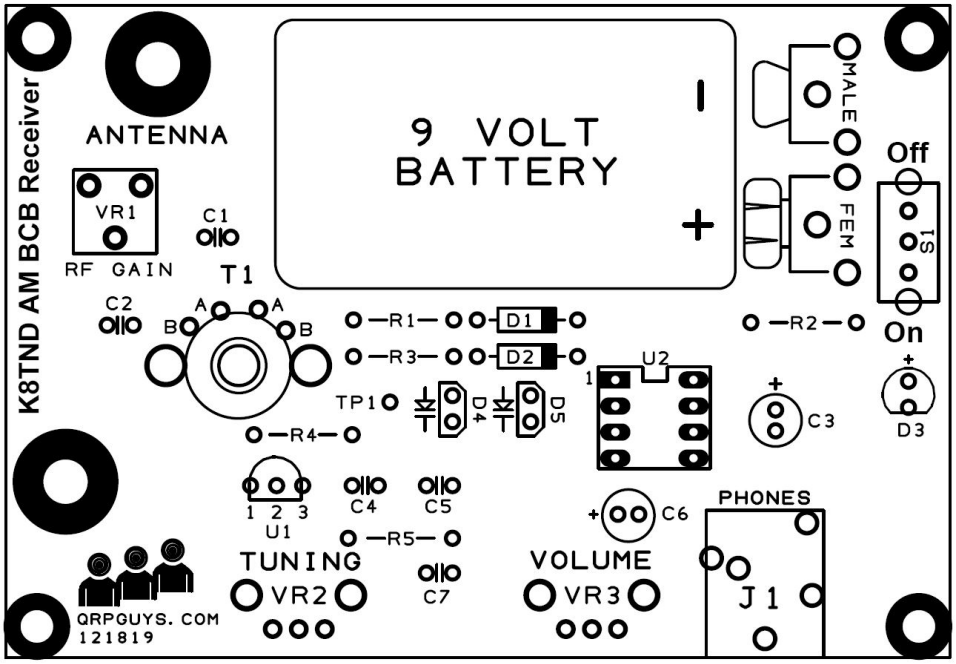
Please read all the instructions before starting to assemble the receiver.

Parts List

1 – QRPGuys K8TND AM BCB Receiver PCB
1 – U1, TA7642 TO-92 IC
1 – U2, LM386 DIP IC
2 – D1,2, 1N4007 diode (black w/silver band)
1 – D3, red LED
2 – D4,5, V149 varactor diode
1 – C1, 100pF NP0/C0G capacitor, marked 101
2 – C2,5, 10nF (.01uF) mono capacitor, marked 103
1 – C3, 100uF electrolytic capacitor
2 – C4,7, 100nF (.1uF) mono capacitor, marked 104
1 – C6, 1uF electrolytic capacitor
1 – R1, 470 ohm (yellow-violet-brown-gold)
2 – R2,3, 1K resistor (brown-black-red-gold)
1 – R4, 1M (brown-black-green-gold)
1 – R5, 10K resistor (brown-black-orange-gold)
1 – VR1, 1K, 6mm, vertical trimpot
2 – VR2,3, 10K 9mm horz, pot
1 – 8pin dip socket
1 – 3.5mm stereo pcb socket
1 - +9v battery clip
1 - -9v battery clip
1 – S1, spdt slide switch

1 – FT37-43 toroid (black)
2’ – 26awg magnet wire
2 – small plastic ties
2 – 8-32 SS wing nut
4 – 8-32 SS nut
2 - #8 SS internal lock washer
4 – Ø3/8” self adhesive rubber foot

Using the guide below, start assembling with the smallest parts first.



[ ] Install C1, 100pF NP0/C0G capacitor, marked 101

[ ] Install C2,5, 10nF (.01uF) mono capacitor, marked 103

[ ] Install C4,7, 100nF (.1uF) mono capacitor, marked 104

[ ] Install R1, 470 ohm (yellow-violet-brown-gold)

[ ] Install R2,3, 1K resistor (brown-black-red-gold)

[ ] Install R4, 1M (brown-black-green-gold)

[ ] Install R5, 10K resistor (brown-black-orange-gold)

[ ] Install D1,2, 1N4007 diode (black w/silver band), *match the silkscreen band*

[ ] Install 8pin DIP socket

[ ] Install U1, TA7642, TO-92 IC*, match the silkscreen outline*

[ ] Install D4,5, V149 varactor diode, *polarity sensitive, match the board outline*

[ ] Install D3, red LED, *observe polarity, the long lead is positive*

[ ] Install C3, 100uF electrolytic capacitor*, long lead is "+"*

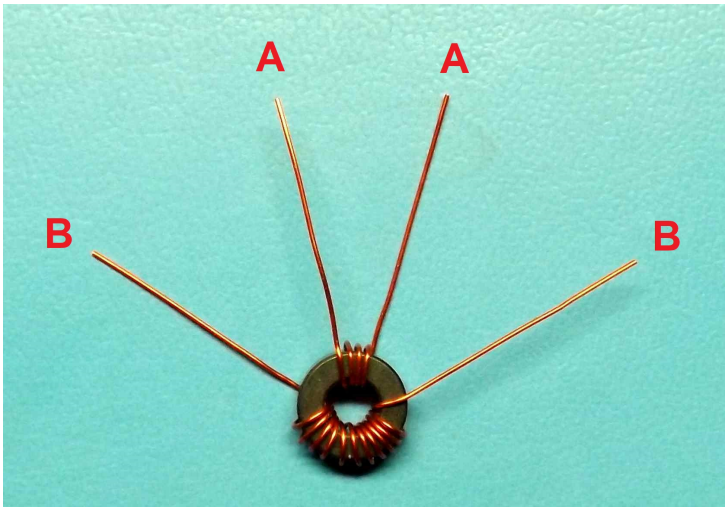
[ ] Install C6, 1uF electrolytic capacitor*, long lead is "+"*

[ ] Install VR1, 1K, 6mm, vertical trimpot

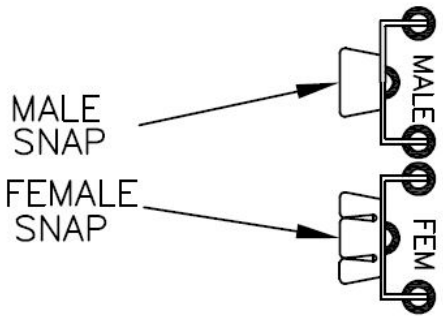
[ ] Install S1, SPDT slide switch

[ ] Install 3.5mm stereo pcb socket

[ ] Wind and install T1 using the FT37-43 toroid core. Wind the secondary with 16 turns marked B-B , and the primary with 4 turns marked A-A, as shown below. Tin the leads before installing, and install into the correct holes marked on the pcb.

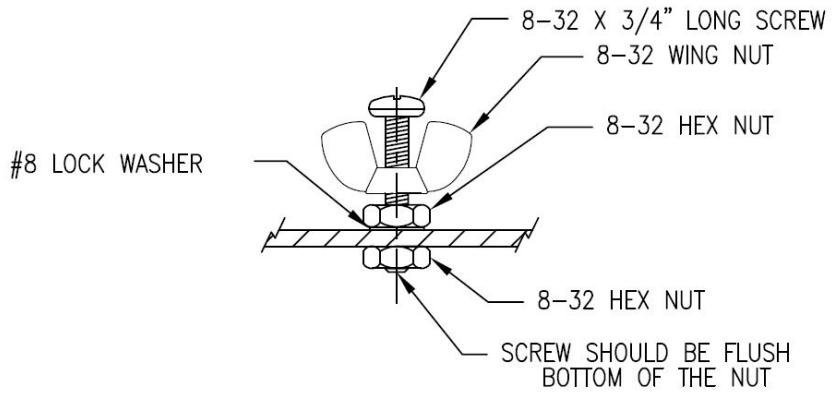


[ ] Install 9V battery clips, as shown below



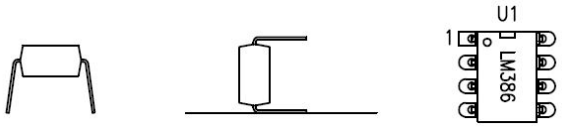
[ ] Install VR,2,3, 10K PCB potentiometer

[ ] Install the antenna and ground connection hardware as shown below.



[ ] Install the four rubber feet in the corners

[ ] Next, power up the receiver with a 9V battery. Turn on and the LED should illuminate. Check for 9V on pin #6 of the U2 socket, and 1.4V on the test point. If all is ok, install the LM386 into the socket noting the position of pin 1 shown in the graphic below.



When inserting IC, the pins are flared so that they can be retained by automatic insertion tools. Gently rock it on a flat surface so the pins are parallel and it will insert into the socket more easily.

Alignment and Setup:

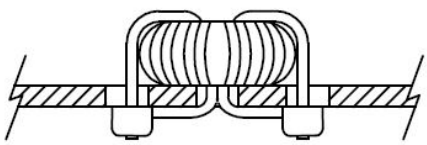
Due to the fact that this is an AM receiver, it is difficult to find a standard signal generator's signal on the busy band. Therefore there are two practical ways to align your newly built AM receiver.

1. Squeeze or separate the turns on the larger coil of T1 until you hear a small bit of unused band at the furthest most CCW point on the tuning control. (lowest end of the band). If you have followed the instructions closely for winding T1, this should make your AM band very close to being centered on your tuning control. The AM broadcast band is 540-1600 Kilohertz.

2. Find a medium strength station on another receiver, that is located either at the center or either end of the AM band. Once you have located this station, try to find it with your new receiver's tuning control. When you find that same station it should fall at approximately the same place on your newly built radio.

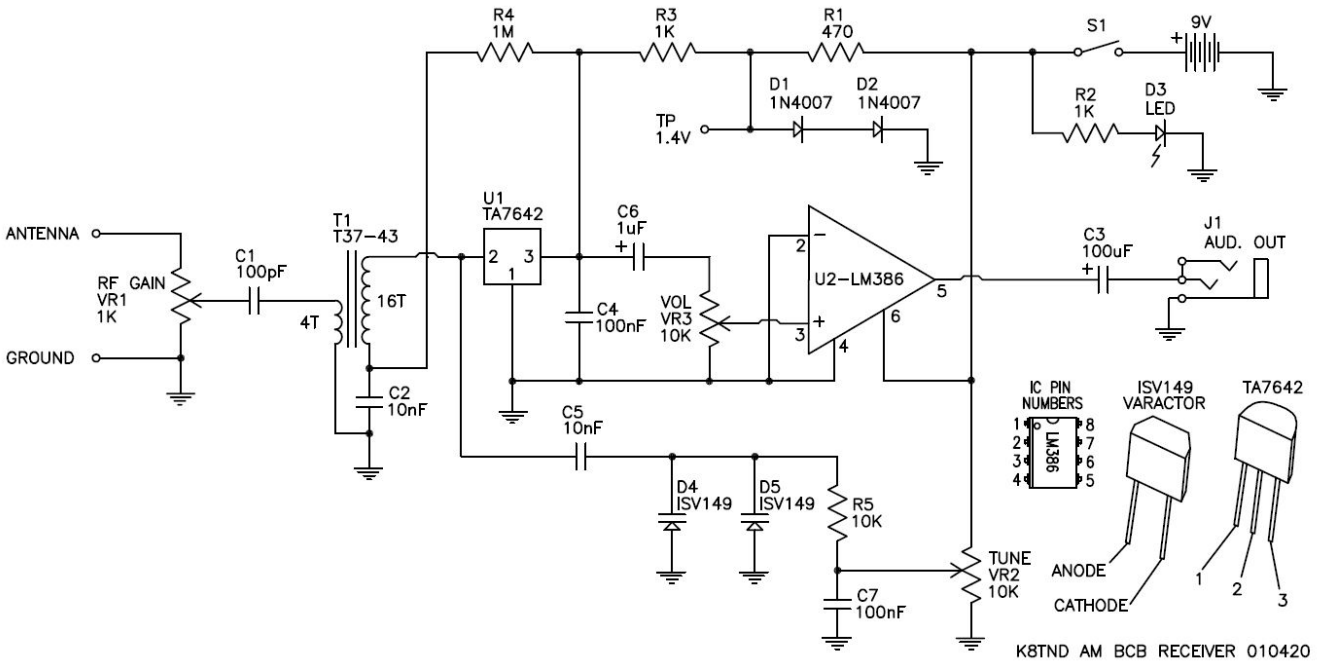
3. In some locations close stations can cause overload. In some instances it may be necessary to add or subtract a turn or two from the secondary of T1 to get centered on the band. Almost always, this is not necessary with the using the RF gain control.

[ ] Secure the core to the pcb using the two small nylon straps.



This completes the assembly

Schematic:



Notes: