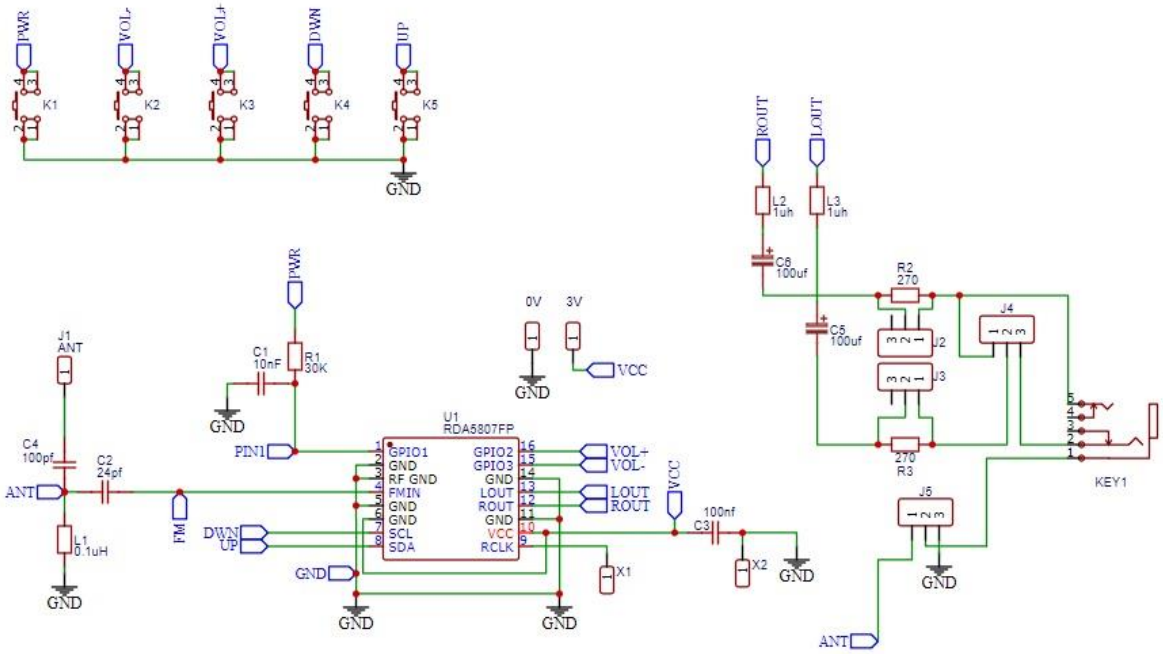
KANGA PRODUCTS

Electronic Kits For The Radio Amateur

Kanga Stereo FM Receiver.

This little kit produces a good quality stereo FM receiver covering 76 to 108Mhz. It is complete with on board controls and battery holder. Can easily drive headphones or ear buds but will also work well with a mono external amplifier to drive speakers to room filling volume.

The Kit has one SMD part at its heart and to make the kit a little easier to build we have already installed this chip for you. Our kit allows you to configure it for use with an external amplifier and external antenna if needed but these are very sensitive receivers so you're not likely to need that anyway



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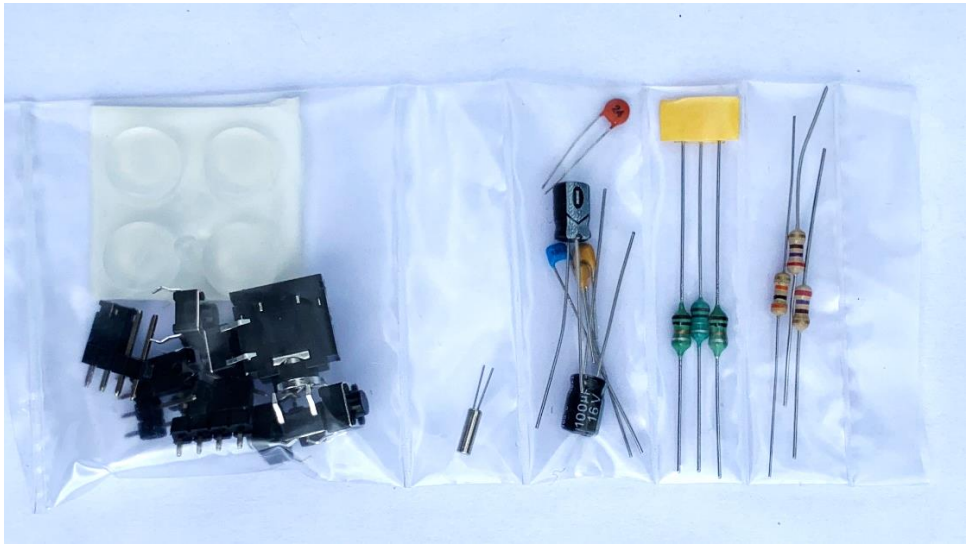
FM Receiver Parts List

Kanga FM Receiver PCB
IC1 RDA5807FP SMD Receiver IC
R1 30K ¼ watt
R2 270 Ohm ¼ watt
R3 270 Ohm ¼ watt
L1 0.1uH Inductor
L2 1uH Inductor
L3 1uH Inductor
Crystal 32.768KHz
C1 10nF Disk Capacitor (Marked 103 Yellow in colour)
C2 24pF Disk Capacitor (Marked 24 Orange in colour)
C3 100nf Disk Capacitor (Marked 104 Yellow in colour)
C4 100pF Disk Capacitor (Marked 101 Blue in colour)
C5 100uF 16V Electrolytic Capacitor
C6 100uF 16V Electrolytic Capacitor
Jumper 4 x 3 Pin header Pins & Jumpers
Switch 5 x Push Switches
Headphone Socket
AAA Battery Holder
Stick On Feet x 4

Now Please read ALL the instructions below BEFORE you start building the receiver!

All the parts for the build are supplied in a strip with separate sections, Each section should only be opened when your ready to work on that stage of the kit otherwise you may lose parts.

Start at the end with the resistors.



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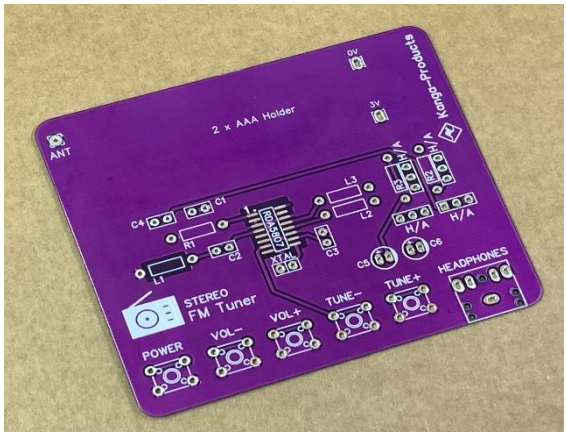
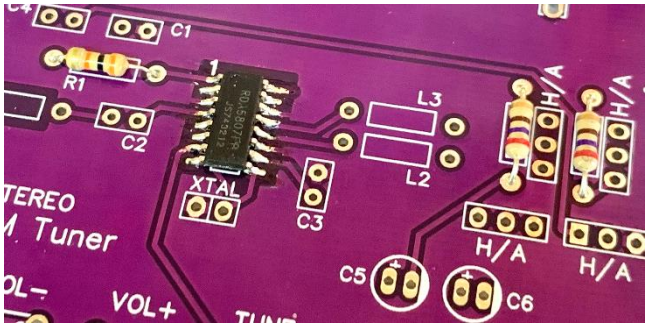
Building The receiver



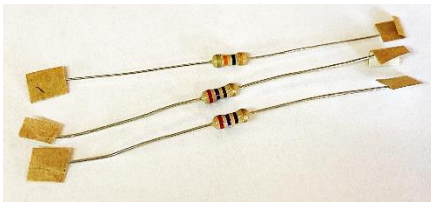
All the locations for parts are screen printed on the PCB so make sure you double check the right part is fitted in the right place!

Your board will already have the little chip pre-installed to make the build easer.



Stage 1:- Resistors

Open the section with the three resistor in and fit three resistors, R1 is a 30K (Orange, Black, Orange) and the other two R2 & R3 are both 270 ohm. (Red, Violet, Brown).



Resistors can be fitted either way round, just make sure the right value is in the right position.

Tick off each part when fitted

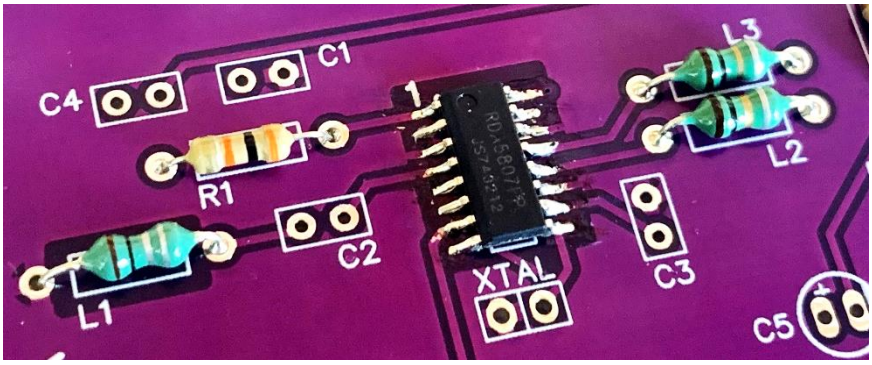
R1 30K Orange, Black, Orange ☐

R2 270 Ohm Red, Violet. Brown ☐

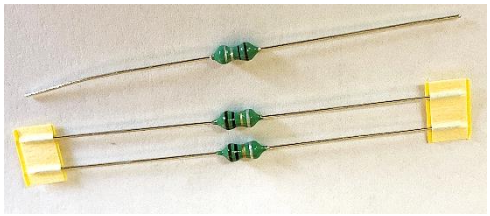
R3 270 Ohm Red, Violet. Brown ☐

Stage 2:- Inductors

The next stage is the three inductors, these look like three green ‘fat’ resistors but they are a different type of component and must not be confused with the resistors fitted in the previous stage.



It is very important that the right inductor be fitted in the right place so you will need to look carefully at each to make sure you choose the right part as they look very similar There are two different values here, the first one is L1 which has four coloured bands, Brown, Black, Silver, Silver. Fit that onto the board in the position marked L1.
Notice that two of the three Inductors are the same so identifying the 'odd one out' should be easy.



Now fit L2 and L3 inductors which are marked with four bands coloured Brown, Black, Gold, and Silver.

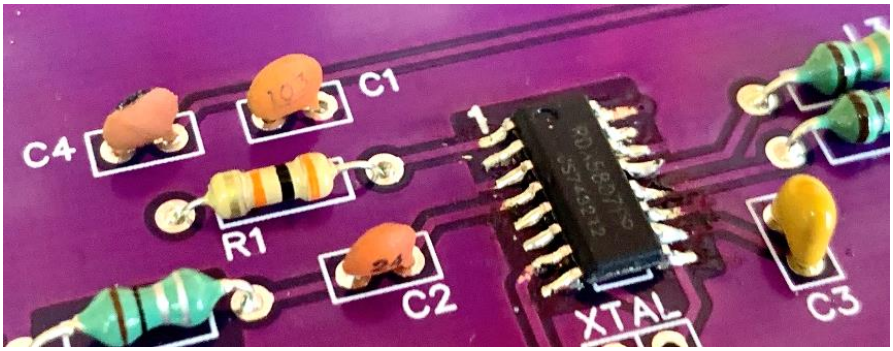
Again Tick off the parts when you fit them.

L1	0.1uH	Brown, Black, Silver, Silver	☐
L2	1uH	Brown, Black, Gold, Silver	☐
L3	1uH	Brown, Black, Gold, Silver	☐

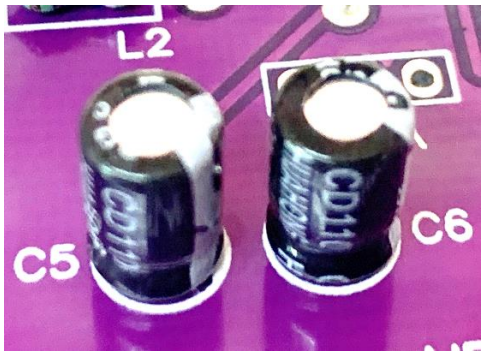
Stage 3:- Capacitors

There are four capacitors

C1 is marked 103 it's a 10nf disk (Yellow in colour)
C2 is marked 24 it's a 24pf disk (Orange in colour)
C3 is marked 104 it's a 100nf disk (Yellow in colour)
C4 is marked 101 it's a 100pf disk (Blue in colour)



Please note the colour of the capacitors (C1 & C4) in your kit are different from the pictures here but the markings will be as detailed.



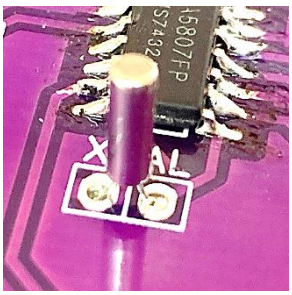
Finally fit the C5 and C6 which are electrolytic capacitors

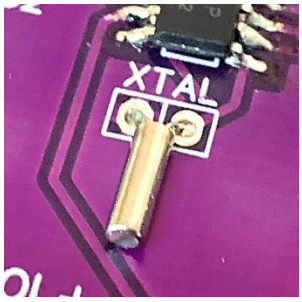
Both of these are 100uF and that is marked on the side of their body, it is important to fit these the correct way round, the PCB shows a little + sign near one of the holes. The Longer leg of the capacitor is the + leg, make sure you put this long leg into the + hole.

Tick off as you fit them

C1	10nf (Marked 103) Yellow	☐
C2	24pf (Marked 24) Orange	☐
C3	100nf (Marked 104) Yellow	☐
C4	100pf (Marked 101) Blue	☐
C5	100uF (Marked 100uf on Body) Black	☐
C6	100uF (Marked 100uf on Body) Black	☐

Stage 4 :- The Crystal





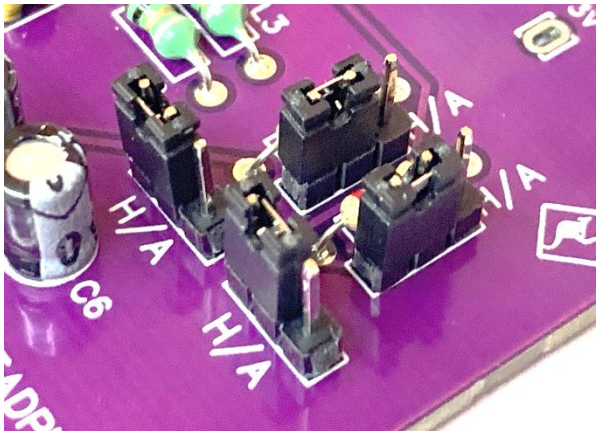
This is the hardest part of the kit for you, you will need to be very careful while doing this, it is a very small part with fine leads.

Fit the crystal, which looks like a small metal can so it stands vertically on the board just a few mm above the board don't force it hard down on the board or you may break the leads, when fitted carefully fold the crystal over as in the second picture here. Make sure the legs are NOT shorting out on each other. Double check that you have also not shorted out the two pins on the solder side of the board, the solder pads are very close to each other. Tick of when done these steps

Crystal Fitted and folded over ☐

Checked for short circuits ☐

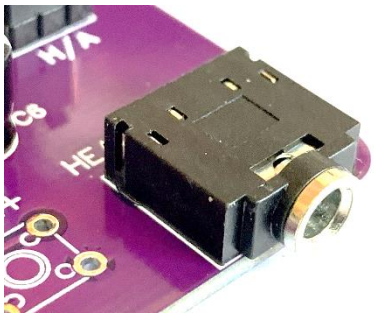
Stage 5 :- Header pins



Now we will fit the four header pins, these pins are there to allow the tuner to be used with both standard stereo headphones or with a Mono external amplifier (Such as the Kanga Bench Amp) the pins have positions for jumpers marked **H/A** , the '**H**' side of the blocks are for **H**eadphones and the '**A**' side is for use with a mono external **A**mplifier. Careful fit the header pins to the PCB and make sure they are upright, solder one pin on each header first and check alignment before soldering all the other pins. Now put the jumpers onto the blocks on the '**H**' side (as the picture here)

4 x Header Pins Fitted ☐

Stage 6 :- Headphone socket



Now we need to fit the 3.5mm stereo headphone socket, this should be fitted so it flush to the board. **When fitted trim the leads on the back of the board as flush as you can**. One of the stick-on feet will be placed under this part of the PCB later.

The socket can only be fitted one way round so it should be an easy job. Just make sure it's pushed right down on the board.

Tick off the steps

Headphones Socket Fitted ☐

Pins trimmed flush ☐

Stage 7:- Push Buttons

Now we will fit the five control buttons for the radio. These buttons can only fit on the board one way and any button can be fitted into any of the five holes they are all the same.

Make sure none of the little legs of the switches are foldered under the body of the switch, there should be 4 legs protruding throught the board for each switch.

5 x Buttons fitted ☐

Stage 8 :- The Battery Holder

The battery holder has tough hard and sharp pins. Be careful when hangling this part. I have trimmed the pins to the right size so no need to cut them after you install this part.

Look at the bottom of the holder. there is a stick on pad with a length of backing paper. This paper must be peeled off before fitting, **be careful as the holder will stick in place as soon as the foam tape touches the PCB so take care**, when in place solder the two legs. Now put the four stick on feet on the bottom of the board, one in each corner, when you stick them in the front corners you will have to cut any soldered connections nice and flush with the board.

That's it built.

Fit two AAA batteries and plug in the headphones, the button on the left hand edge of the board is the ON/OFF Switch so press that and then use the Tune- and Tune+ buttons to select the station you want. Adjust the volume to your own liking. That's it, don't forget to turn the radio off when finished to save the battery !

If you are using this with a external amplifier move all 4 jumpers to the 'A' position , you MAY need to use a short (300mm or so) wire attached to the PCB postion marked 'ANT' with a external amplifier.

I hope you enjoy building and using your new Stereo FM radio.

Any questions help is just a email away

sales@kanga-products.co.uk