

III -

Lay out 60 mc IF Amp of $B = 20 \text{ mc}$

8702's at $6 \times 10^{-3} \text{ umhos}$

$$E_p = 120 \quad E_g = -1.5$$

$$E_s = 120$$

$$I_p = 10.2 \text{ ma}$$

$$I_s = \frac{3.2 \text{ ma}}{13.4 \text{ ma}}$$

$$\left. \begin{array}{l} I_{in} \\ I_{out} \end{array} \right\} C_{total} = 8.6 \mu\mu$$

$$GB = \frac{6 \times 10^{-3}}{2\pi \times 8.6 \times 10^{-12}} = 111 \text{ mc}$$

$$R_k = \frac{E_g}{I_{kt}} = \frac{1.5}{.0134} = 112 \Omega$$

3 staggered triples

$$\text{Band shrinkage } \left(\sqrt{2^m - 1} \right) = .8$$

$$\text{Neco. bandwidth} = \frac{20}{.8} = 25 \text{ mc}$$

$$\text{Stage Gain} = \frac{111}{2.5} = 44.4 \quad \text{db} = 20 \log 44.4 = 20 \times .647 = 12.94 \text{ db}$$

$$\text{total} = 12.94 \times 9 = 116.1 \text{ db} \quad \text{V.G.} = A_{b \frac{116.1}{20}} = A_{5.8} = 6.3 \times 10^5$$

From Valley + Vall. P 189-190

$$f_0 = 60 \quad \delta = \frac{25}{60} = .417 \quad d = 1.19$$

$$B = 25 \quad d = .21$$

1st stage me.

$$f_1 = 60 \times \frac{1.19}{.417} = 71.4$$

$$B_1 = .21 \times 71.4 = 15 \text{ mc.}$$

$$f_2 = 60 \text{ mc}$$

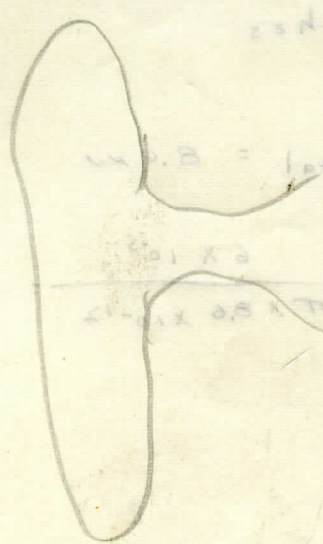
$$B_2 = 25 \text{ mc.}$$

$$f_3 = \frac{60}{.417} = 50.4$$

$$B_3 = \frac{25}{.417} = 50.4$$

$$.21 \times 50.4 = 10.6 \text{ mc.}$$

For out 60 m IF Amp of 8-25 m



$E_p = 120 E_d = -1.2$
 $E = 120$
 $I = 25$
 134

$C = 111$
 $C = 111$



$R = \frac{E}{I} = \frac{1.2}{0.134} = 11.2$

3 staggered triples

$6.3 \times 10^{-9} \times 5 \times 10^2$

30×10^{-3}
 30×10^{-3}

Notes: band width = $\frac{80}{8} = 10$

total gain = $\frac{111}{8} = 13.875$
 $111 \times 10^{-3} = 0.111$
 $111 \times 10^{-3} = 0.111$

X

From Yohannan, 1988-1990

$f_0 = 60$
 $f = 52$
 $\Delta = 2.1$

1st stage
 $f = 60 \times 1.1 = 66$
 $f = 52$

$f = 60 \times 1.1 = 66$
 $f = 52$
 $51 \times 201 = 10260$

V

dissipation for grid resistors.

1st stage

$$\beta = 111 \text{ mc.}$$

$$\beta_1 = \frac{1}{2\pi RC}$$

$$R = \frac{1}{6.28 \times 15 \times 10^6 \times 8.6 \times 10^{-12}}$$

$$= \frac{1}{8.1 \times 10^{-4}}$$

$$= 1235 \Omega$$

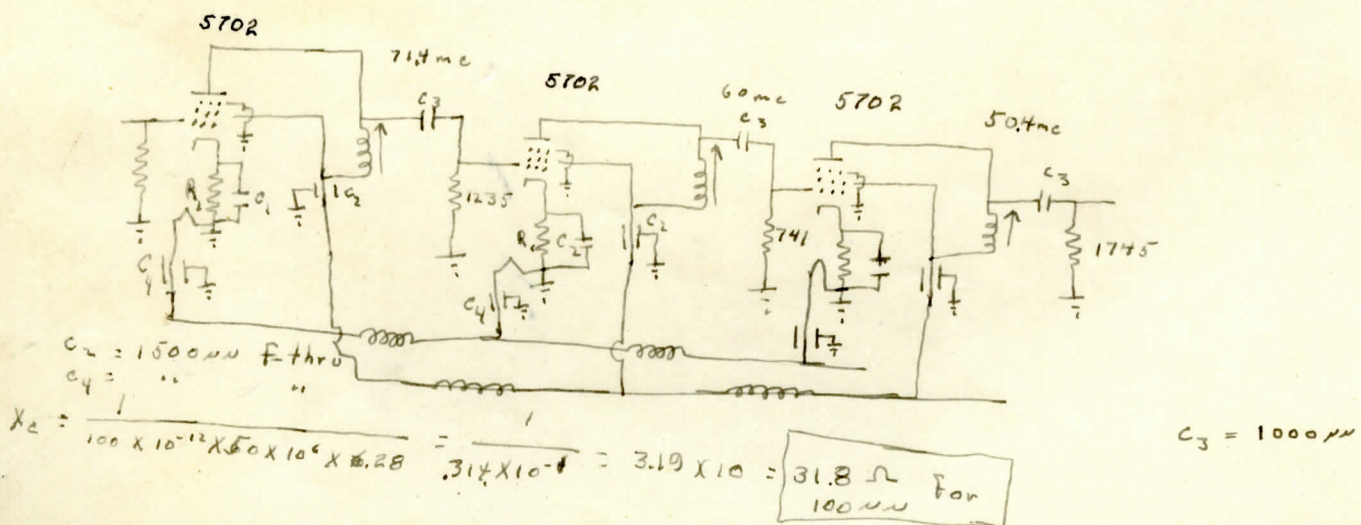
2nd stage

$$R = \frac{1}{2\pi \beta C} = \frac{1}{6.28 \times 25 \times 10^6 \times 8.6 \times 10^{-12}} = \frac{1}{14.6 \times 10^{-4}} = 684 \Omega$$

3rd stage

$$R = \frac{1}{6.28 \times 10.6 \times 8.6} K = 1745 \Omega$$

triple



VI -

Det. Inductance of coils + wind them on cer. forms

A - 71.4 mc

C = ~~80.6~~ 8.6 μF

B - 60. mc

C - 50.4 "

$$f_1 = \frac{1}{2\pi\sqrt{LC}} = \frac{1}{2\pi\sqrt{39.4 \times 7.14 \times 10^{-7} \times 8.6 \times 10^{-12}}}$$

$$L = \frac{1}{4\pi^2 f^2 C} = \frac{1}{39.4 \times 7.14 \times 10^{-7} \times 8.6 \times 10^{-12}} = \frac{1}{39.4 \times 7.14 \times 8.6 \times 10^{-2}}$$

$$= \frac{1}{39.4 \times 7.14 \times 10^{-7} \times 8.6 \times 10^{-12}} = \frac{1}{39.4 \times 50.5 \times 86 \times 10^{-6}} = .584 \times 10^{-6} \text{ H}$$

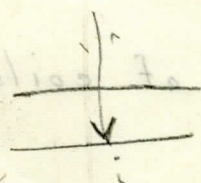
$f_2 = 60 \text{ mc.}$

$$L_2 = \frac{1}{39.4 \times 36 \times 10^{-14} \times 8.6 \times 10^{-12}} = \frac{1}{39.4 \times 36 \times 86 \times 10^{-6}} = .821 \times 10^{-6} \text{ H}$$

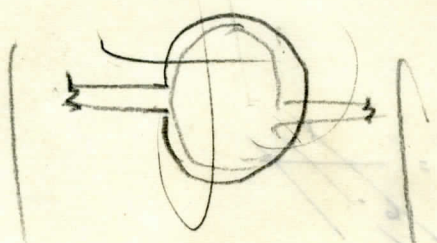
$f_3 = 50.4$

$$L_3 = \frac{1}{39.4 \times 8.6 \times 25.4 \times 10^{-14} \times 10^{-12}} = 1.162 \times 10^{-6} \text{ H}$$

Det. Inductance of coils + Wind them on



- A - 21.4 m
- B - 60 m
- C - 20.4



$$f_1 = \frac{1}{2\pi \sqrt{LC}}$$

$$f_2 = \frac{1}{2\pi \sqrt{LC}}$$

$$234 \times 10^{-6} \times 8 \times 10^{-12} = 1.872 \times 10^{-15}$$

$$234 \times 10^{-6} \times 8 \times 10^{-12} = 1.872 \times 10^{-15}$$

$$f_3 = 60 \text{ m}$$

$$234 \times 10^{-6} \times 8 \times 10^{-12} = 1.872 \times 10^{-15}$$

$$f_4 = 20.4$$

$$234 \times 10^{-6} \times 8 \times 10^{-12} = 1.872 \times 10^{-15}$$