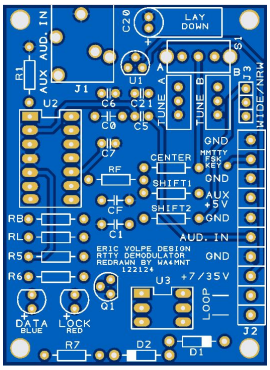
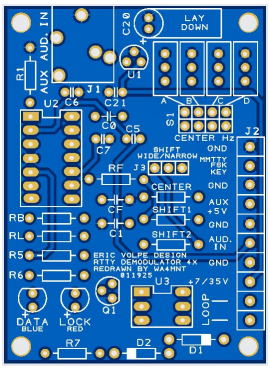
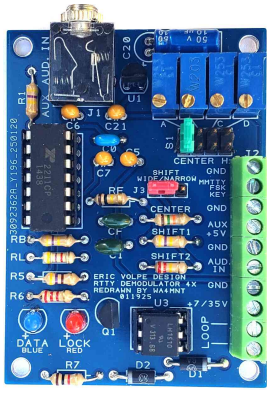
Volpe RTTY Demodulator bare board



Two shift board





Four shift board

I contacted Eric to see if he had any boards available. He did not, and he gave me permission to make boards based on his circuit design. I laid this out similarly with parts I had on hand or could easily obtain. I saw no changes in performance from Eric's original design. Any of the XR2211's I found on eBay worked fine. I used Tayda parts for most the items I did not have in my stock pile, and I retained Eric's pcb component designations and board dimensions (1.90" x 2.60"). I found his TU an excellent choice for all the internet feeds I checked. If anyone wants to try this, contact me for a board at <qrpbuilder@gmail.com>. The cost for a board is free. My additional notes on usage and any changes are below.

With all the internet feeds becoming available (US standard, Europe (BBC), Military, and Weather) all with different shifts and center frequencies, I realized the more shifts I could fit on the board, the better. So the latest has four switched pots. The documentation works with both versions, as the only differences to the earlier two freq. board, are the two items highlighted in the parts list, enabling four different center/shift frequencies. Consistent with Eric's observation and results, I have found that the "WIDE" shift jumper works with shifts of 170Hz to 850Hz. According to Eric the "NARROW" jumper needed only for very narrow shifts.

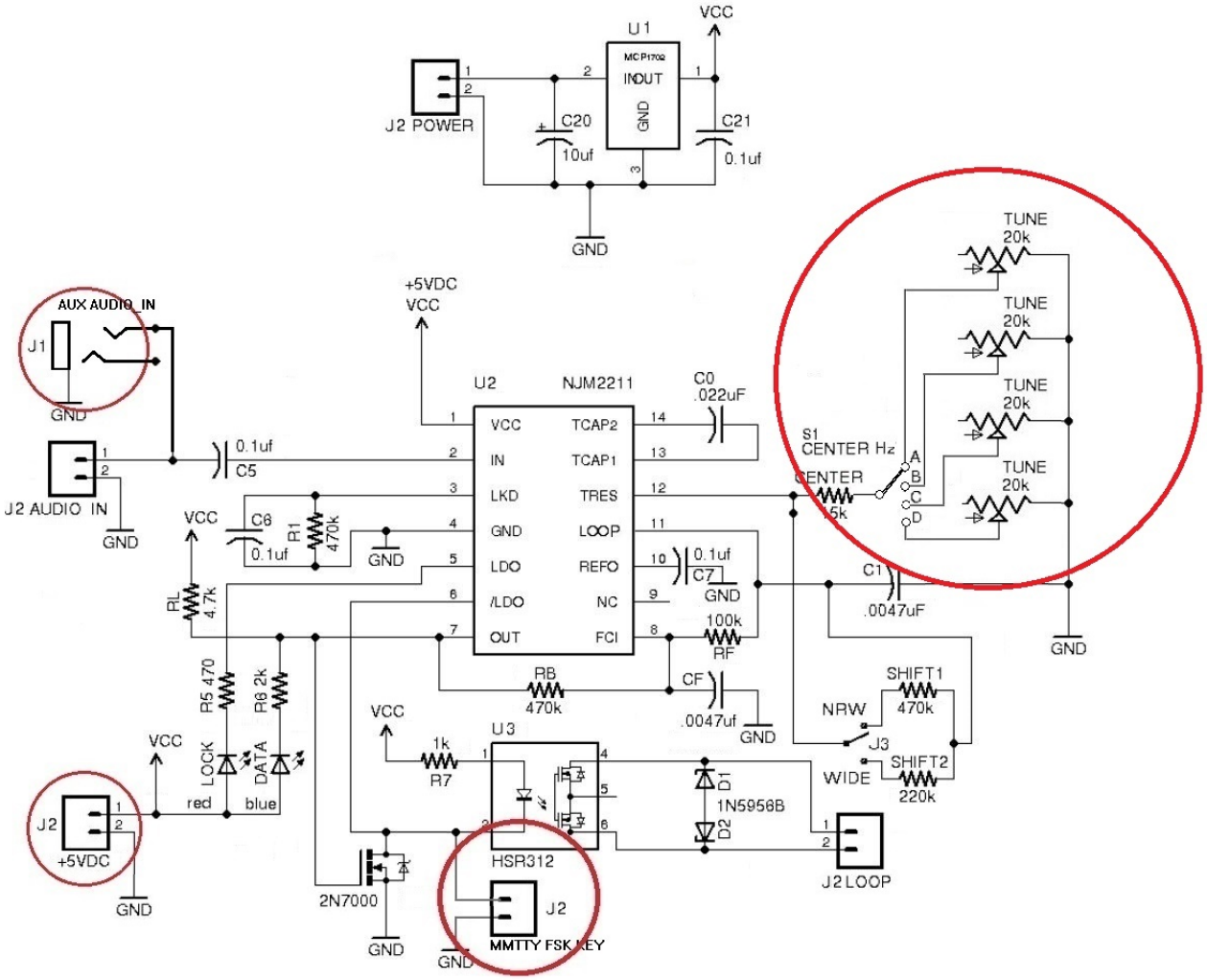
Eric's original notes: https://heepy.net/images/4/4c/Rttydemod-instructions.pdf

Parts List

1 - RF - 100K, 1/4w resistor, (brn-blk-yel-gld)
1 - CENTER - 15K, 1/4w resistor, (brn-grn-org-gld)
3 - R1, SHIFT1, RB - 470K, 1/4w resistor, (yel-vio-yel-gld)
1 - SHIFT2 - 220K, 1/4w resistor, (red-red-yel-gld)
1 - RL - 4.7K, 1/4w resistor, (yel-vio-red-gld)
1 - R5 - 470 ohm, 1/4w resistor, (yel-vio-brn-gld)
1 - R6 - 2K, 1/4w resistor, (red-blk-red-gld)
1 - R7 - 1K, 1/4w resistor, (brn-blk-red-gld)
2 or 4 - TUNE POT - 20K, resistor, 25 turn vertical trimmer, TAYDA A-592
1 - C0 - .022uF, mylar capacitor, (223)
1 - C20 - 10uF-25V electrolytic, long lead is "+"
4 - C5, 6, 7, 21 - .1uF, MLCC, (104)
2 - C1, CF - .0047uF, mylar capacitor, (472)
1 - U1 - 78L05, 5v regulator
1 - U2 - XR2211, eBay #124104724538, $5.46/10pcs
1 - U3 – solid state relay, Mouser# 782-LH1510AT, or LH1540AT on eBay# 123234857629 or 392649017964 LH1540AT
1 - Q1 - 2N7000 transistor
2 - D1, 2 - 1N5956B, or 1N5388B, 200v zener
1 - J1 - 3.5mm stereo PCB socket, TAYDA A-069
5 - J2 - 3.5mm spaced PCB terminal block, TAYDA A-4569
1 - J3, 3 pin, .10" sp. header, and long header jumper
1 - S1 - SPDT Switch, TAYDA A-659, or.10" sp. 2x4 header, and long header jumper
1 - 6pin IC socket
1 - 14pin IC Socket
2 – blue and red led for DATA and LOCK, long lead is "+"

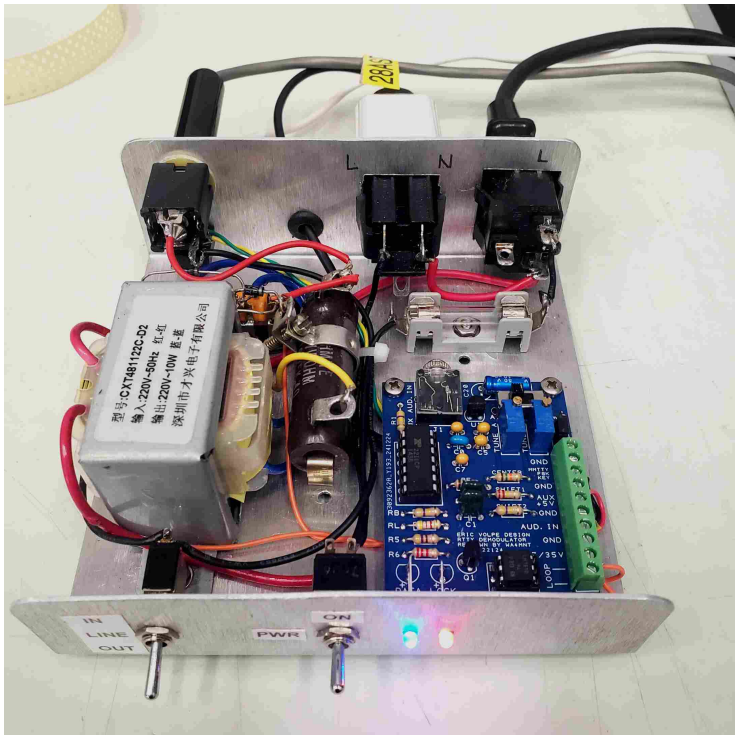
Minor changes I made:

- ability to selecting one of four pre-set center frequencies and shifts.
- added auxiliary J1, 3.5mm audio input jack
- used 78L05 regulator
- added auxiliary J2, 5v input for power from a simple cell phone charger
- used a Mouser# 782-LH1510AT solid state relay
- added J2, “MMTTY FSK KEY”. This allows audio tx data from MMTTY to key a transceiver via an FSK input.

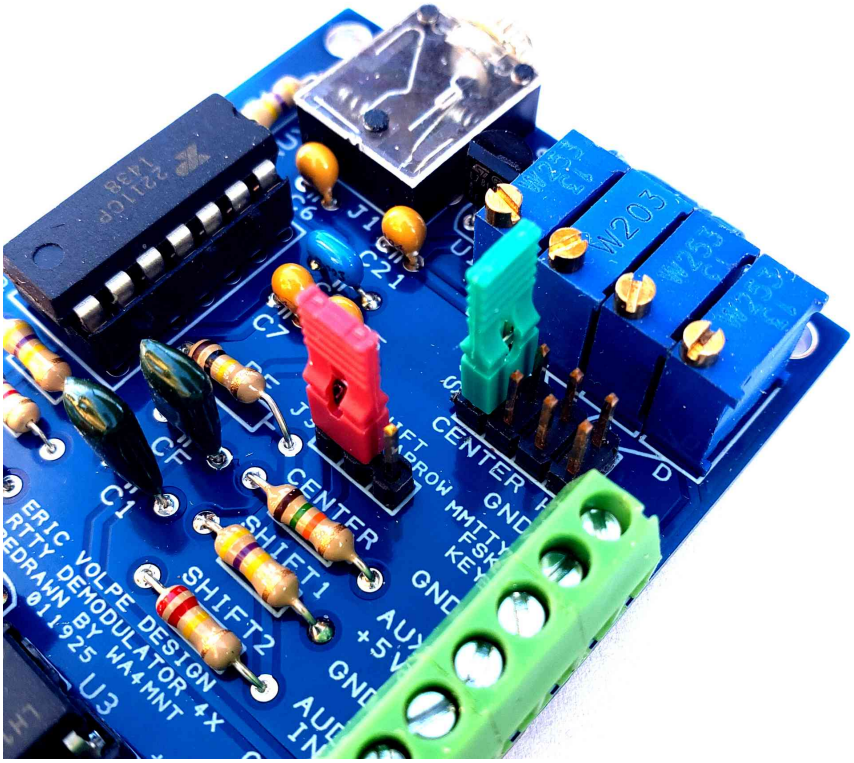


Please report any issues or projects you have with this board. 73 wa4mnt

This is my internet terminal unit for the 28ASR, with a 220v, 10w, isolation transformer running on 120vac for the 60mA current loop supply. You can just see the 5vdc supply for the TU plugged into the rear.



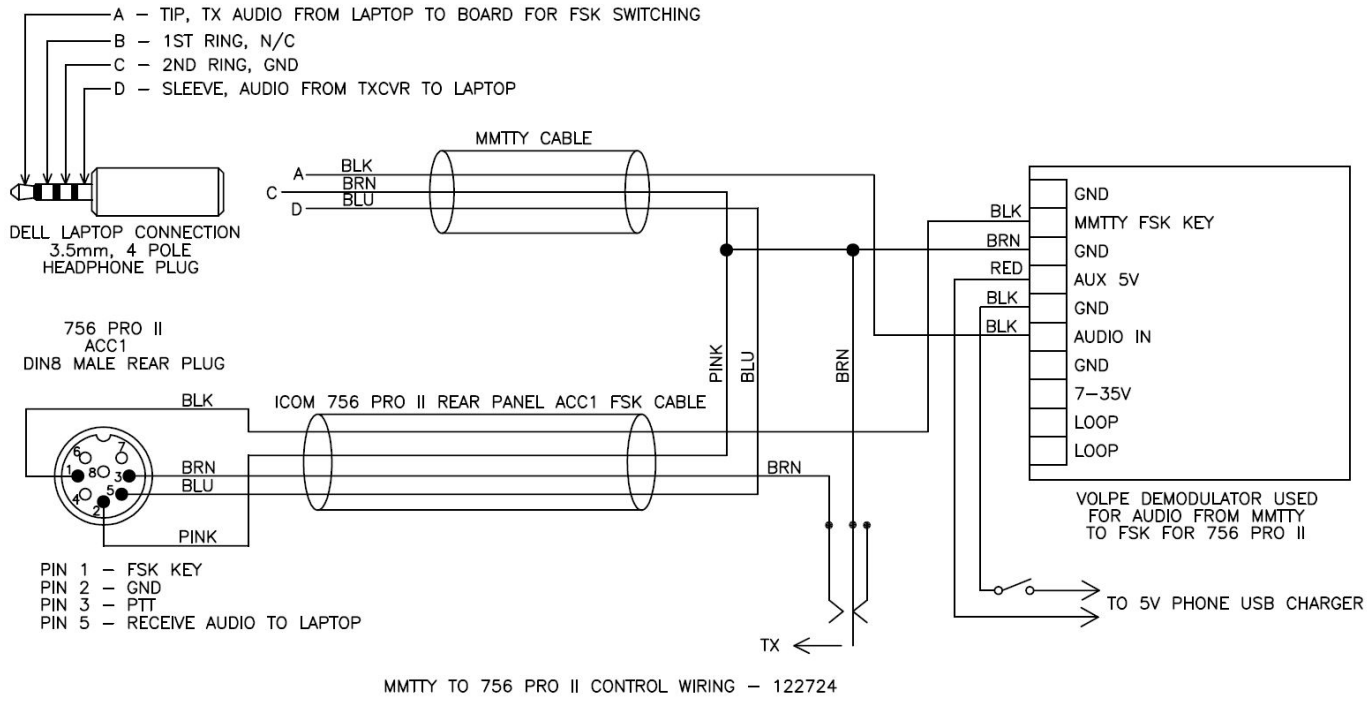
For S1 and J3 it’s easier to use the longer type header jumpers to aid switching.



Additional use for the Volpe board

On my Icom, I use FSK not AFSK. Not having a com port, I was not successful using the usb port to use MMTTY on my laptop, in an FSK environment. When I re-did the layout the Volpe board, I added an output connection, (from pin 6, XR2211) that goes low with transmitted data, I am able to satisfy the low state requirement of the FSK pin on my Icom 756 Pro II. I use this board only as a means in transmit, for the MMTTY program to key the FSK pin on the Icom. The soundcard transmit audio is routed *to* the Volpe board, and the FSK key *from* the board as shown in the control wiring below. The receive audio for MMTTY is connected in the normal way from the transceiver to the laptop.

There may be an easier way to accomplish this, but it only involved adding an additional output to Eric's board.



MMTTY TO 756 PRO II CONTROL WIRING – 122724

Notes: