

Broke B+ line, fed link from VHF oscillator to input tuned coil for min. I did not try to optimize for NF on this setting. Heat adj pulls oscillator badly.

Profitable area perhaps: additional work on input stage coupling networks.

Bandpass network (p 265) degrades NF. 2-3 db.

Difference between 50<sup>Ω</sup> dummy load and antenna: noise output from converter is almost identical, less than 1 db increase with antenna. I can hear ignition noise.

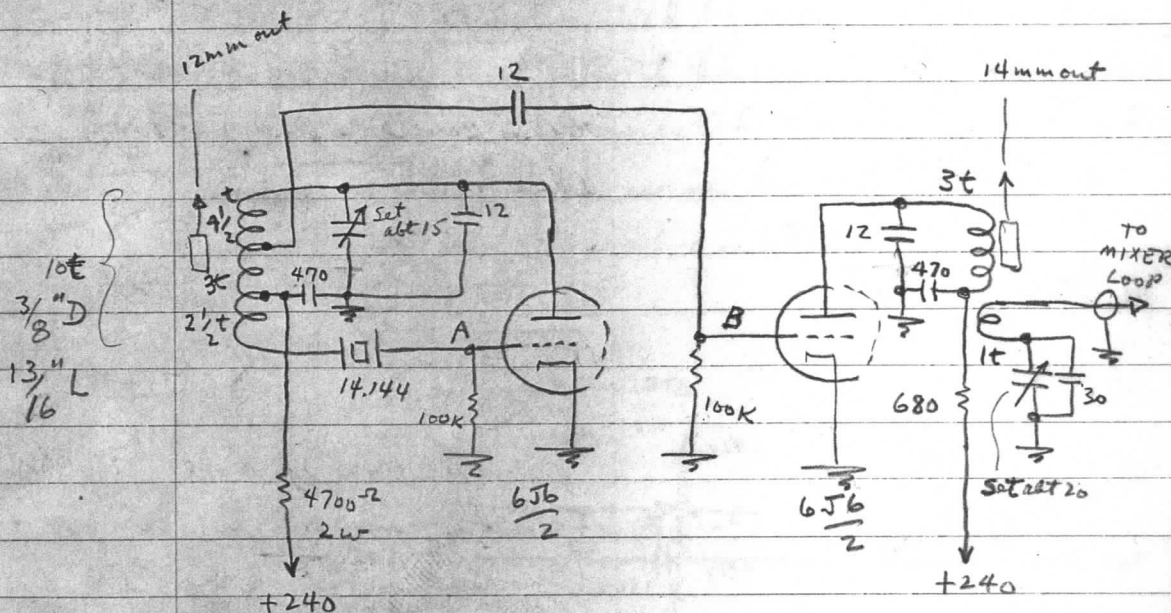
One Unicom station comes in 4 db over noise, another about 18 db.

Heathkit scope has hum in X, Y, and Z axes.

Put a shunt trap in antenna line at 122.8. This cost over 3 db in NF. Probably has great effect on input tank - it no longer seems to tune well.

Probably need a trap in h.v.o. output  
as recommended for TV1 in 2 meter  
converter -

7/6/64



Breadboarded in unit with separate  $\frac{6J6}{2}$  s.

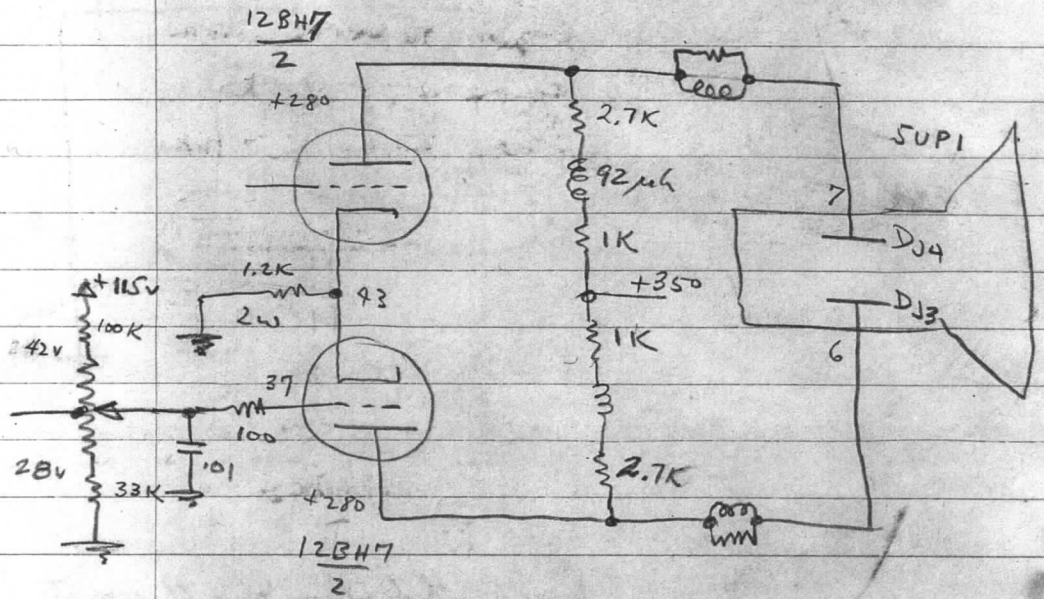
Set -1.0v at mixer test point.

-5v at A , -13v at B

When built finally  
in 1-6J6, get  
-2.5v at mixer  
test point.

9/7/64

Heakkit oscilloscope - Vertical output linearity.



$$\frac{208}{43} = 4.83 \text{ } \mu\text{K}$$

$$\frac{155}{3.7} = 41.89 \text{ } \mu\text{K}$$

$$\frac{350}{208} = 1.68$$

$$\frac{142}{3.7} = 38.4 \text{ } \mu\text{A}$$

Zero bias (at 1/2 V)  
 155V - 38.4μA almost  
 zero bias, no question

if DJ3  
 DJ4 is high, voltage to reflect

$$DJ_3 - DJ_4 \quad 23 \pm 31 \text{ } \mu\text{V/in} \times \frac{1340}{1000} = 30.8 \text{ to } 41.5 \text{ } \mu\text{V/in}$$

$$\text{mean } \frac{72.3}{2} = 36.15 \text{ } \mu\text{V/in}$$

to swing ±2" requires ±72.3V

means one side cut off, the other  $E_p = 15.5 \text{ } \mu\text{K}$   
 but even more likely problem is inability of cathode coupling to operate linearly.

Not scope saturation because centering control does not change linearity.  
 Improved linearity in sweep generator larger C and less voltage division at the output - (i.e. smaller swing)

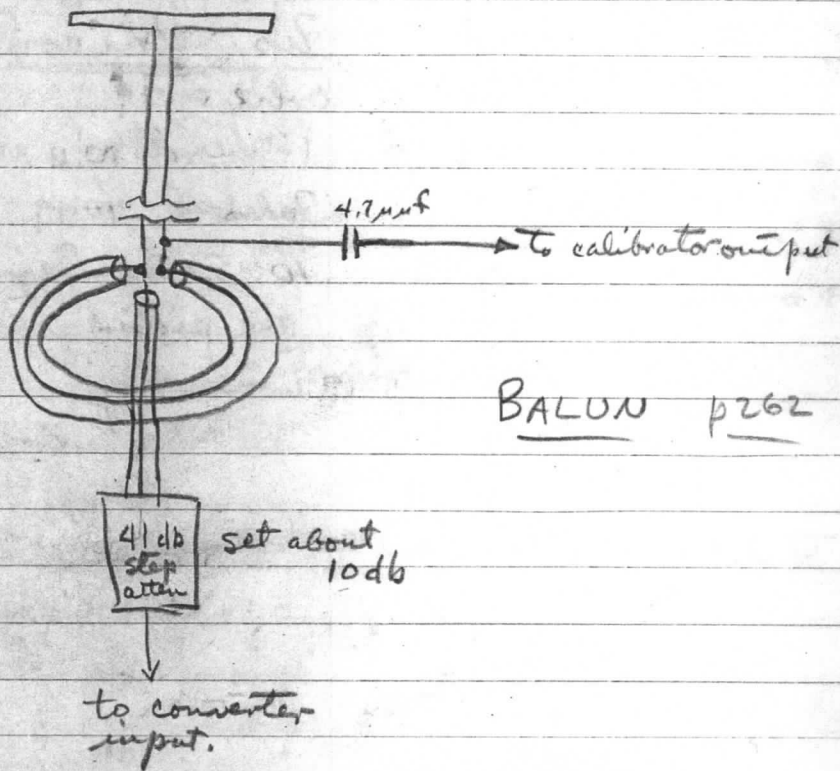
Home with a cold -

7/8/64

Alignment method.

only signal  
to noise ratio  
affects spikes;  
sensitive indicator  
for converter  
alignment.

20-30db change in converter signal  
output to SK25  
+ noise does not affect the FM noise pulses  
(spikes) [as determined by using the 41db pad]  
Signal source is 30th harmonic of calibrator  
Xtal 4565Kc connected through 4.7µf  
and 5 ft of open wire line to the 300 Ω  
line; align for max quieting.



4565Kc x 30th harmonic 48.5 dial div on SX-25

4830Kc x 2nd harmonic 47.5 dial div

~~Signal comes in 46.3 dial div [if <sup>3rd</sup> overtone operation of 14,144Kc xtal give 3x frequency of fundamental.]~~

Signal comes in exactly on <sup>IF freq =</sup> 4830Kc  
2nd harmonic marker, using 3rd overtone of 14,144Kc xtal in l.o. chain.

No Unicorn!

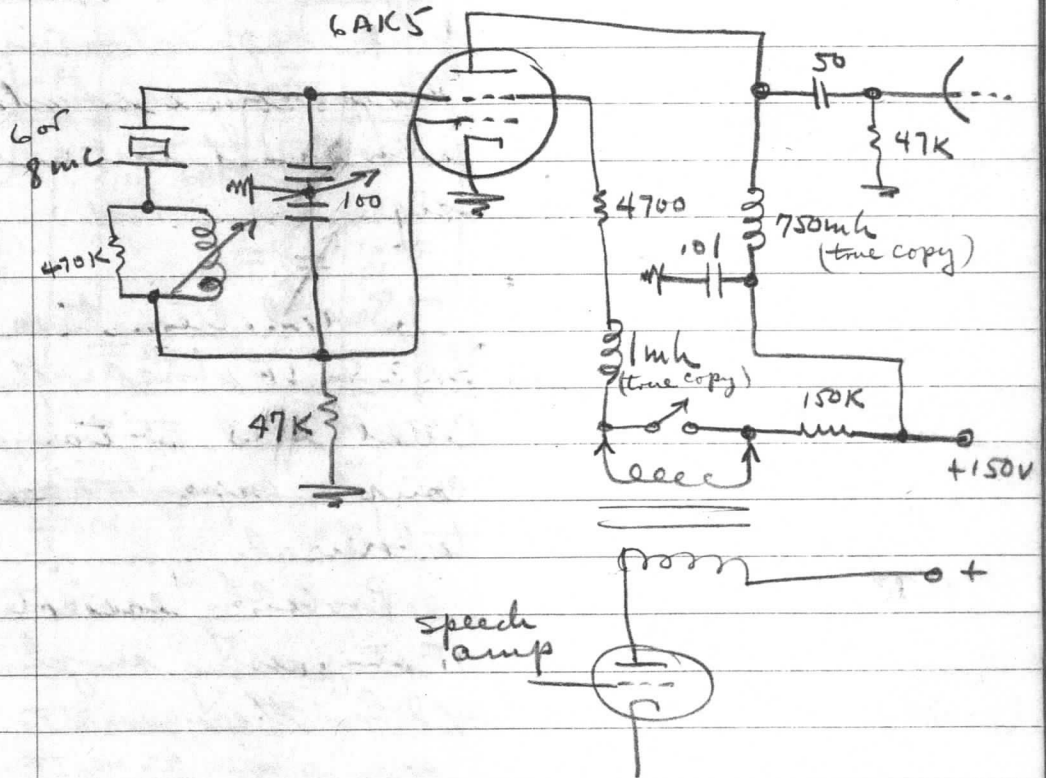
Orbit #179

1st heard 10:11 AM EDT 9/8/64

Faded 10:19 Calculated 40°N crossing

10:15.05 Signal above threshold abt 3 mins so  
one picture should be pretty good, 2nd picture  
noise only.

From Sept 64 QST p29 referring to July 63  
QST article on VXO's  
apparently to be used on 2 meters.



NBFM modulator - drive voltage said to  
be very small.

The discriminator curves taken p259-261 are for very strong signals such that limiter can limit on the skirts of the IF. For the weak signal case - unfortunately realistic - the peak to peak separation is only about 2.5Kc. This probably accounts for the broad band noise burst that accompanies the blanking signal.

Several alternatives. Stagger tuning SX25 IF's tried without success - Could load IF transformers and couple capacitatively to get back to critical.

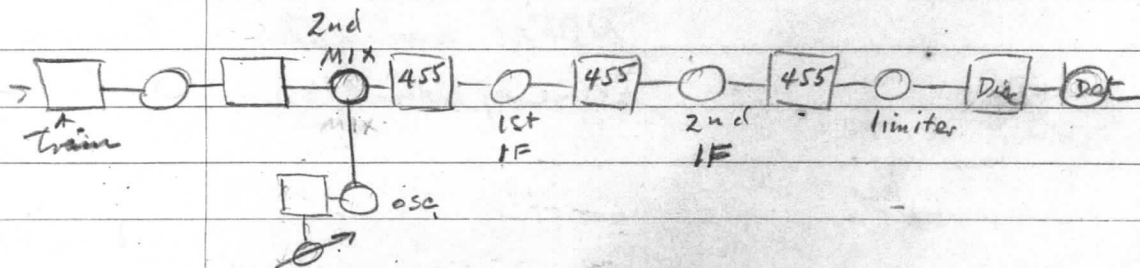
Probably easier to build 455Kc IF strip using surplus IF cans. Much easier if I had their mounts. Could buy new ones - or swap with 9.6 Mc IF

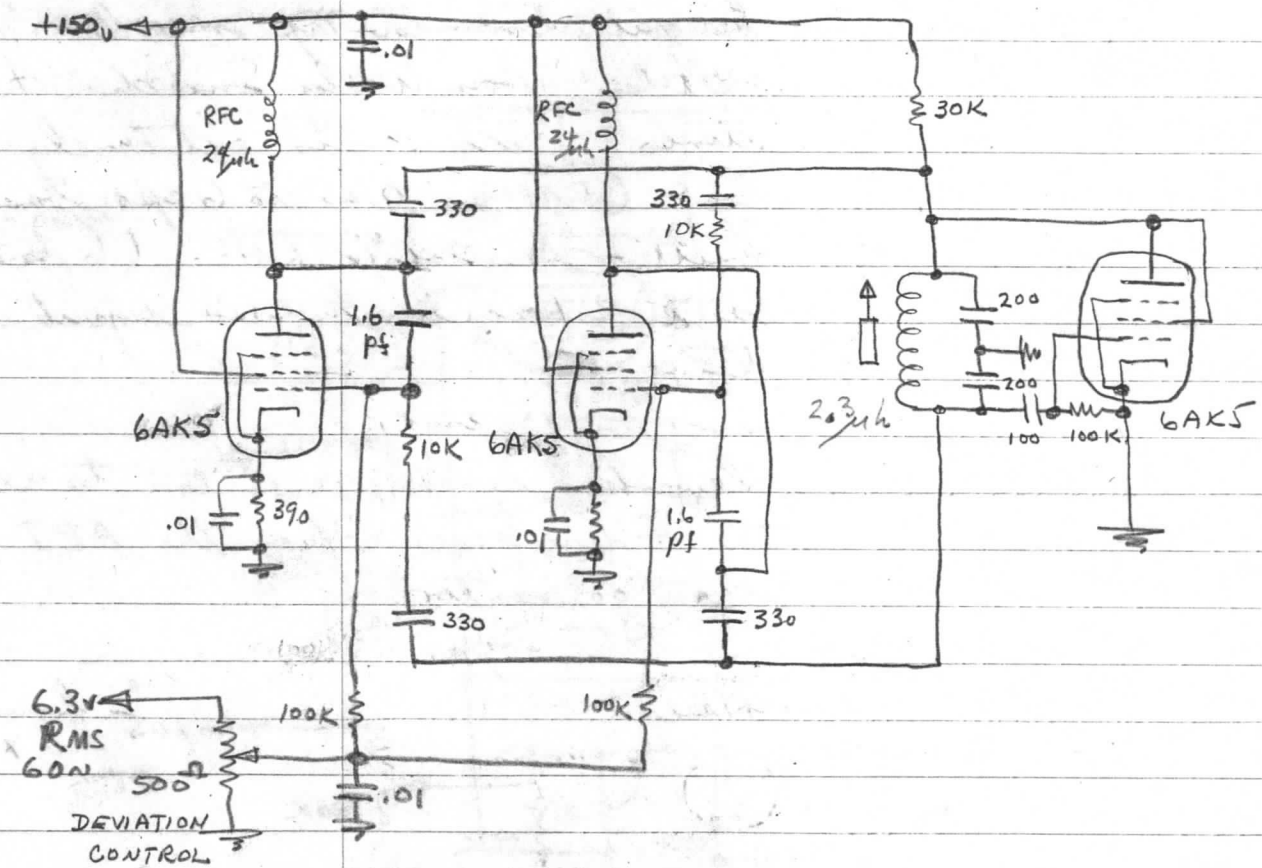
127

14,144  
 9  
 127,296

136-137 Mc  
 127,296  
 8,704

9,704  
 -8,704





9.6 mc sweep generator 9.43 - 9.76 mc (360 kc)  
 sweep at maximum deviation

RFC's are a bit small

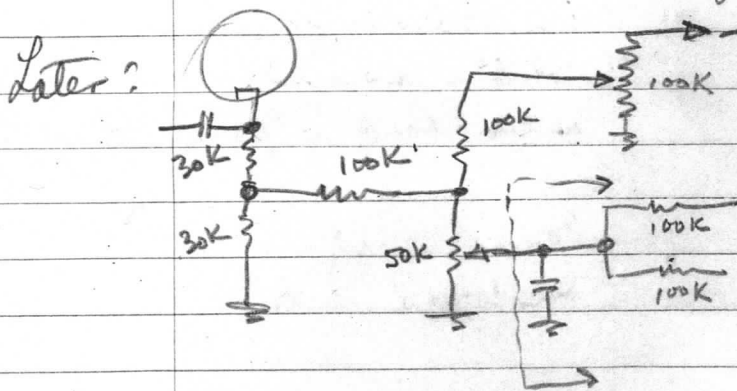
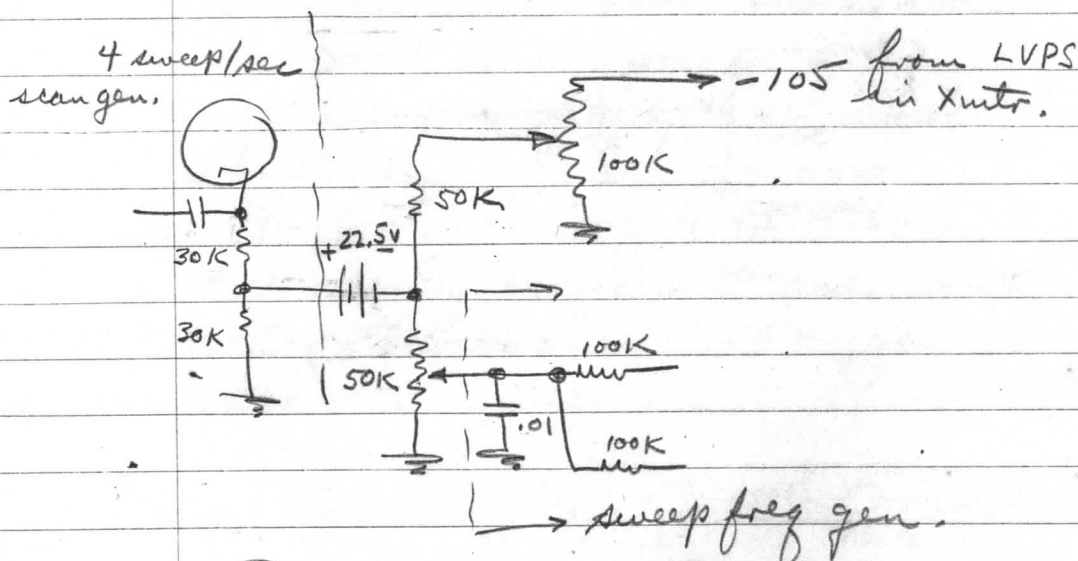
Stable enough for narrow sweep to get  
 narrow band response.



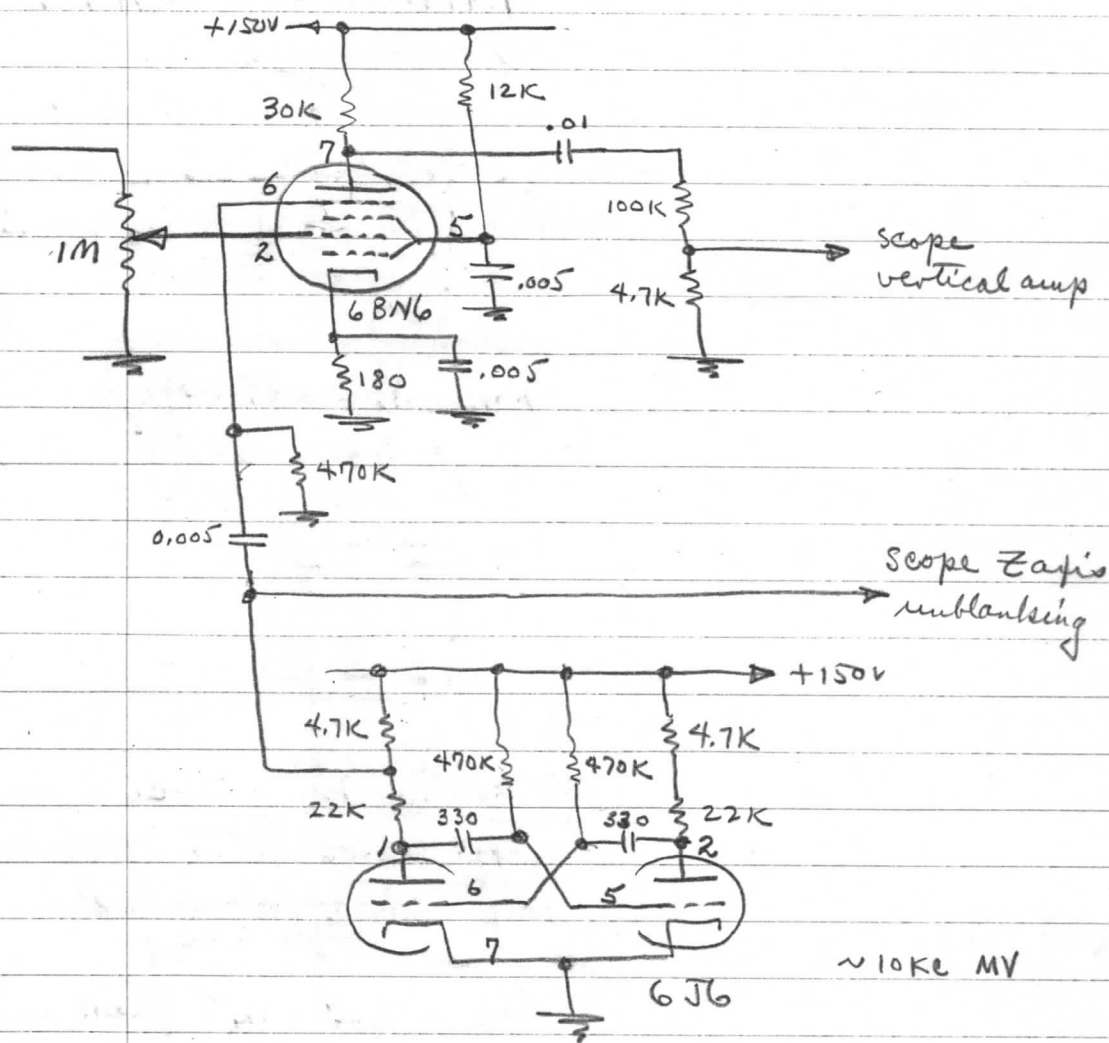
9/13/64

Bought Miranda tape recorder \$199.50 yesterday from Wally Smith. 4 tracks stereo. Wow is extremely low (FM in 0.25 to 6 cps band) Flutter is 0.02% RMS (6 to 250 cps band). Has hysteresis synchronous drive.

Reworked sweep <sup>frequency</sup> generator to accept the 4 sweep/sec from the APT line scan generator.



To get DC response on Scope:



The 6BN6 is pretty non linear with a useful input range of about 1.5V.

Cannot amplify output because 10KC overloads the scope.