PAL 200K

Project Number ____ Name BC.

№ 2501

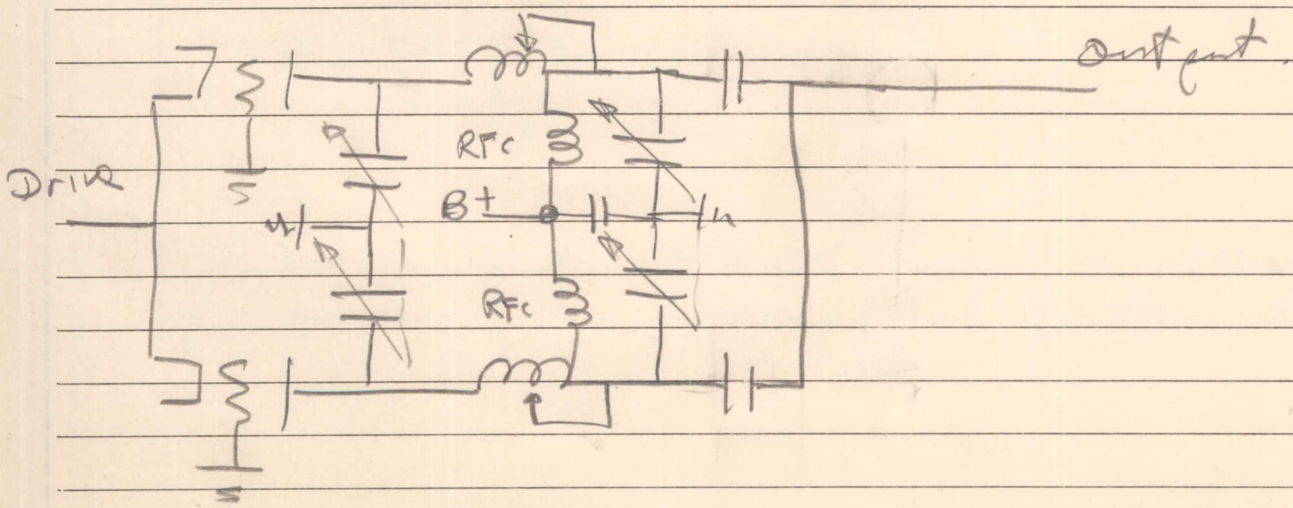
Date ____

It is proposed ~~that~~ two Machlett tubes be used in this xmitter The tube will be of the ML 541-R Type and will be either Air or Vapor cooled.

From the data sheet ~~the~~ we find the following charteristics (Class AB)

	2 tone	16 tone
E_b	20,000	20,000
E_c	-450	-450
I_b	1 Amp	1 Amp
I_b max	27 Amp	135 Amp
e_c Max	580 Peak	1100 Peak
Drive Power	4 KW	41 KW
Out Put PEP	114 KW	585 KW
Average Out	57 KW	58 KW

Approach #1 Parrallel



Project Number ____________ Name ______________________________

№ 2502

Date ______________________

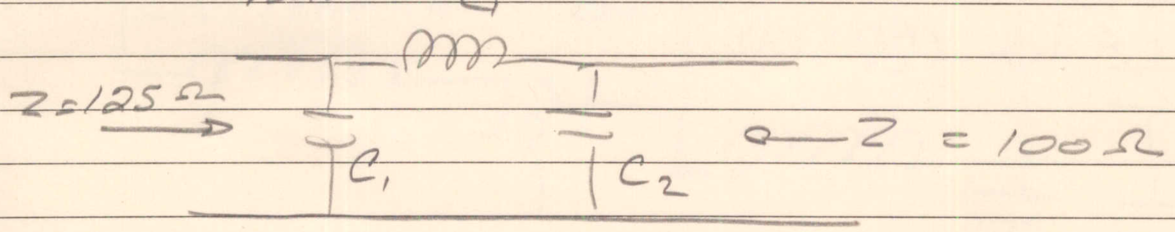
This would require a tank circuit design for one plate to match into 100 ohms. The required R_L of the single tube is:

R_L (for 2 tone 200kW PEP) = $\frac{16000}{27} \cong 600\,\Omega$

R_L (for 16 tone 1.1MW PEP) = $\frac{16500}{135} \cong$ 125 ohms.

Thus the input and output tuning condenser would be the same electrical size.

Thus:



This would require an input C of approx 260 pf and an Inductance of .2 µHy. C_2 = 260 pf.

this would be for 30 mc for 2 mc it would require

$C_1 \approx$ 2000 pf.
$C_2 \approx$ 2000 pf.
$L_1 \approx$ 3 µhy

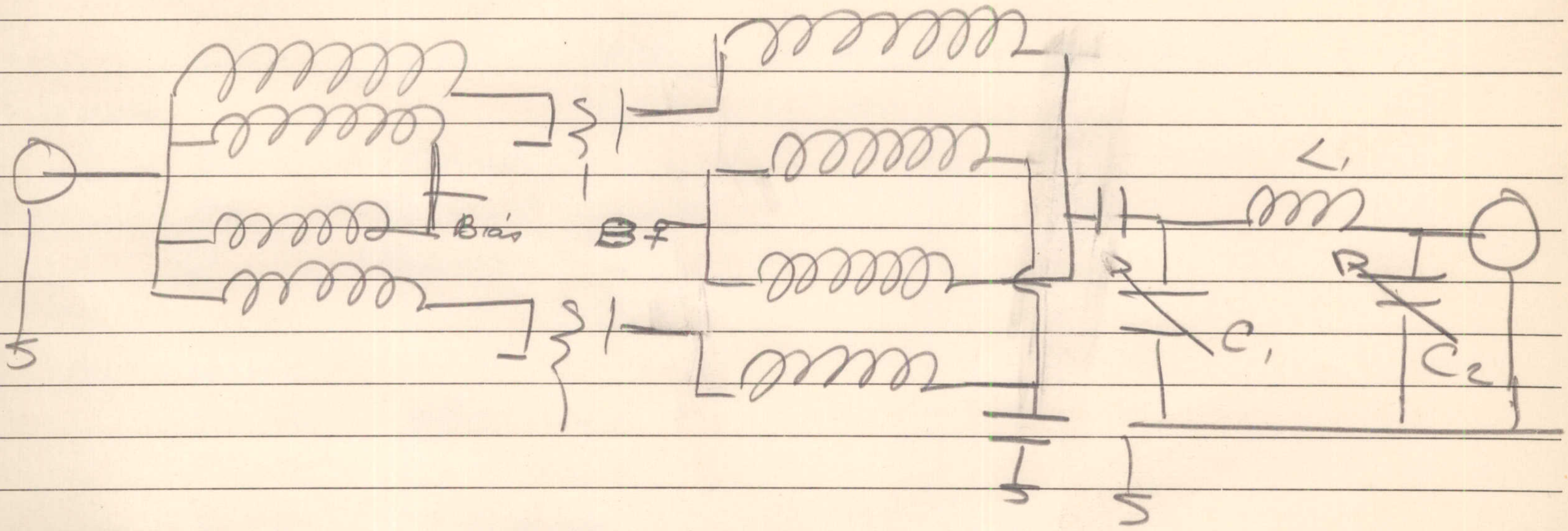
This indicates that only a small amount of inductance is required to tune to 2 mc.

Project Number ______ Name ______

Nº 2503

Date Sept 7 1961

An alternate aproch to the plate tuning would be a push pull configuration. Using a ballen to obtain the balanced output and the input drive.

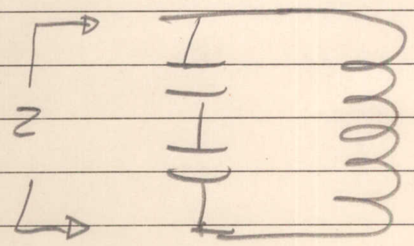


In this case the Ballan must go from 2 to 30 mc without any holes and match from 500 ohms to 125 ohms the π network would then be again with a Q = 10

The ratio between C_1 & C_2 would be

$X_{C_1} = 1.58 X_{C_2}$

The total tank circuit impedance across the inductance is



Z = 330 ohms

this makes $X_L = \frac{330}{Q} = \frac{330}{10} = 33\,\Omega$

Project Number ______ Name ______

No 2504

Date Sept 8 61

With this figure we get for ℓ

$2mc$ $30mc$

2,6 μHy .18 μHy

for 30mc the circuit constants are

$C_1 \approx 230\ \mu\mu f$

C_2 $430\ \mu\mu f$

ℓ $.18\ \mu Hy$

for 2mc

$C_1 \approx 4800\ \mu\mu f$

$C_2 \approx 6000\ \mu\mu f$

$\ell \approx 2.6\ \mu Hy.$

The above constants assume a $Q = 10$

Project Number ______ Name Pritchard

Date Nov. 30 61

№ 2505

IM Calculations on ML-6697

Use the formulas found in Eimac book &

$$e_3 = \frac{1}{12}\left(1(A-A') + 1.93(B-B') + 1.73(C-C') + 1.43(D-D') + 1(E-E') + .52(F-F')\right)$$

e_2 Same as above but $I_p = \frac{1}{2}$ of original value

e_1 " " " " $I_p = \frac{1}{4}$ of original "

Combining these in the equation

$$S/D_{3rd}\ 20\log_{10} = \left[\frac{2[-45e_1 + 252e_2 + 167e_3]}{45[-7e_1 - 4e_2 + 5e_3]}\right]$$

I dont know where this comes from

The Voltages used in the 40K are

$E_{bb} = 12.5$ KV

$I_b =$

E_c = −550

e_c = 510 Peak

e_p = 5300 "

I_p = 4.3

I_g = 0

R_L = 800Ω

I_p = 6.62 A

Project Number ________ Name BL

Date Nov 30

№ 2506

Amps		
A 8.4	4.2 A	2.1 A
B 6.0	4.0	2.0
C 5.5	3.5	1.9
D 4.2	2.6	1.8
E 3.0	2.0	1.65
F 1.9	1.5	1.4
G 1.2	1.2	1.2
F' .3	.5	1.1
E' .19	.2	1.0
D' ~~.24~~ .1	.15	.5
C' .02	.10	.2
B' 0	.05	.18
A' 0	.03	.15

A-A' = 7.4	4.17	1.85
B-B' = 6	3.95	1.82
C-C' = 5.48	3.4	1.7
D-D' 4.1	2.45	1.3
E-E' 2.81	1.8	.65
f-f' 1.6	1.0	.3
	~~1.2~~	

(A-A') 1.	8.4	4.17	1.95
(B-B') 1.93	11.6	~~8.05~~ 7.61	~~3.76~~ 3.5
(C-C') 1.73	9.5	5.9	2.94
(D-D') 1.43	5.86	3.5	1.86
(E-E') 1	2.81	1.8	.65
(f-f') .52	.83	.52	.156
	39.00	22.93	11.056
÷12 =	3.25	1.91	.92

Project Number ______ Name [initials]

Date Dec 1

№ 2507

I_{dc} = 4.2
6.0
5.5
4.2
3.0
1.9
1.2
.3
.19
.1
.02

$\frac{26.11}{12}$ = 2.22 Amps. (Doesn't apear to be enough)

S/D ~~Bkd~~ $20\log_{10}\left[\frac{2[45\times.92+252\times1.91+167\times3.25]}{45[-7\times.92-4\times1.91+5\times3.25]}\right]$

$=20\log_{10}\left[\frac{2[-41.5+480+542]}{45[6.45-7.64+16.25]}\right]$

$=20\log_{10}\left[\frac{2[980]}{45[2.16]}\right]$

$=20\log_{10}\left[\frac{1960}{96.4}\right]$

$=20\log_{10} 20.4$

$= 20\times1.31$

S/D_{3rd} = 26.2 db

This is not consistent with Experiments

480
.542
1022
- 41.5
980.5

7.64
6.45
14.09

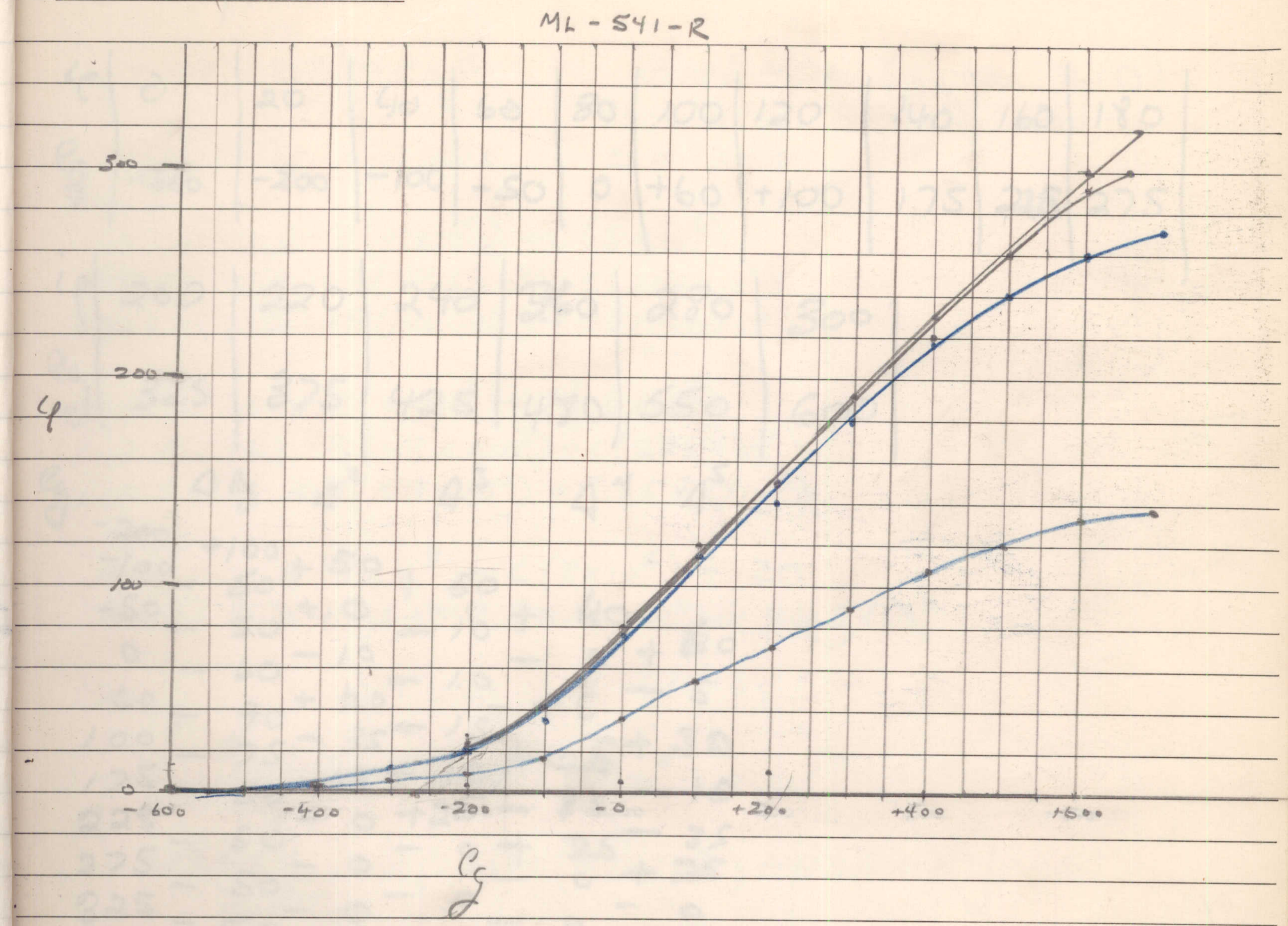
16.25
14.09
2.16

Project Number 200K   Name [illegible]

Date Dec 1

Nº 2508

ML-541-R



i_p	0	5	10	15	20	25	30	35	40	45	50	55	60
e_g	-600	-500	200	150	110	75	50						

i_p	65	70	75	80	85	90	95	100	105	110	115	120	125	130
e_g														

Project Number 200k Name PL

No. 2509

Date Dec 4, 61

i_p	0	20	40	60	80	100	120	140	160	180
e_g	−600	−200	−100	−50	0	+60	+100	175	225	275

i_p	200	220	240	260	280	300
e_g	325	375	425	480	550	600

e_g	Δe_g	Δ^2	Δ^3	Δ^4	Δ^5
−200	+100				
−100	− 50	+ 50	+ 50		
−50	− 50	+ 0	− 10	+ 40	
0	− 60	− 10	− 10	− 0	+ 60
60	− 40	+ 20	− 15	+ 5	− 5
100	− 75	− 35	+ 10	+ 25	+ 30
175	− 50	+ 25	+ 25	− 15	− 10
225	− 50	− 0	− 0	+ 25	− 35
275	− 50	− 0	− 0	− 0	+ 25
325	− 50	− 0	− 0	− 0	− 0
375	− 50	− 0	− 0	+ 5	− 5
425	− 50	− 5	− 5	+ 5	− 0
480	− 55	− 15	− 10	− 5	+ 10
550	− 70	− 20	− 5		
600	− 50				

Try

$$i_p = Ae_g + Be_g^2 + Ce_g^3$$

Project Number ______ Name [initials]

№ 2510

Date Dec 4

$i_p = Ae_g + Be_g^2 + Ce_g^3$ Reference System $t_b(0)$

$-600 = 0 \quad +600 = 1200$

Substitute numbers. $0 = \cdot 600$

$10 = A(200) + B(4\times10^4) + C(8\times10^6)$

$100 = A(660) + B(43.5\times10^4) + C(286\times10^6)$

$300 = A(1200) + B(144\times10^4) + C(1740\times10^6)$

$1 = A(20) + B(4\times10^3) + C(8\times10^5)$

$1 = A(6.6) + B(43.5\times10^2) + C(286\times10^4)$

$1 = A(4) + B(48\times10^2) + C(580\times10^4)$

$A = 1 - B(4\times10^3) - C(8\times10^5) \div 20$

~~$B = 1 - A(6.6) - C(286\times10^4) \div 43.5\times10^2$~~

Sub.

~~$1 = 4\left[1 - B(4\times10^3) - C(8\times10^5) \div 20\right] + 48.0\times10^2\left[1 - A(6.6) - C(286\times10^4) \div 43.5\times10^2\right] + C(580\times10^4)$~~

① $1 = 6.6\left[1 - B(4\times10^3) - C(8\times10^5) \div 20\right] + B(43.5\times10^2) + C(286\times10^4)$

② $1 = 4\left[1 - B(4\times10^3) - C(8\times10^{-5}) \div 20\right] + B(48\times10^2) + C(580\times10^4)$

11

Project Number ______ Name BL

Date Dec 4 — № 2511

$$1 = \frac{\overset{.33}{6.6}}{20} - B\frac{(26.4\times10^{3})}{20} - C\,\frac{52.8\times10^{5}}{20} + B(43.5) + C(286\times10^{4})$$

$$1 = \frac{\overset{.2}{4}}{20} - B\left(\frac{16\times10^{3}}{20}\right) - C\,\frac{32\times10^{5}}{20} + B(48\times10^{2}) + C(580\times10^{4})$$

1) $.67 = B(43.5-132) + C(286\times10^{4} - 26.4\times10^{4})$

2) $.8 = B(48\times10^{2} - 8\times10^{2}) + C(580\times10^{4} - 16\times10^{4})$

1) $.67 = B(-88.5) + C(259.6\times10^{4})$

2) $.8 = B(40\times10^{2}) + C(564\times10^{4})$

$B = (.67 - C(259.6\times10^{4})) \div -88.5$

Sub

$$.8 = \left[\frac{.67 - C(259.6\times10^{4})}{-88.5}\right] 40\times10^{2} + C(564\times10^{4})$$

$$.8 = \left[-.7\times10^{-2} + C\;29\times10^{4}\right] 40\times10^{2} + C(564\times10^{4})$$

$$.8 = -28 + C\;\overset{116000}{11.6\times10^{8}} + C(564\times10^{4})$$

$$+28.8 = C(11.66\times10^{8})$$

$$C = \frac{28.8}{11.66}\times10^{-8} = 2.5\times10^{-8}$$

$$.67 = B(-88.5) + 2.5\times10^{-8}(259.6\times10^{4})$$

$$B = -.685\times10^{-2}$$

30 / 12.00

Project Number______ Name [initials]

Date Dec ~~4~~5

№ 2512

$C = 2.5 \times 10^{-8}$
$B = -.685 \times 10^{-2}$

$10 = A(20) + B(4 \times 10^4) + C(8 \times 10^6)$

$10 = A(20) + (-.685 \times 10^{-2})(4 \times 10^{4}) + 2.5 \times 10^{-8}(8 \times 10^6)$

$A = (10 + 274 - .2) \div 20$
$A = (284 - .2) \div 20$
$A = \frac{283.8}{20} = 14.2$

Try an Example

$100 = 14.2(660) - (.685 \times 10^{-2})(43.5 \times 10^{4}) + (2.5 \times 10^{-8})(2.86 \times 10^{8})$

$100 = 93.5 \times 10^2 - 30 \times 10^2 + 7.15$

$100 \neq 9350 - 3000 + 7.15$

~~$300 = A(1200) + .685 \times 10^{-2} \times 48 \times 10^2 + 2.5 \times 10^{-8}\ 17.4 \times 10^{8}$~~

~~A = 2~~

$300 = A(1200) - .685 \times 10^{-2} \times 144 \times 10^2 + 2.5 \times 10^{-8} \times 17.4 \times 10^{8}$

$A = (300 - 99 \times 10^2\ 33 + 43.5) \div 1200$

$A = \frac{310.5}{1200} = 2.58 \times 10^{-1}$

There seems to be an error or not enough terms were used

Project Number ________ Name BL

Date Dec 6

№ 2513

Useing the equation $R = \frac{r_p + R_L}{1+\mu}$ to $R_L = 60\Omega$

determine the input impedance of the grounded grid amplifier we get for various grid voltages

e_g	Δi	ΔE_p	r_p	R_{in}	$\mu = 45$
-300	8	7KV	875Ω	20	
-200	13.5	7KV	520	12.6	
-100	24	7KV	292	7.9	
0	20	7KV	350	8.9	
+100	21	7KV	338	8.5	
+200	25	7KV	280	7.4	
+300	25	7KV	280	7.4	
+400	25	7KV	280	7.4	

541.R

R_{in} =

for the 6697 we get — R_L prox 50Ω

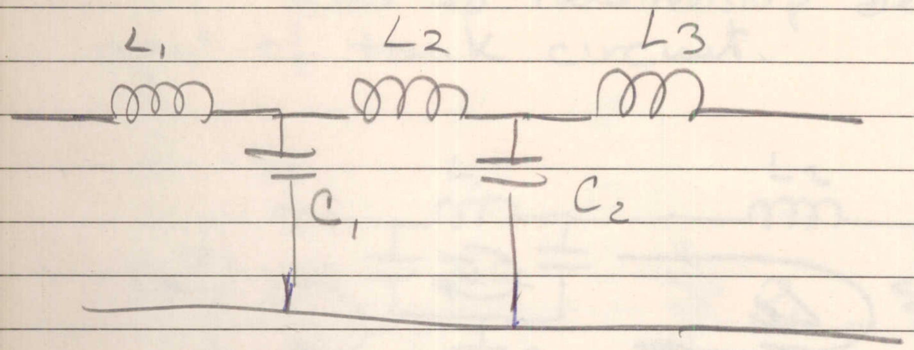
e_g	Δi	ΔE_p	r_p	R_{input}
-300	18	6KV	460	46
-200	18	6KV	334	40
-100	21	6KV	286	37.5
0	23	6KV	260	36.2
+100	25	6KV	240	35.3
+200	25	6KV	240	35.3

Project Number ________ Name Bl

Date Dec 6 61

№ 2514

B+ filter



$L_1 = \frac{50 \times .3}{50 \times 10^3 \times 2\pi} = \frac{.3}{6.28}$ .0476 mH = 47.6 μHy

$L_2 = \frac{50 \times 1.4}{50 \times 2\pi \times 10^3} = \frac{1.4}{6.28} = .22$ mH 220 μHy

$L_3 = \frac{50 \times 1.54}{50 \times 2\pi \times 10^3} = \frac{1.54}{6.28} = .245$ mH 245 μHy

$C_1 = \frac{.89}{50 \times 50 \times 10^3 \times 2\pi} = \frac{8.9 \times 10^{-6}}{5 \times 5 \times 6.28} = .056$ μf

$C_2 = \frac{1.69}{50 \times 50 \times 10^3 \times 2\pi} = \frac{16.9}{50 \times 5 \times 6.28}$ .175 μf ject Number ______ Name Bl

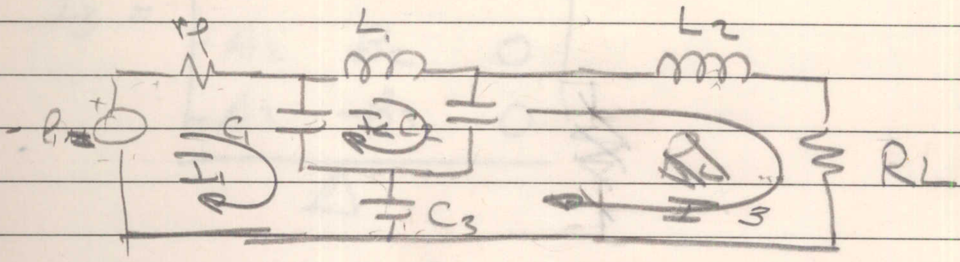
No. 2515

Date April 7 1962

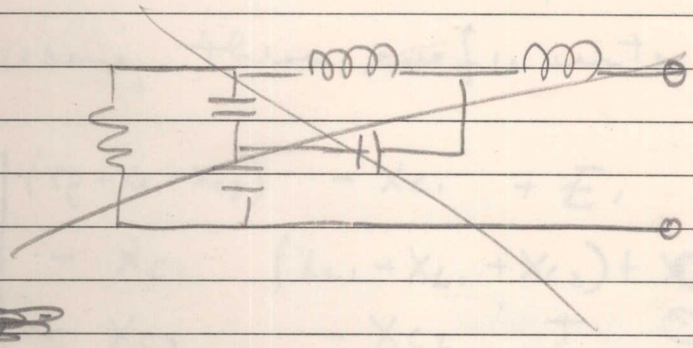
Harmonic suppression on FRT -40 A - 2mc

~~Assume~~

6db ip relationship between fo + 2fo at input of tank circuit.



1) find an equivalent generator + source Z



$0 = e_1 - r_p I_1 - I_1 X_{C_1} - I_1 X_{C_3} + I_2 X_{C_1} + I_3 X_{C_3}$

$0 = 0 + I_1 X_{C_1} - I_2 (X_{L_1} + X_{C_2} + X_{C_1}) + I_3 X_{C_2}$

$0 = 0 + I_1 X_{C_3} + I_2 X_{C_2} - I_3 (X_{C_3} + X_{C_2} + X_{L_2} + R_L)$

$E_1 = I_1 (r_p + X_{C_1} + X_{C_3}) - I_2 (X_{C_1}) - I_3 (X_{C_3})$

$0 = -I_1 (X_{C_1}) + I_2 (X_{L_1} + X_{C_2} + X_{C_1}) - I_3 (X_{C_2})$

$0 = -I_1 (X_{C_3}) - I_2 (X_{C_2}) + I_3 (X_{C_3} + X_{C_2} + X_{L_2} + R_L)$

~~$I_3 (X_{C_3}$~~ +

Project Number ____________ Name ____

No. 2516

Date April 7 1962

$$E_1 = I_1(A_1) + I_2(-B_1) + I_3(-C_1)$$
$$0 = I_1(-A_2) + I_2(B_2) + I_3(-C_2)$$
$$0 = I_1(-A_3) + I_2(-B_3) + I_3(C_3)$$

$$I_3 = \frac{\begin{vmatrix} A_1 & -B_1 & +E_1 \\ -A_2 & B_2 & 0 \\ -A_3 & -B_3 & 0 \end{vmatrix}}{\Delta}$$

$$\Delta = \begin{vmatrix} A_1 & -B_1 & -C_1 \\ -A_2 & B_2 & -C_2 \\ -A_3 & -B_3 & +C_3 \end{vmatrix}$$

Using these coefficients we get –

$$I_3 = \frac{\begin{vmatrix} (r_p + X_{c_1} + X_{c_3}) & -X_{c_1} & +E_1 \\ -X_{c_1} & (X_{c_1} + X_{L_1} + X_{c_2}) & + 0 \\ -X_{c_3} & -X_{c_2} & + 0 \end{vmatrix}}{\begin{vmatrix} (r_p + X_{c_1} + X_{c_3}) & -X_{c_1} & -X_{c_3} \\ -X_{c_1} & (X_{c_1} + X_{L_1} + X_{c_2}) & -X_{c_2} \\ -X_{c_3} & -X_{c_2} & +(X_{c_3} + X_{c_2} + X_{L_2} + R_L) \end{vmatrix}}$$

~~$I_3 = (r_p + X_{c_1} + X_{c_3}) + (X_{c_1} + X_{L_1} + X_{c_2}$~~

ject Number Name [illegible]

No. 2517

te April 7 1962

$$RI_3 = \frac{(E_1 X_{C_1} X_{C_2}) + (E_1)(X_{C_1} + X_{C_2} + X_{L_1})(X_{C_3})}{(r_p + X_{C_1} + X_{C_3})(X_{C_1} + X_{C_2} + X_{L_1})(X_{C_3} + X_{C_2} + X_{L_2} + R_L) - (X_{C_1} X_{C_2} X_{C_3}) - (X_{C_1} X_{C_2} X_{C_3})}$$

$$\overline{- (r_p + X_{C_1} + X_{C_3})(X_{C_2})^2 - (X_{C_3} + X_{C_2} + X_{L_2} + R_L)(X_{C_1}^{\,2}) - (X_{C_3}^{\,2})(X_{C_1} + X_{C_2} + X_{L_1})}$$

ject Number Name BP

Nº 2518

July 11, 1962

Vox & Squelch for CHG-1

Specks.

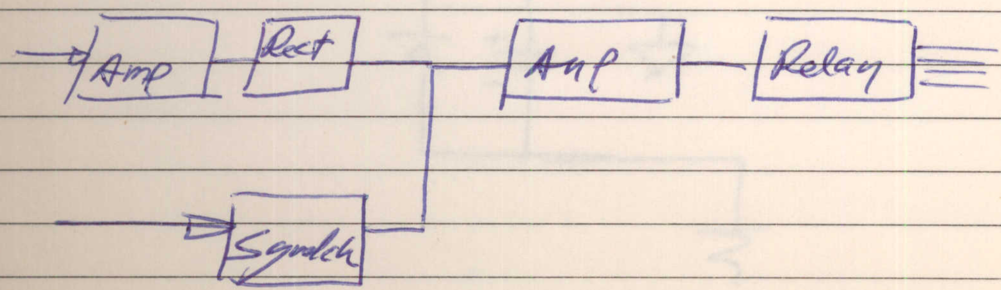
(1) input signal may be from 0 to -20dbm across 600 Ω, input.
(2) Vox must operate off of a 600 ohm balanced centertaped line.
(3) Must have a relay to control B+ Keying of CHG-1 (with apropiate filtering.
4) Must receive a signal from a speaker output and use this for squelch.
5)

1 watt = 24.5 volts across 600 Ω

1 mw = $\frac{34.6}{\sqrt{1000}} = \frac{24.6}{31.4} = .775$ volts

-20dbm = $\frac{1 mw}{100}$ = .01 mw = 10 μwatts or .075 volts

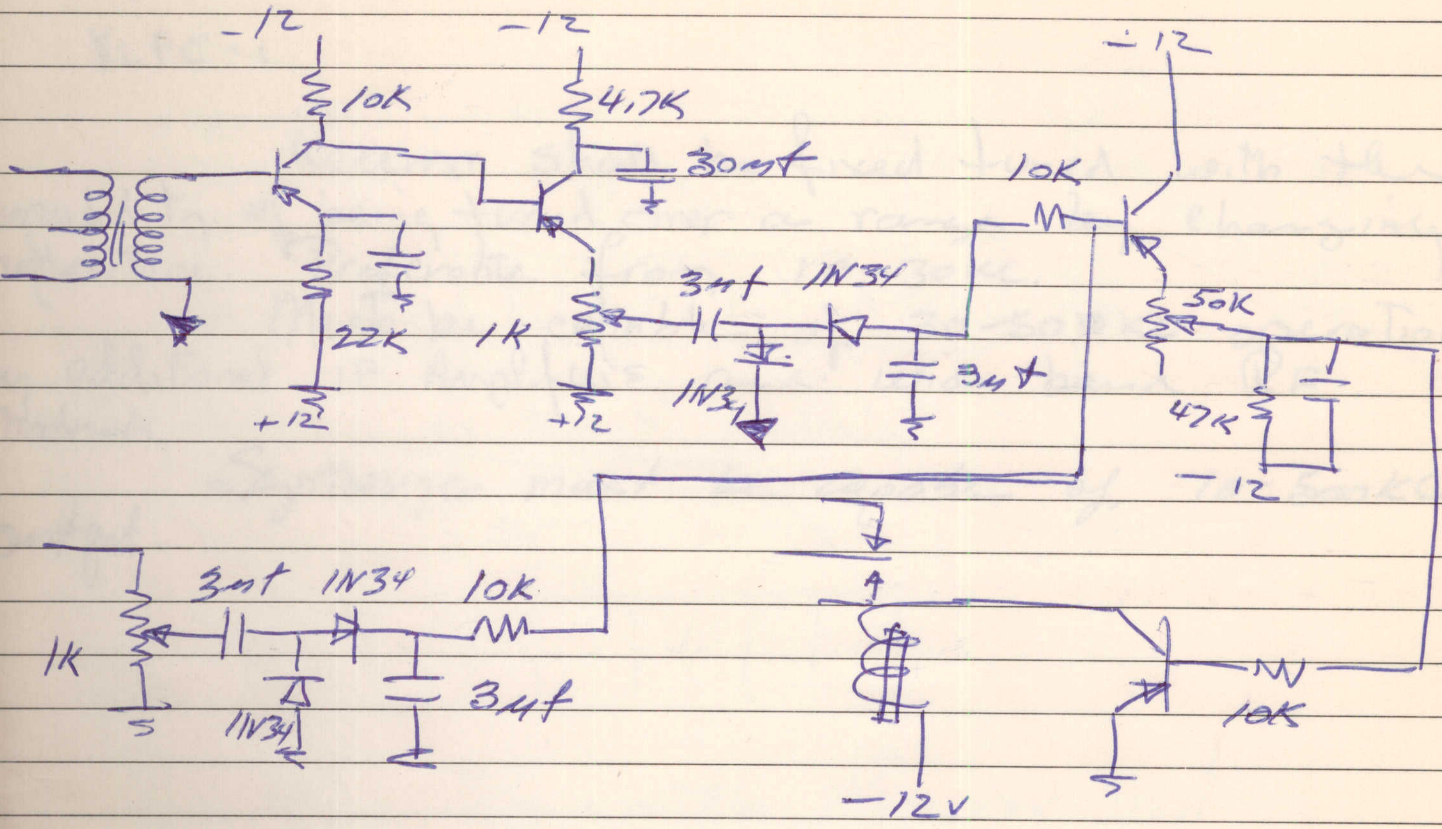
The transistor circuit must have enough gain to trip a relay circuit disigned for use with ± 12v DC.



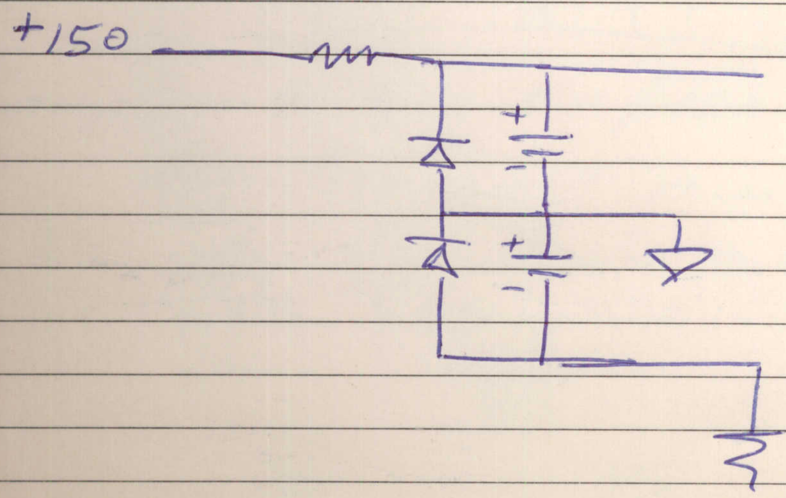
ect Number________ Name [signature]

№ 2519

July 11 1962



All transistors 2N207 RCA —
Supply voltage obtained from VR Tube in CBE-1



ect Number Name [initials]

№ 2520

Date Aug 8 1962

VLFC-1

Receiver shall be fixed tuned with the capability of being tuned over a range by changing capacitors. Preferable from 10-30KC.

Must be capable of 30-500KC operation by additional IF Amplifiers and wide band RF materials.

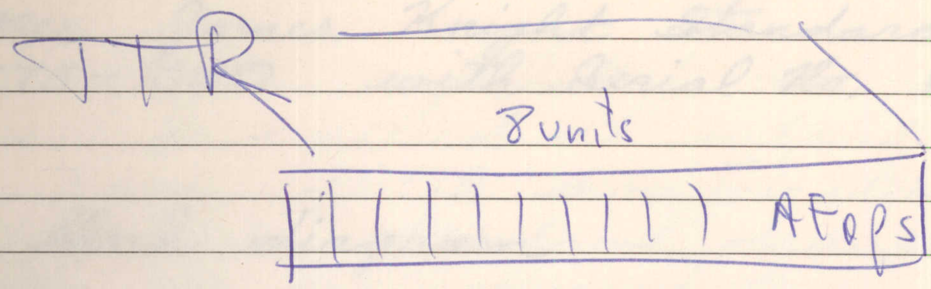
Synthesizer must be capable of 10-500KC output.

ect Number ______ Name BP

№ 2521

e Dave

TTR

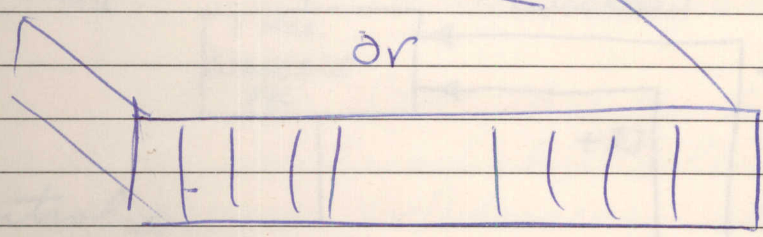


$3\frac{1}{2}$

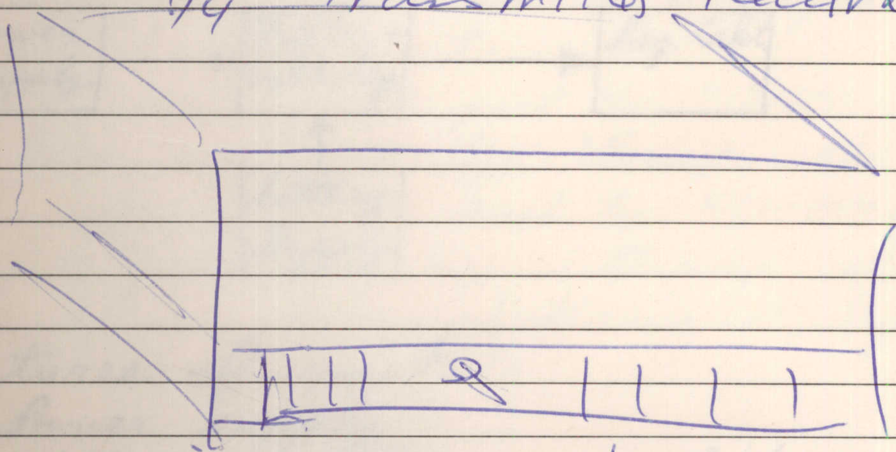
Must be capable of being Remote

Eight Rec or Xmit modules

or



4/4 Transmitter Receiver Unit



One unit for 50/150 watts

4X4 Transmitt receiver

One PS for Exciter + Rec Module

One PS For 50/150 watt Xmitter

Pal 150/50

Universal PS: DC → 40–400

or

DC PC and AC 40–400

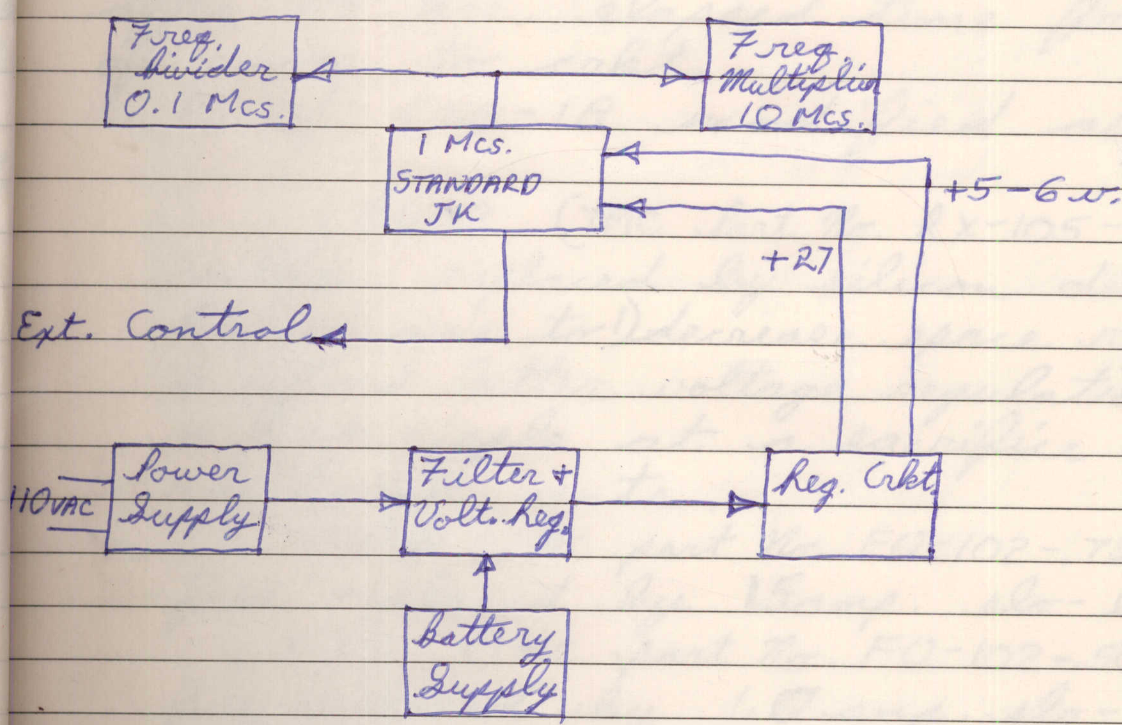
Project Number ____________ Name *Neil H. de Pasquale*

№ 2522

Date *6 Aug.*

Precision oscillator unit incorporating 1 Mcs. James Knight Standard, Model JKTS-1000 with Serial No. 690-1.

Block diagram



Features of unit

- Power supply
- Filter + voltage regulator
- Battery supply
- Regulating crkt.
- Frequency divider
- Frequency multiplier
- Standard (1 Mcs.) chassis mounting
- Chasis design for entire unit plus battery supply.

ect Number______ Name *Neil. H. dePasquale*

№ 2523

e 8 Aug.

Power supply

28 volts regulated dc at 420 mA. must be supplied at output.

From CSS-1A modification incorporating JKTS-1000, standard draws app. 400 mA. after 48 hrs. elapsed time from application of power to crkt.

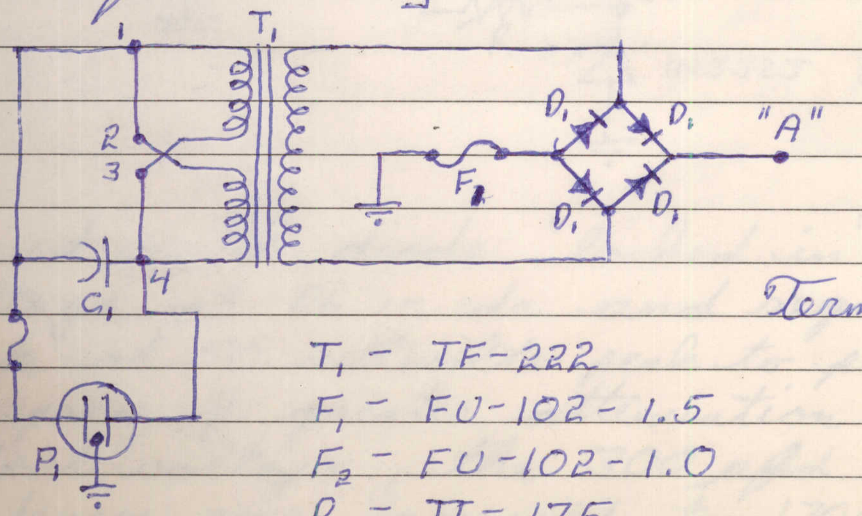
PS of CSS-1A modified as follows:

CR602 (TMC Part No. RX-105-17) selenium rectifier replaced by silicon diode 1N2512. Purpose was to 1) decrease space requirement; 2) afford better voltage regulation; 3) elicit a lower ripple at a sacrifice of a few additional cents.

F602 (TMC part No. FU-102-.750) cartridge fuse replaced by 1.5 amp. slo-blow fuse.

F601 (TMC part No. FU-102-.50) cartridge fuse replaced by 1.0 amp. slo-blow fuse.

[Fuse values determined by output load requirements]



Terminal "A" - 56.0v.

T_1 - TF-222
F_1 - FU-102-1.5
F_2 - FU-102-1.0
P_1 - JJ-175
D_1 - 1N2512 silicon
C_1 - 0.01 ufd.

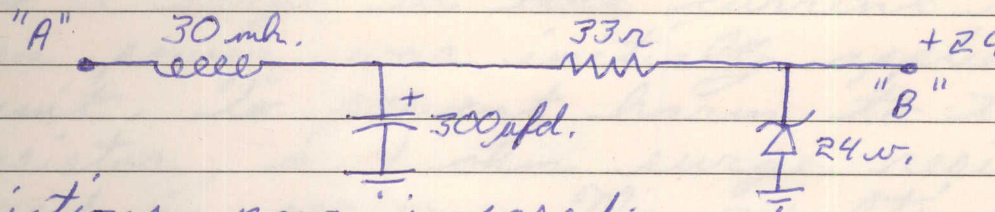
ect Number Name Neil H. de Pasquale

№ 2524

10 Aug.

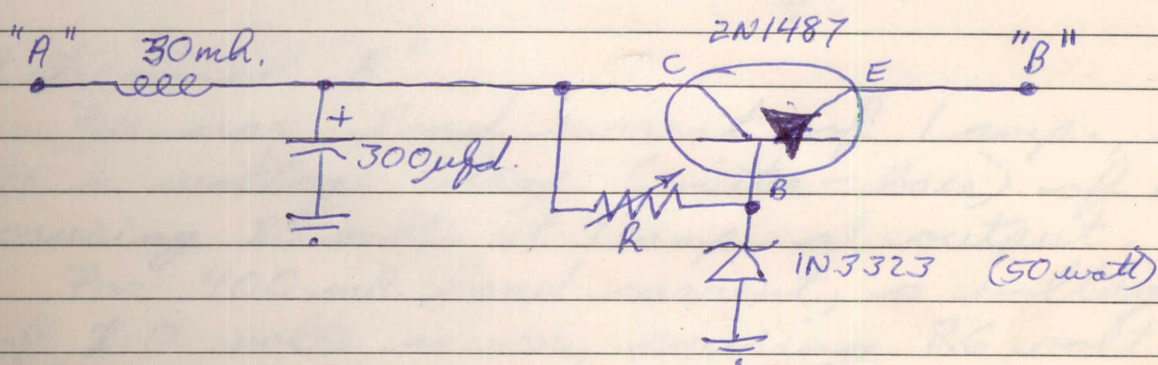
Filter and Voltage Regulator

CSS-1A used originally as follows:



Restrictions now imposed:
Output rated at 28 vdc. regulated voltage.
Must be provision for a battery supply tie-in.
Output voltage must have low ripple.

Subsequent circuit employed 27 volt zener diode (IN3323) and 2N1487 transistor as follows:



R varied until diode "locked in".
"B" voltage at 26 v. dc and regulated with ripple at 50 millivolts peak to peak.
For purposes of greater attenuation of the output voltage, the 300 μfd. filter condensor was increased to 1700 μfd. This decreased the db level of the output ripple voltage.

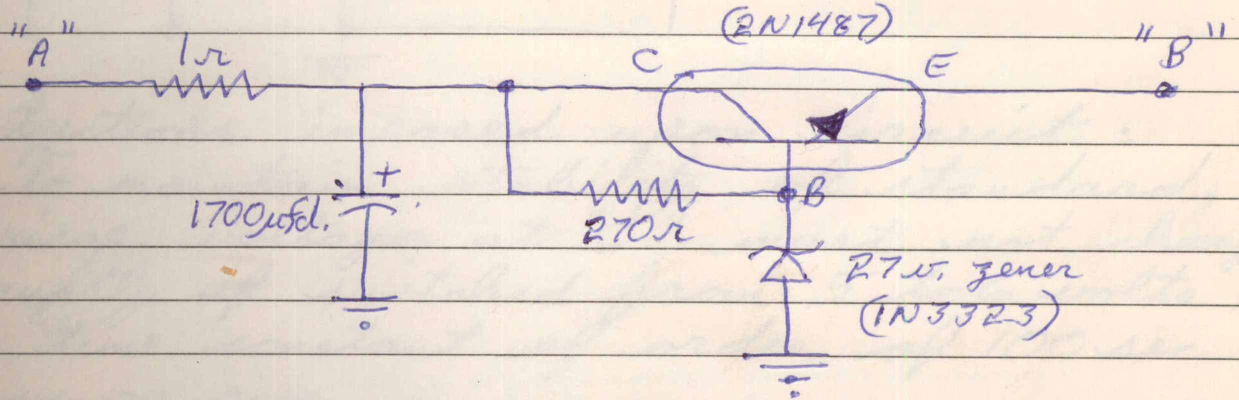
ect Number ____________ Name *Neil H. dePasquale*

№ 2525

10 Aug.

The 300 μfd. condensor change and the suppression effect on the ripple by the zener diode, caused removal of the 30 mA. choke.

A surge in ~~line~~ current was noted when power was initially applied to the circuit. To prevent harm to the transistor, a 1 ohm surge resistor was placed in series. The resulting circuit is as follows:



At terminal "B"

For max. load current of 1 amp., there is a voltage drop (emitter-base) of 2 volts, causing 25 volts at 1 amp. at output.

For 400 mA. load current, a voltage drop of 1.0 volts occurs, causing 26 volt output.

[These values were verified on a HP 410 voltmeter and Simpson 260 ammeter]

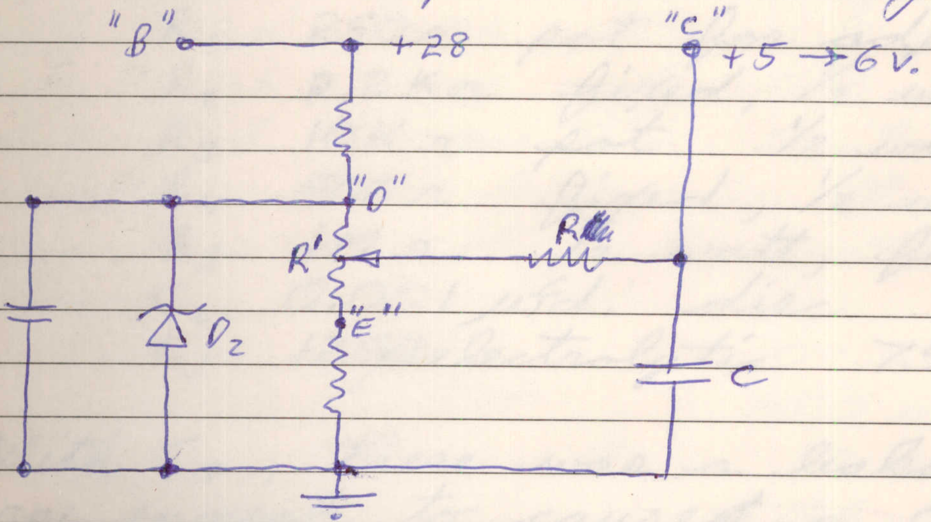
Project Number ______ Name Neil H. dePasquale

№ 2526

13 Aug.

Regulating Circuit

B. Pritchard specs. on design:



Restrictions imposed upon circuit:

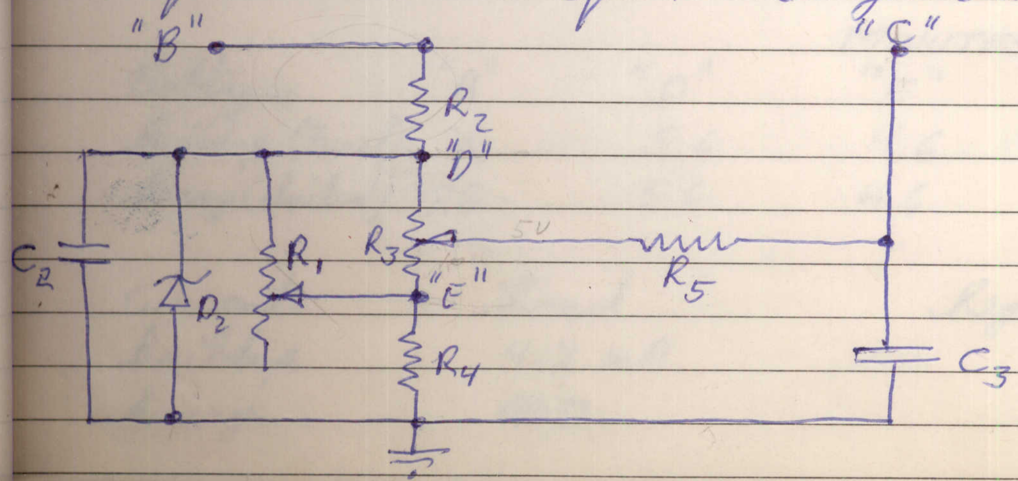
To maintain stability of standard, varicap voltage at "C" must not change abruptly if switched from 5 to 6 volts. RC time constant of order of 100 sec decay or rise.

At "D" voltage is 6 v. regulated by zener D_z.

At "E" voltage is 5 volts dc.

Circuit draws 10 mA. to ground.

Modifications as of 15 Aug. 6Z.



ct Number __________ Name Neil H. dePasquale

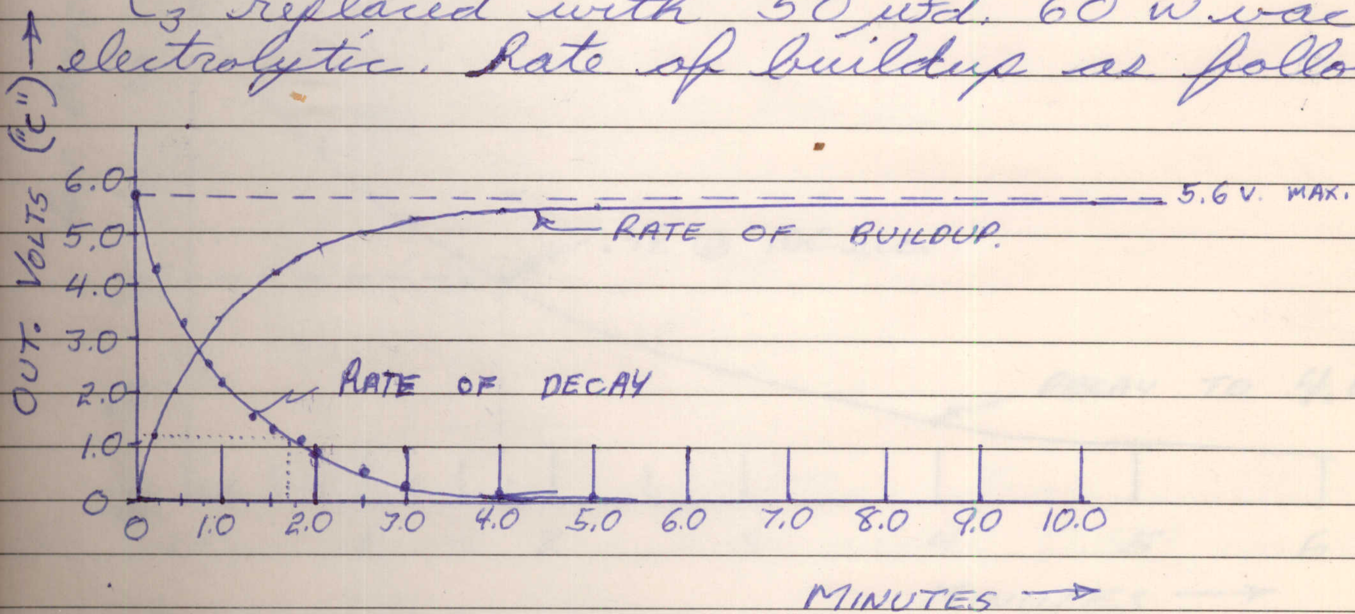
№ 2527

13 Aug.

R₁ added as coarse adjustment.
5.6 volt zener (IN752) selected as D_2 (10 watt)

R_1	250Ω pot for adjustment, ½ watt
R_2	2.2KΩ fixed, ½ watt
R_3	10KΩ pot ½ watt
R_4	500Ω fixed, ½ watt
R_5	1MΩ ½ watt, fixed
C_2	0.001 μfd. disc
C_3	125μfd electrolytic 75 wvac.

With C_3, there was a leakage current large enough to cause a 0.38 drop across R_5. Decay curve incomplete.
C_3 replaced with 50 μfd. 60 w.vac. electrolytic. Rate of buildup as follows:



Voltages	"B"	"D"	"E"	"E"→"C"
Buildup (Final)	X	5.6	4.6	X
Decay (Initial)	26	5.6	4.6	40 millivolts

Current	Load	Reg. Crkt.
Buildup	412 mA.	9.7 mA.
Decay	600	9.8

ct Number________ Name Neil H. dePasquale

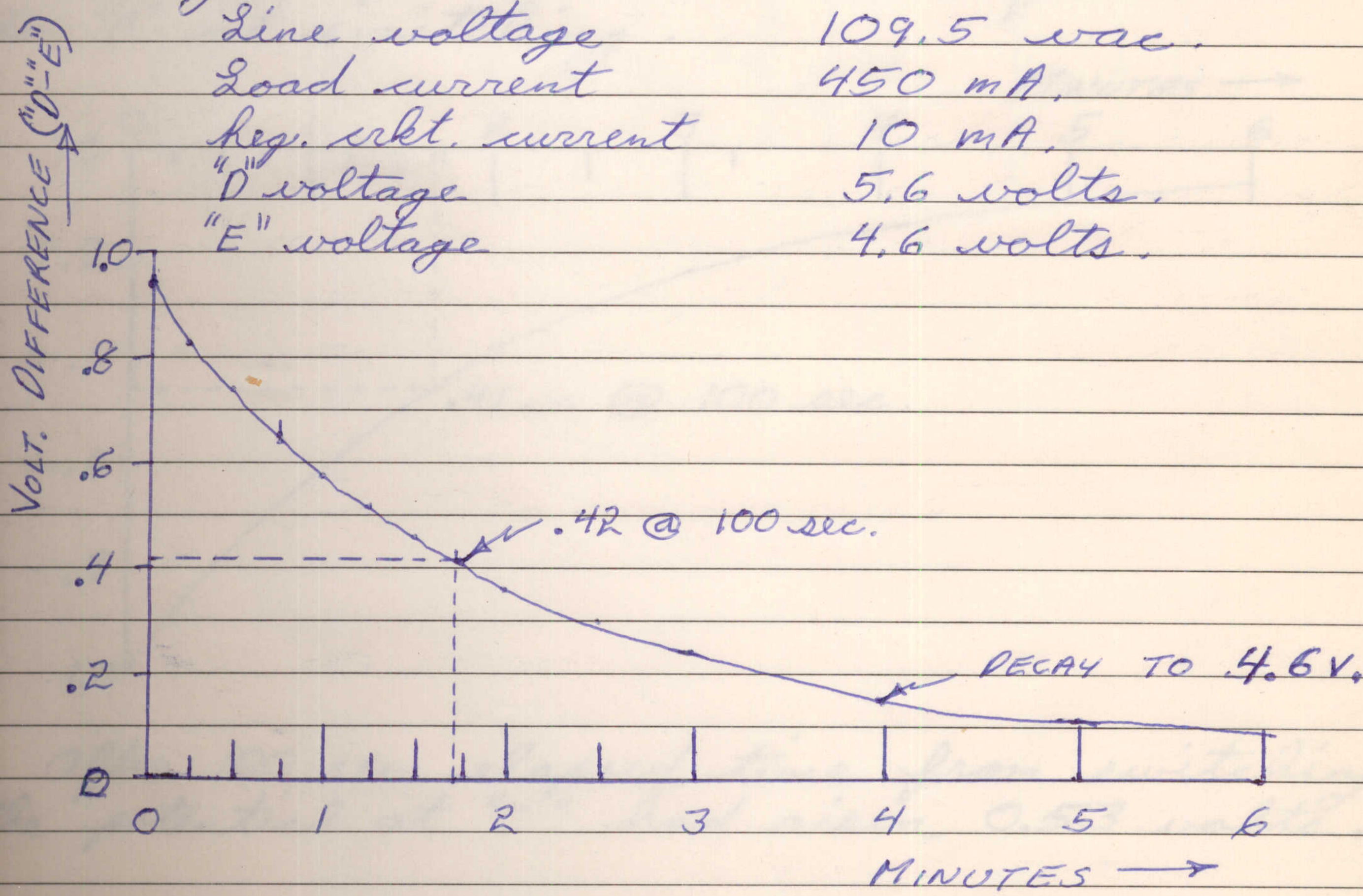
№ 2529

16 Aug.

C_3 replaced with 100 μfd. 60 WV (GECBR) electrolytic. Probes were located across R_5 (1 MEG, ½ WATT, FIXED) which initially read 0.06 volts difference. At time = 0, R_3 was adjusted to "E" position from initial "D" position. Initial reading was 0.94 volts. Below is the discharge curve derived using $R_5 C_3$ = 100 sec.

Following switchover:

Line voltage	109.5 vac.
Load current	450 mA.
Reg. ckt. current	10 mA.
"D" voltage	5.6 volts.
"E" voltage	4.6 volts.



In 100 sec., the voltage at "C" has dropped from 5.60 to 5.08, a fall of 0.52 v.

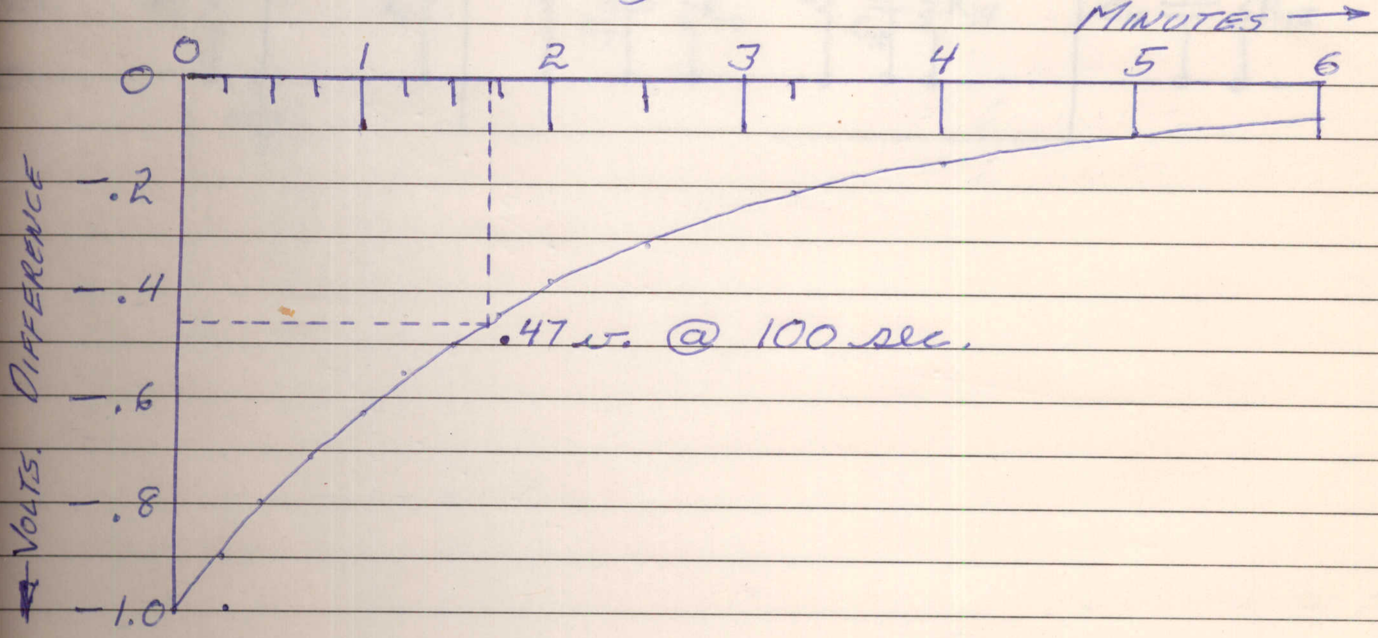
Number____________ Name *Neil H. dePasquale*

№ 2531

16 Aug.

Previous test repeated for a voltage rise of 1 volt at "C". Initially "C" voltage was 4.6 volts; at 10 minutes elapsed time from switching: 5.6 volts.

The graph below describes the decrease in potential difference between points "D" and "C" as "C" reaches 5.6 volts from an initial 4.6 volts at switching. The center tap of R_3 was moved from "E" to "D" at switching.



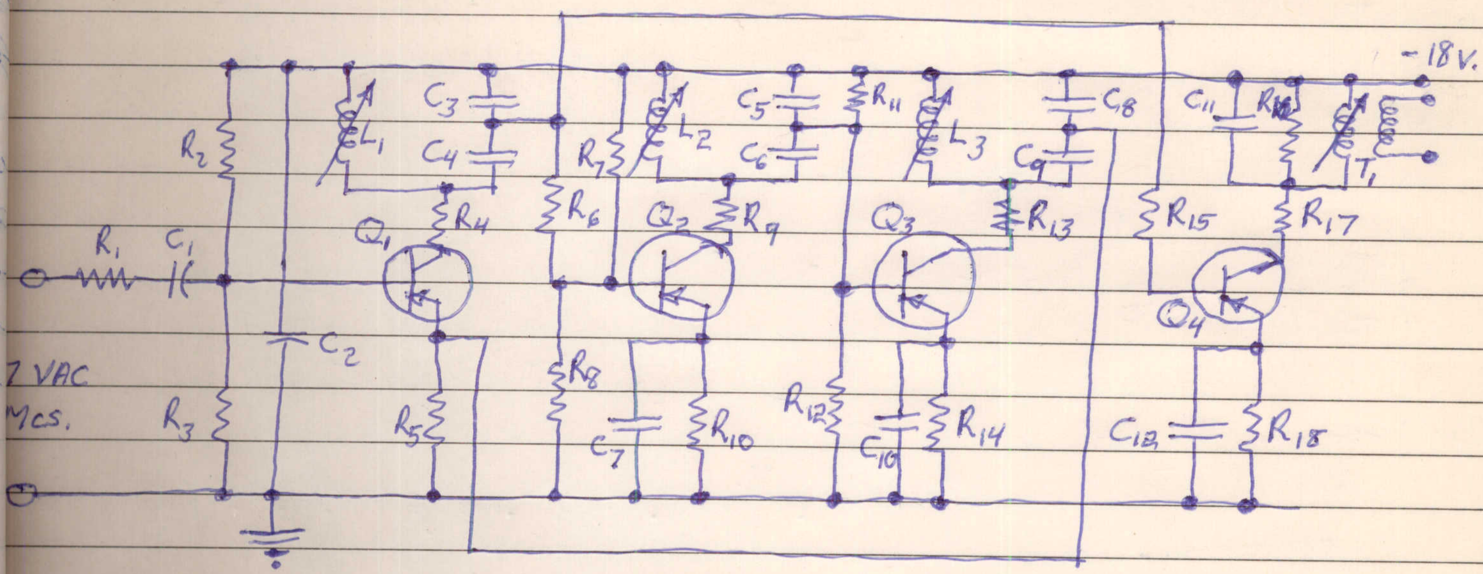
After 100 sec. elapsed time from switching, the potential at "C" had risen 0.53 volts.

ct Number__________ Name *Neil H. de Pasquale*

№ 2532

16 Aug.

The following regenerative frequency divider circuit was developed.

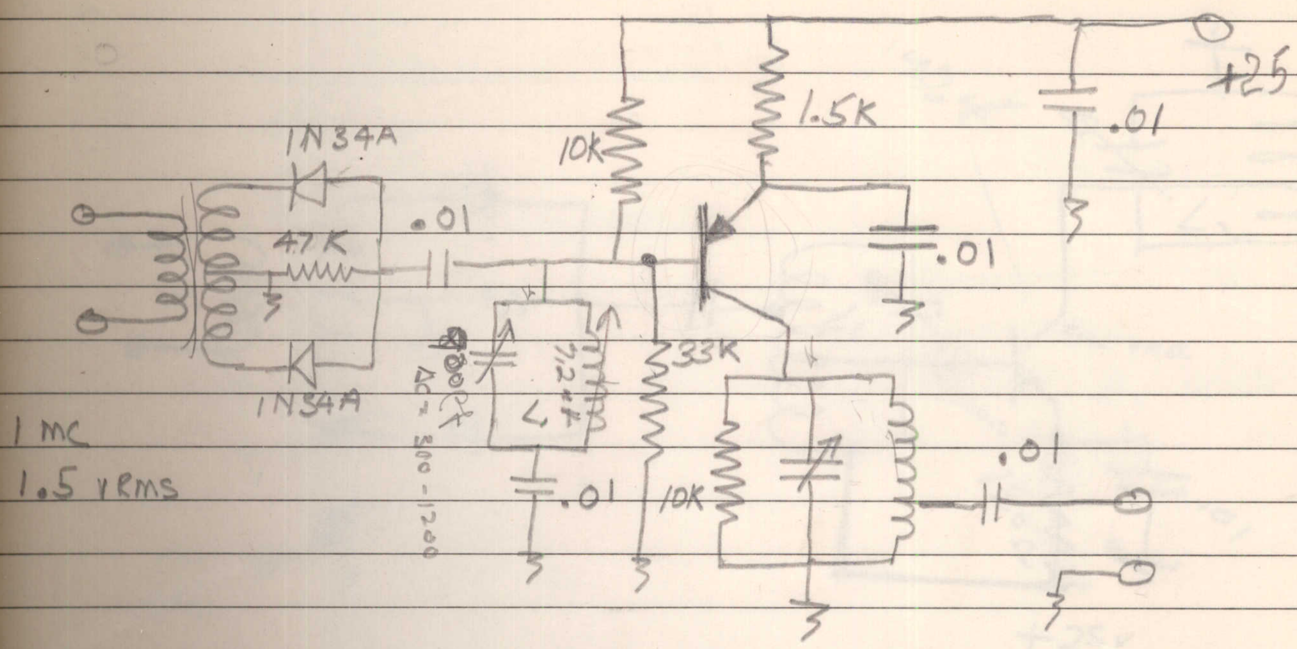


Project Number Name JOSEPH DeLORENZO

№ 2541

28 Aug 62

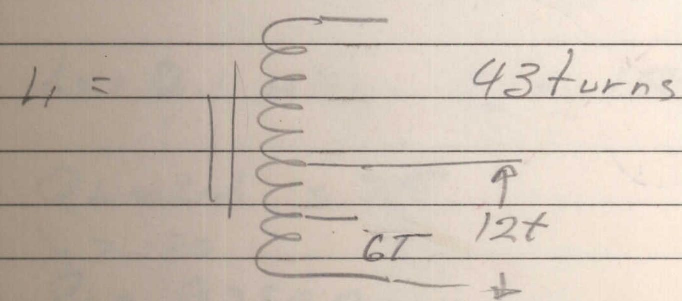
DEVELOPMENT OF 1 mc TO 10 mc MULTIPLIER



7.2 μHy = 95 Ω XL

$R_{bG} \stackrel{?}{=} 1300$

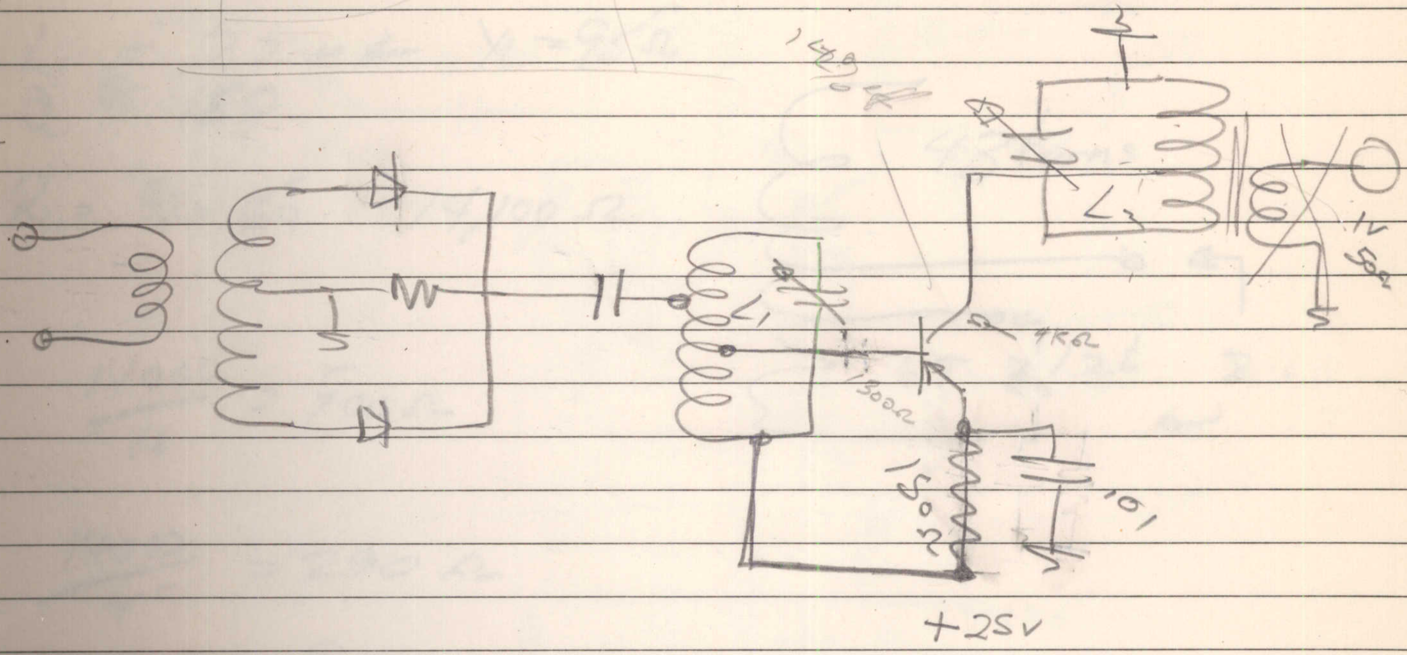
Output req = 1V across 50 Ω



ct Number Name

№ 2542

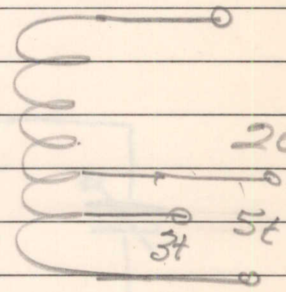
Sig. 5



P_0 = 1volt / 50 Ω = .020 watts

Eff = ×100 (1 − Q_L/Q_U) = 1 − 50%

40 milli-watts into tank



L_2 = 2.1 μHy Q = 150 at 10mc

Q Loaded = 25

X_L = 130

RL = 9750 Ω

R_S = 4000 Ω

use collector tap of 5t = 9750/16 = 600 Ω

Eq R Reflected

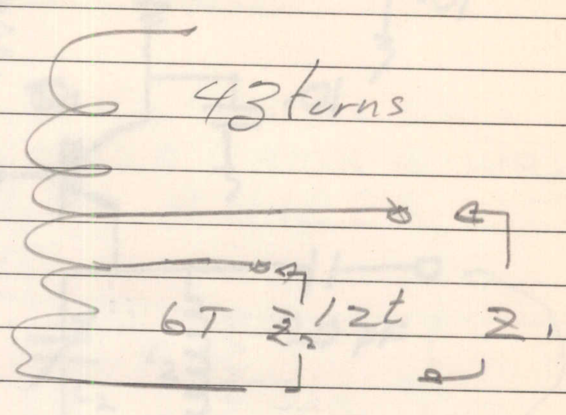
4000×16 = 64,000 Ω

Number______ Name______

Sep 5

$L_1 = 2.2\,\mu H \quad X_L = 95\,\Omega$
$Q \cong 150$

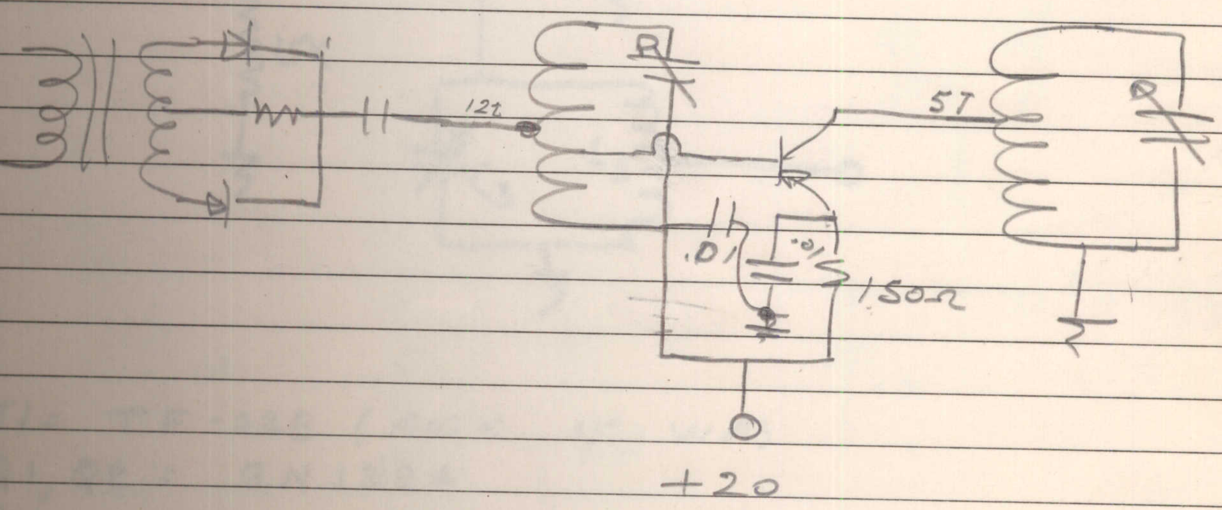
$R_L = 95 \times 150 \quad 14{,}100\,\Omega$



$Z_1 \quad \frac{14000}{16} = 900\,\Omega$

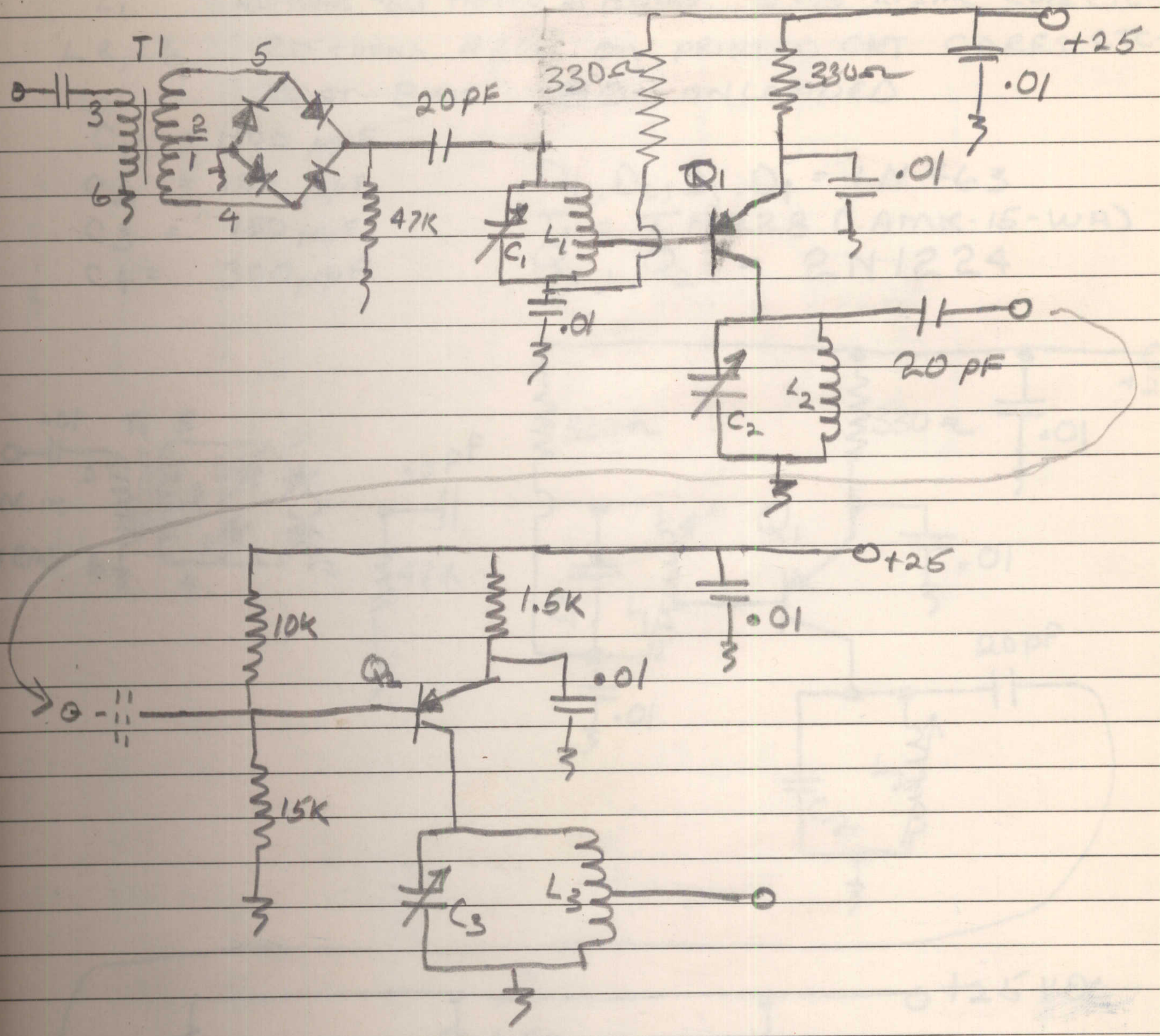
$Z_2 \quad \frac{14000}{49} = 290\,\Omega$

Final



ct Number FREQ. STD Name J. DeLORENZO

9/6/62



T1 = TF-228 (AMK 15 WA)
Q1, Q2 = 2N1224
L1
C1 CV 103-307
L2
C2 CV 103-303
L3
C3 = CV 103-303

Number CSS Name J DeLorenzo

№ 2545

9/7/62

L1 40 TURNS #30 TAPPED AT 13 TURNS Q = 75 AT 2 MC CORE CTC-12A-4L

L2, L3 20 TURNS #30 ON PRINTED CKT CORES CTC-11A-4L

Q AT 8 MC 80 UNLOADED

C_1 = 1100 μμF

C_2 = 100 μμF

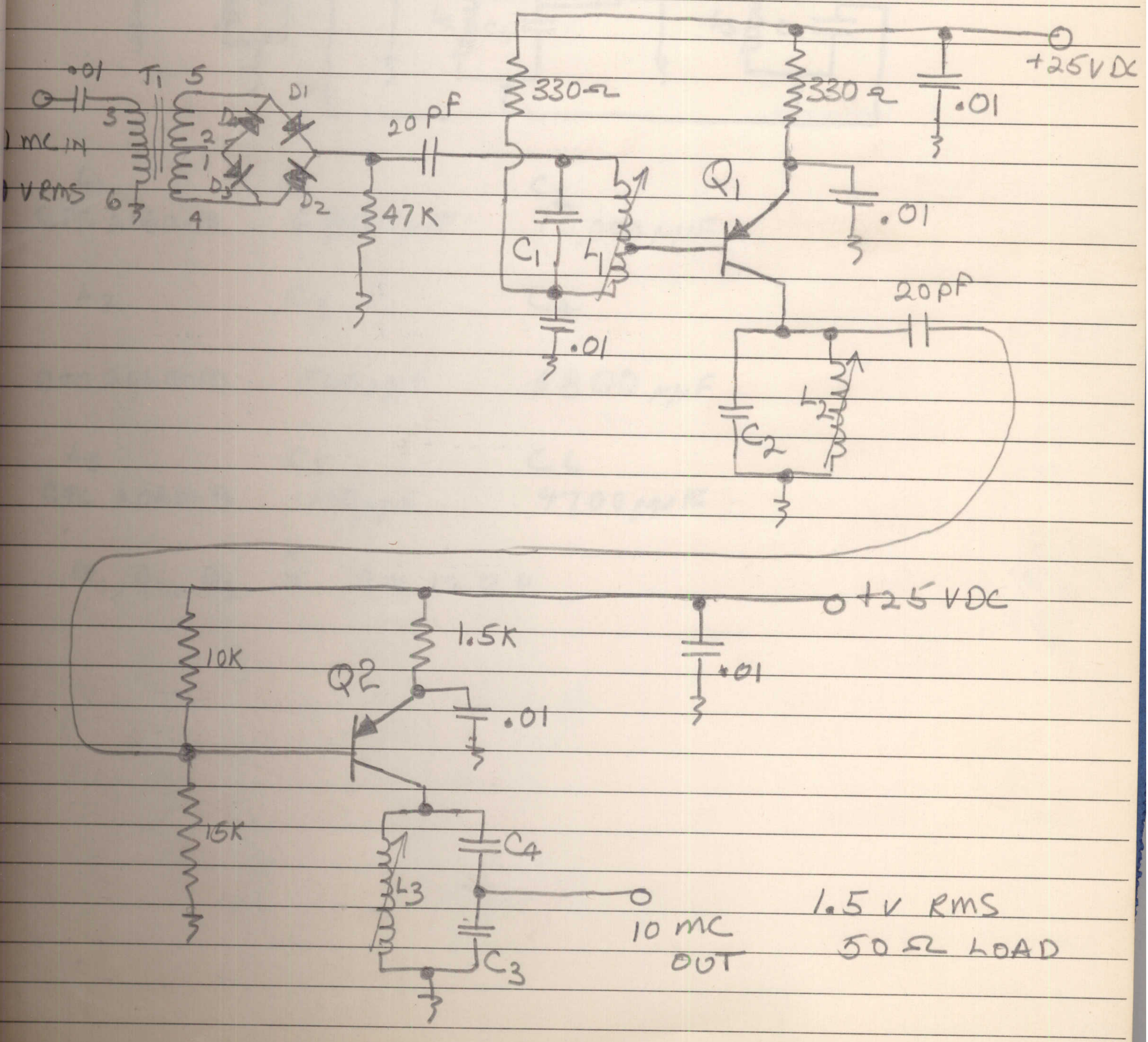
C_3 = 150 μμF

C_4 = 300 μμF

D_1, D_2, D_3, D_4 = 1N463

T_1 = TF228 (AMK-15-WA)

Q_1, Q_2 = 2N1224

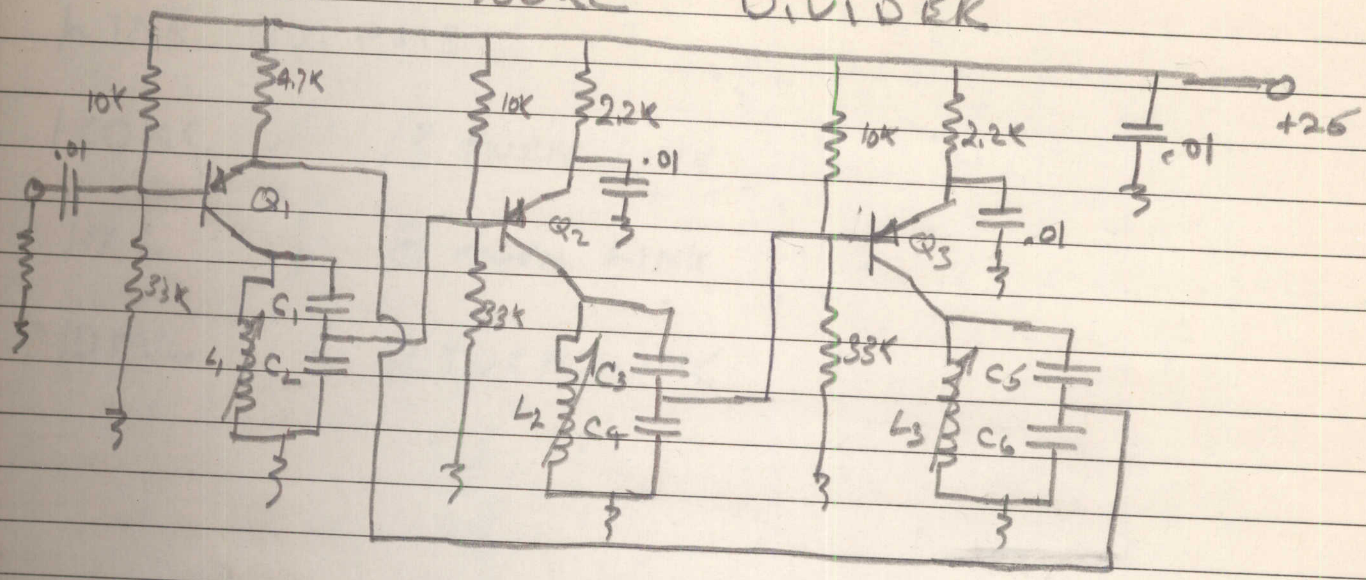


Number CSS Name J DeLorenzo

9/18/62

№ 2546

1mc to 100kc Divider



L_1	C_1	C_2
CTC 2060-10	6800 μμF	10,000 μμF

L_2	C_3	C_4
CTC 2060-10	560 μμF	6800 μμF

L_3	C_5	C_6
CTC 2060-8	150 μμF	4700 μμF

Q_1, Q_2, Q_3 = 2N 1224

Number______ Name______

№ 2547

Nov 8, 1962

LINK OUTPUTS

100KC 18 TURN LINK

1MC 8 TURN LINK

10MC 2 TURN LINK