

28/70 MHz Transverter – based on DK7ZB design for 50 MHz by Julian Iredale, G8HCZ



The circuit diagram is essentially the same as that described in the files accompanying these notes. DK7ZB has designed a 50 MHz transverter – details in German here

<http://www.dk7zb.fox28.de/start1.htm>

there is also an English translation at:

<http://www.qsl.net/dl5dbm/>

This is an excellent design and I have been using this on 6m for some time. Having built a number of Meon transverters for 70 MHz I wanted to try and modify the DK7ZB design for this band and compare its performance to the Meon.

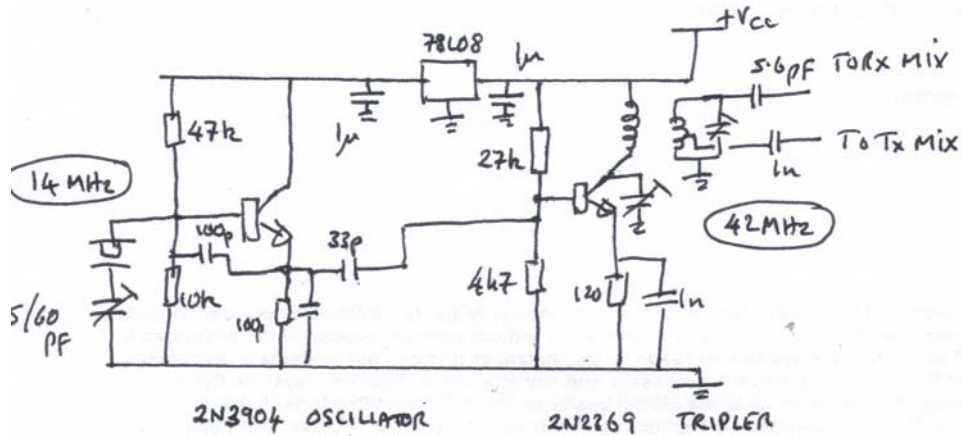
Modifications

The main modifications are;

Oscillator

This is a single 22 MHz oscillator in the original design and I have modified this as shown below to give 42 MHz to mix with 28 MHz :

Oscillator Modifications

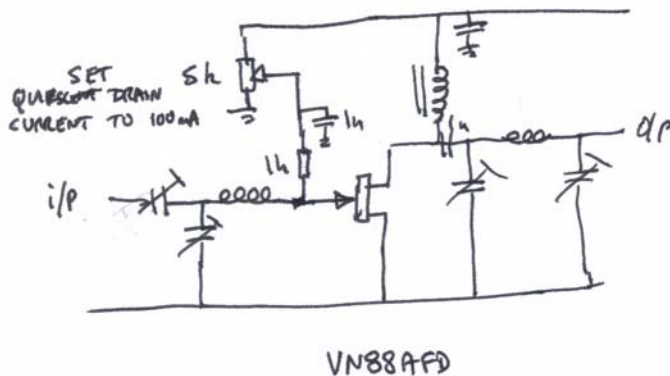


The above circuit replaces the single oscillator @ 22 MHz in the original design to provide 42 MHz to the mixer.

Linear

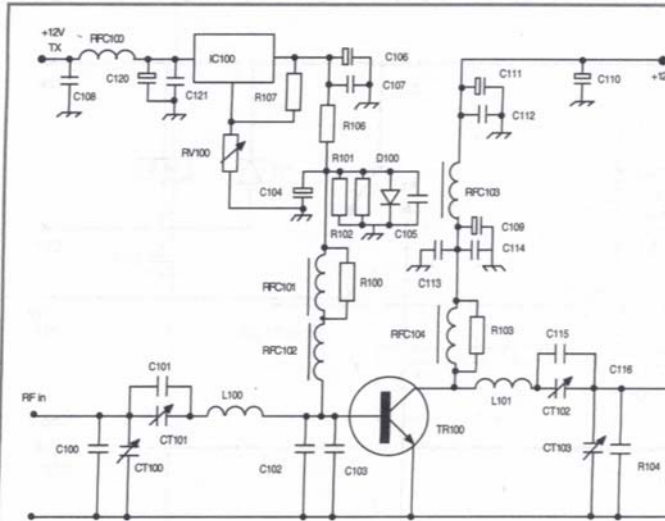
The 2SC1302 linear does not have enough gain at 70 MHz and this has been replaced by the following:

Linear Modifications



A VN88AFD Replaces the 2SC1302 (which does not have sufficient gain at 70 MHz). This provides about 1-2 w output to the final Linear stage.

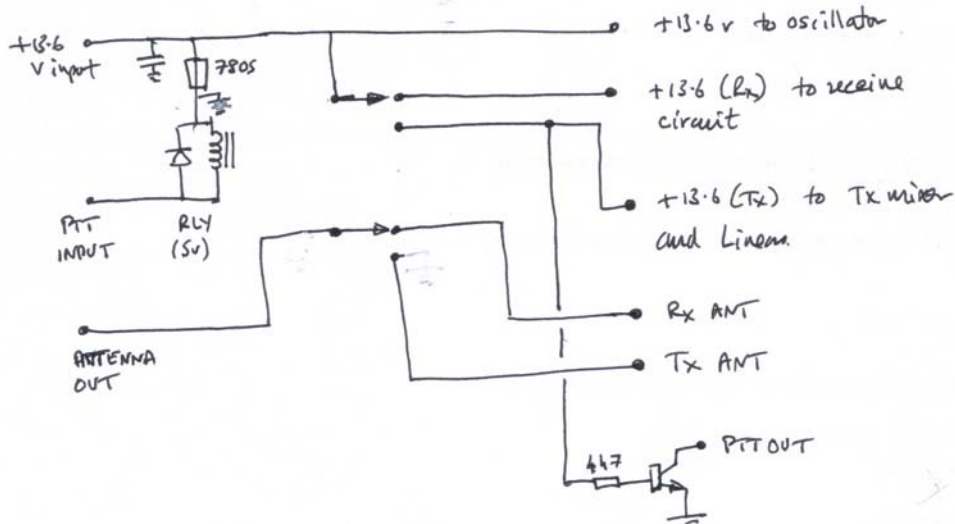
A final linear to give an output of about 10w was required and this has been added as a design from the VHF/UHF Dx book, using a BLW60 transistor as shown below;



Antenna and power switching is performed on a separate PCB as shown:

Antenna Switching Board

A small board with antenna switching and power switching is mounted by the Linear :



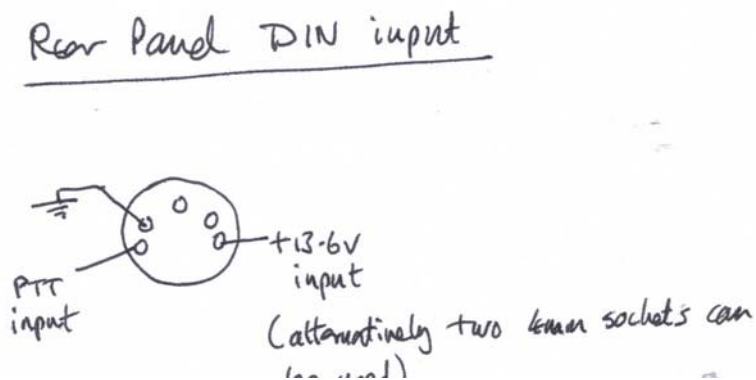
Obviously tuned circuits have been re-scaled for 70 rather than 50 MHz throughout.

The internals of the finished unit are shown below:

PTTin/power input (DIN)

The ptt input is connected via the 5-pin DIN socket and the power in can be either connected here or via the 4mm sockets/screw terminals.

The DIN wiring is shown below (as viewed in the picture)



Performance

Rx

On Rx the Transverter is indistinguishable from the performance of the PW Meon. I can clearly read GB3BAA in tring and GB3RAL in Oxford at all times. GB3ANG in Fife is variable depending on conditions. There is one minor drawback – because the oscillator is tripled from 14 MHz to get 42 MHz there is a birdie at 28 MHz (14 x 2) and this obscures the beacon at GB3BUX on 50.000. Rx gain is sufficient and in practice an attenuator will be necessary with most transceivers to avoid a background S3 to S5.

The transceiver needs to have separate Tx and Rx outputs. Most commercial transceivers either have this or can easily be modified to do so.

Tx

Approx 10w output is available for 0.5w drive from a suitable 28 Mhz transceiver. Linearity appears good.

CAUTION – DO NOT USE MORE THAN 0.5W INPUT Otherwise damage may occur to the mixer.