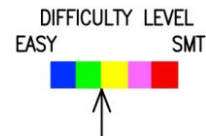


QRPGuys Michigan Mighty Might Plus 40M Transmitter

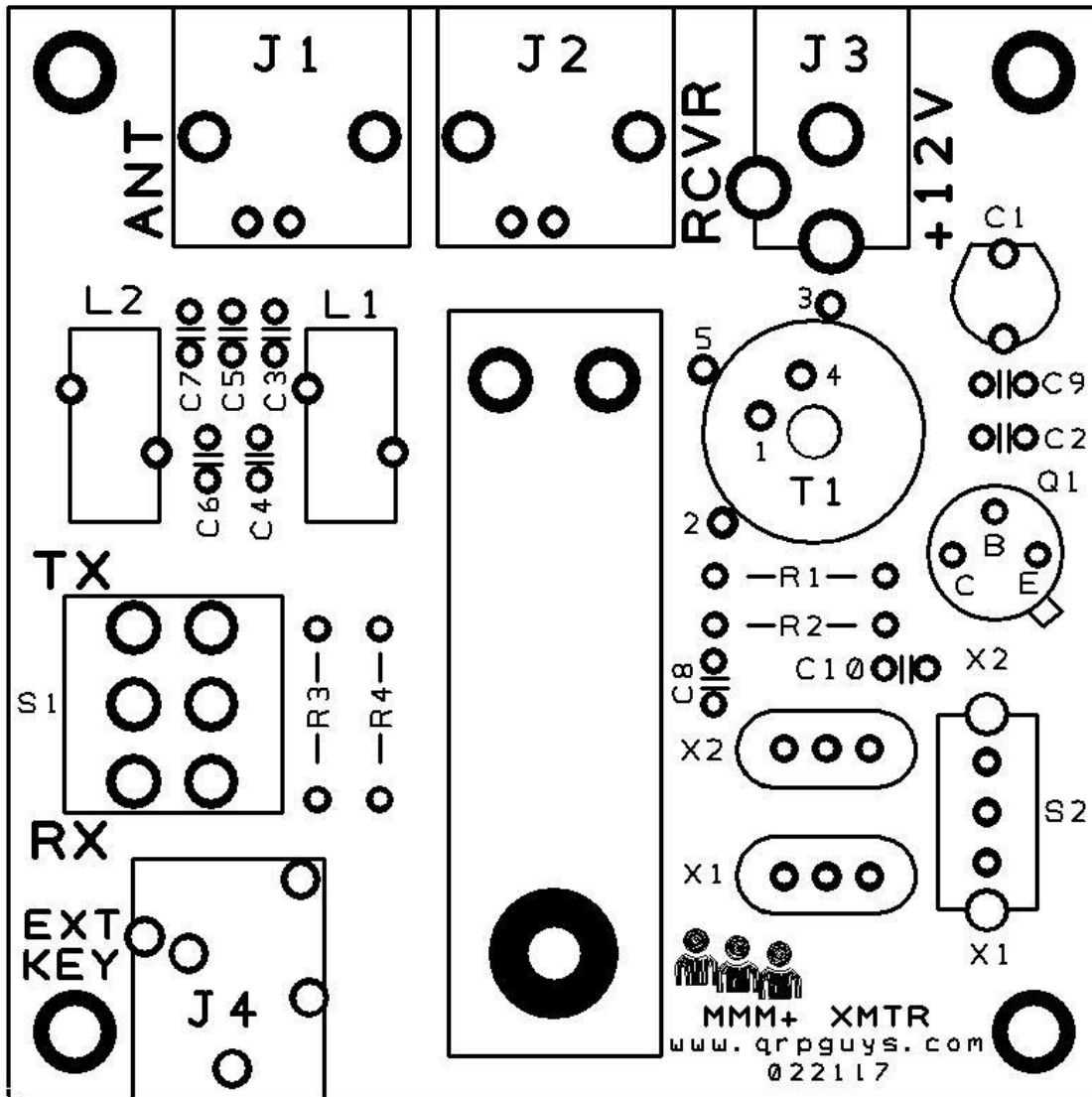


First, familiarize yourself with the parts and check for all the components. If a part is missing, please contact us and we will send one. You must use qrpguys.parts@gmail.com to request a part. *Please read all the instructions before starting the assembly.*

Parts List

- 1 – QRPGuys MMM+ pcb
- 1 – Q1, 2N2219A transistor
- 1 – C1, 60pF trimmer capacitor
- 2 – C2,8, .1uF capacitor, marked 104
- 2 – C3,7, 330pF, capacitor, marked 331
- 2 – C4,9, 47pF, NP0/G0G capacitor, marked 47
- 1 – C5, 680pF, capacitor, marked 681
- 1 – C6, 150pF, capacitor, marked 151
- 1 – C10, .001uF, capacitor, marked 102
- 1 - R1, 10K ohm resistor (brown-black-orange-gold)
- 1 - R2, 27 ohm resistor, (yellow-violet-black-gold)
- 2 – R3,4, 100 ohm resistor, (brown-black-brown-gold)
- 1 – S1, DPDT toggle switch
- 1 – S2, SPDT slide switch
- 1 – X1, 7.030 MHz crystal
- 1 – X2, 7.122 MHz crystal
- 2 – T37-2 toroid (red), $\varnothing 3/8$ "
- 1 – T50-2 toroid (red), $\varnothing 1/2$ "
- 2 – J1,2, horz. pcb BNC female connector
- 1 – J3, DC power jack
- 1 – J4, 3.5mm audio jack
- 1 – 4-40 x .50"L nylon screw
- 1 – 4-40 nylon nut
- 1 - #4 nylon washer
- 1 – 26 awg magnet wire
- 1 – 4-40 x 3/16" SS Philips screw
- 1 – 4-40 SS nut
- 2 - #2 plastic spacer, .125"L x .25" dia.
- 2 – 2-56 x 3/8" SS Philips screw
- 2 – 2-56 SS nut
- 2 - #2 SS flat washer
- 1 – SS paddle leaf for key
- 4 – 3/8" dia. rubber foot
- 1 – 1/2" dia. rubber foot

. Refer to the graphic below and the PCB silk screening for the placement of the components.



- [] Install R1, 10K ohm resistor (brown-black-orange-gold)
- [] Install R2, 27 ohm resistor, (yellow-violet-black-gold)
- [] Install R3,4 100 ohm resistor, (brown-black-brown-gold)
- [] Install C2,8, .1uF capacitor, marked 104
- [] Install C3,7 330pF, capacitor, marked 331
- [] Install C4,9, 47pF, NP0/C0G capacitor, marked 47
- [] Install C5, 680pF, capacitor, marked 681

- [] Install C6, 150pF, capacitor, marked 151
- [] Install C10, .001uF, capacitor, marked 102
- [] Install C1, 60pF trimmer capacitor
- [] Install S2, SPDT slide switch
- [] Install Q1 2N2219A transistor, observe the outline, do not mount flush, leave the bottom of the transistor 3/16" off the surface of the board

The board is laid out for the crystals to be either soldered in place or you could use SPI sockets or a 6pin DIP socket if you think you may be changing crystals regularly. We'll leave that up to the builder.

- [] Install X1, 7.032 MHz crystal
- [] Install X2, 7.122 MHz crystal
- [] Install J3, Coaxial power jack
- [] Install J4, 3.5mm audio jack, on your plug use tip and sleeve for external key
- [] Install J1,2, horz. pcb BNC female connector
- [] Wind and install vertically L1, L2, with the number of turns indicated below:

L1: Use 12" of wire and wind 17 turns on a T37-2 (red core), wound clockwise direction.
 L2: Use 12" of wire and wind 15 turns on a T37-2 (red core), wound clockwise direction.



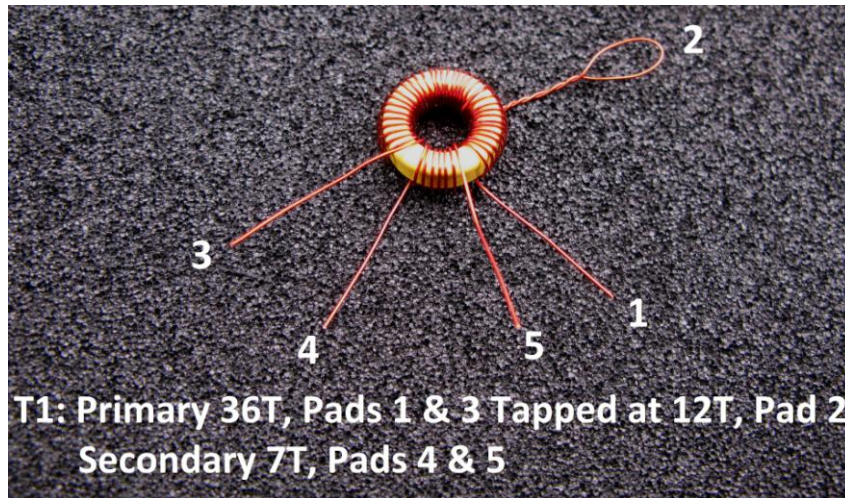
Note: Now is a good time to mention a good way for counting the turns on your toroids. Many times on a toroid with a lot of turns, you can lose track going around, as some are quite small. A good trick is to take a digital picture of it *before* you trim the leads and enlarge it on your computer screen. Counting is clearly a lot easier.

- [] Wind T1 with the number of turns indicated. If you wind it in the clockwise direction, when the leads are bent down they will align with the numbered pads on the pcb.

Primary: Use 28" of wire and wind 36 turns, with a twisted tap at 12 turns on a T50-2 (red core), wound clockwise direction. For pads 1,2,3

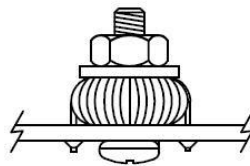
Secondary: Wind between 1 & 3, use 8" of wire and wind 7 turns in a clockwise direction, for pads 4,5. If you have wound it in the clockwise direction, when the leads are bent down they will align with the numbered pads on the pcb.

It's tight, and it will completely fill the toroid.



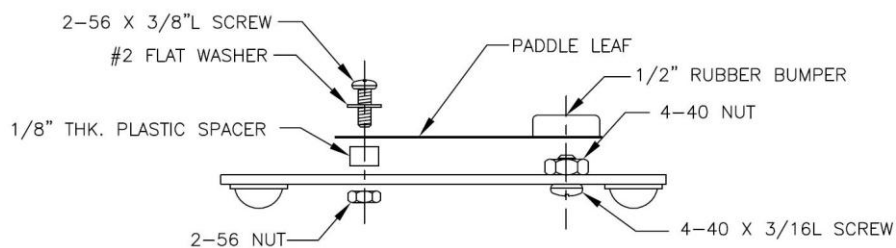
Wound on a yellow core for clarity

- [] Bend, trim, and tin the five leads of T1 and mount flush on the pcb. Secure T1 with the nylon screw from the bottom, washer and nut as shown below.



Hardware:

- [] Assemble the key hardware as detailed in the graphic below.



- [] Install S1, DPDT toggle switch
- [] Install the four rubber feet on the bottom corners where indicated by the silkscreen.

