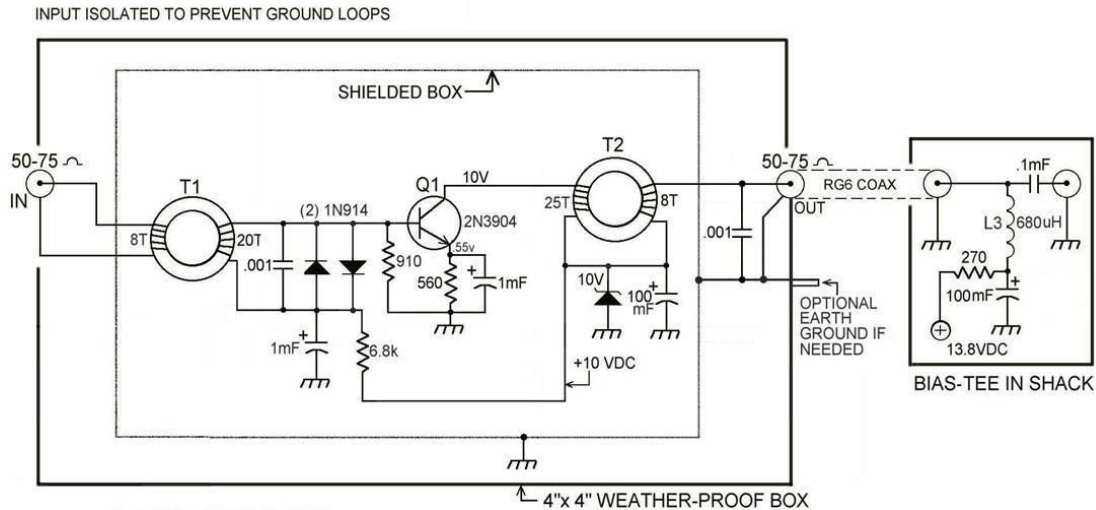


WB4JWM 630 METER PRE-AMP

25 dB GAIN

24 db gain at 136kHz 2200M



T1, T2: FT-50-J TOROID #28 GAUGE
L3: FT-50-J, 20 TURNS #28 GAUGE OR 680uH CHOKE
Q1: 2N3904, TRIED SEVERAL TRANSISTORS AND 2N3904 WAS GOOD AS ANY OTHER LOW NOISE HIGH GAIN.

The bandwidth of the amplifier is flat between 150-650 kHz 25db gain. At 136 kHz the gain is 24db.

The 2N3904 transistor was selected for two reasons. It's a very common transistor and after testing with other low noise RF transistors it works just as good at 475 kHz.

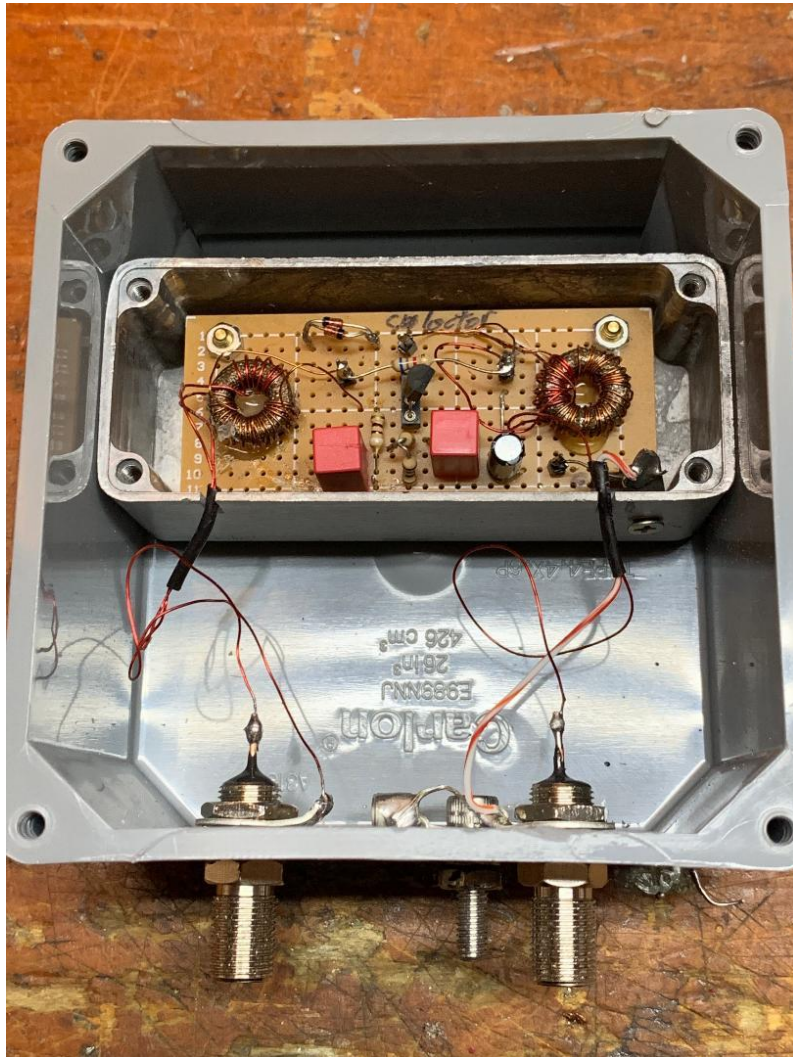
Wrap T1 and T2 with insulated tape before winding the transformers. The J material is conductive and if the core breaks through the enamel on the wire the bias on the transistor will change. I had that problem once, lesson learned!

The 10 volt Zener diode is mounted in the amplifier to compensate for any DC loss on the coax. The voltage feeding the Bias-T could be higher than 13.8VDC if desired. **Current draw at 13.8 volts is around 12ma.** With the low current draw, the preamp makes a good battery powered amplifier for remote locations.

Increasing the Zener diode to 12 volts will increase the gain about 5db, but I have found that 10 volts with 25dbm gain makes a very good low noise preamp.

L3 in Bias-T, anything from 470uh to 680uh will work. This is not a critical value.

I've been using this preamp on my receive loop with very good success! It was designed to be mounted at the antenna, and I have tried connecting the input shield side of the connector to the output ground but it added noise. If using as a mid-span amp you may find it best to connect (in and out ground) through, but from my test the best S/N was with the input isolated.



Not shown in this picture, but there is a .001uf across the output connector. The capacitor was added in the last mod to improve the noise figure. See schematic