20 February 1952

SUMMARY

RS-6 TRANSMITTER

(Period 2 to 20 February 1952)

I. Oscillator coil constructed and installed in transmitter. Test run indicates greater outputs on high bands with resulting increase of power output from P.A. Mechanical linkage and cam assembly installed on oscillator condenser and operation checked. Greater rigidity of chassis and shield plate indicated necessary if method is to be used as production item. Change of P.A. stage and oscillator stage show improvement in low output portions of range; i.e. 3.0 mc., 9.0 mc. (x3) and 16.0 mc. Further investigation of chokes undertaken but not complete this date. Resistance values in oscillator screen and plate changed to allow correct voltages with 375 v. supply.

II. A single coil, tapped for high band, and slugged with G-1 material, was constructed and installed in P.A. stage. Due to physical and mechanical limitations, i.e., brass collector ring at plate end of coil, etc., coil Q in neighborhood of 85 instead of 185, and results of tests indicate unsatisfactory operation. It is felt that this method, although it possesses certain physical advantages with respect to occupied space in transmitter, does not have acceptable performance, as compared to that of a dual coil system such as previously investigated. Therefore, investigation and further improvement of dual system has been undertaken. Electrically, the dual system is quite satisfactory from output and efficiency standpoint, but requires certain mechanical refinements before final judgment or evaluation is made.

In view of the above, the Mechanical Section is undertaking to reduce physical size of assembly, along with installation of gear linkage between coils so as to incorporate single knob drive or control of both coils with respect to antenna sliding tap system. The outcome of this unit when completed by Mechanical Section, should be a finished product operating satisfactorily from both mechanical and electrical standpoints.

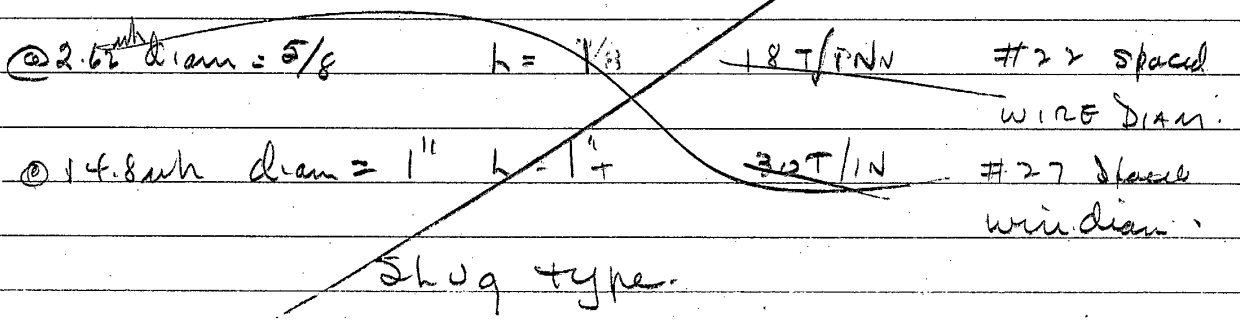
III. Conclusion: With oscillator stage modifications as explained above, along with improvements and modifications of P.A. stage as described, the overall performance of the RS-6 should be within an acceptable range.

50X1

Ohmen Coil Type.

35 mmf MIN

3 mc	C = 200	L = 14.8 μh.
7 mc	C = 35	L = 14.8 μh.
7 mc	C = 200	L = 2.62
16.5 mc	C = 35	L = 2.62 μh.



1 1/4

OSC. HB PLATE TANKS

18 TURNS #22 5/8 FORM

10.5 TURNS #22 5/8 FORM - GIC SLUG .375 diam

9 1/4 TURNS #22 1" FORM COIL LENGTH = 7/16"

LB

24 TURNS #22 1" FORM

~~FINAL PLATE TANKS.~~

LB = 23 TURNS - #22 BARE PITCH 22/IN 8 GS SLUGS -
COIL DIAM = 1" L = 17.2 μh Q = 220

HB - 9 1/2 TURNS #22 BARE PITCH 22/IN NO SLUGS -
L = 2.55 μh Q = 200

9:10

I_{tot}	I_p	E_g	E_a
74	58	6	74

74V

RT6 · MODIFIED TANK

3-31-5v

SLUG LOADED HB TANK L = 1.72 mh. = 23T #26

HB TANK L = 2.55 mh 10T

PARALLEL COMB. HB L = 2.3 mh.

$Z_T = 2520$ $\left(\frac{N_T}{N_a}\right) = \sqrt{\frac{2520}{70}} = \sqrt{36} = 6 = \frac{22}{N_a}$

$Z_a = 70$

$N_T = 22$ $N_a = \frac{22}{6} = 3.65$ TAP. = 70Ω

$N_a = ?$

$4.3 = \frac{22}{N_a}$, $N_a = \frac{22}{4.3} = 5.12$ = TAP = 150Ω.

$3 = \frac{22}{N_a}$, $N_a = \frac{22}{3} = 7.35$ = TAP 300Ω

$2.5 = \frac{22}{N_a}$, $N_a = \frac{22}{2.5}$ 8.8 = TAP 600

$1.875 = \frac{22}{N_a}$, $N_a = \frac{22}{1.875} = 11.75$ = Tap 1200

$4.82 = \frac{10}{N_a}$, $N_a = \frac{10}{4.82}$ 2.07 Tap = 70

$4.07 = \frac{10}{N_a}$, $N_a = \frac{10}{4.07}$ 2.45 Tap = 150

2.79 $\frac{10}{N_a}$, $N_a = \frac{10}{2.79}$ 3.6 : Tap 300

$2.41 = \frac{10}{N_a}$, $N_a = \frac{10}{2.41}$ 4.15 = Tap 600

$1.77 = \frac{10}{N_a}$, $N_a = \frac{10}{1.77}$ 5.65 Tap 1200

RT6. ORIG TANK 3-31-5V

LB COIL L mh = 17.V 30T

TAP FROM GND			
1	1.18	= 70	5
2	2.0	= 150	7
3	3.5	= 300	10
4	4.7	= 600	12
5	7.4	= 1200	16

HB COIL L mh 2.3 (2.58) 13.25

TAP FROM GND			
1	.278	= 70	2.75
2	.382	= 150	3.25
3	.54	= 300	4.75
4	.72	= 600	5.50
5	1.08	= 1200	7.50

$\frac{N_T}{N_a} = \sqrt{\frac{Z_T}{Z_a}}$ $\left(\frac{N_T}{N_a}\right)^2 = \frac{Z_T}{Z_a}$

$N_T = 30$
$N_a = 5$
$Z_a = 70$
$Z_T = ?$

$\left(\frac{30}{5}\right)^2 = \frac{Z_T}{70} = 36 = \frac{Z_T}{70}$ $Z_T = 36 \cdot 70 = \underline{2520}$

$\left(\frac{30}{7}\right)^2 = \frac{Z_T}{150} = 4.3^2 \cdot 150 = Z_T = \underline{2760}$

$\left(\frac{30}{10}\right)^2 = \frac{Z_T}{300} = 9 \cdot 300 = Z_T = \underline{2700}$

$\left(\frac{30}{12}\right)^2 = \frac{Z_T}{600} = 2.5^2 \cdot 600 = Z_T$ $\underline{3750}$

$\left(\frac{30}{16}\right)^2 = \frac{Z_T}{1200} \cdot 1.875^2 \cdot 1200 = Z_T = \underline{4210}$

$\left(\frac{13.25}{2.75}\right)^2 = \frac{Z_T}{70}$ $Z_T = 1625$

$\left(\frac{13.25}{3.25}\right)^2 = \frac{Z_T}{150}$ $Z_T = 2500$

$\left(\frac{13.25}{4.75}\right)^2 \frac{Z_T}{300}$ $Z_T = 2340$

$\left(\frac{13.25}{5.5}\right)^2 = \frac{Z_T}{600}$ $Z_T = 3420$

$\left(\frac{13.25}{7.5}\right)^2 = \frac{Z_T}{1200}$ $Z_T = 3760$

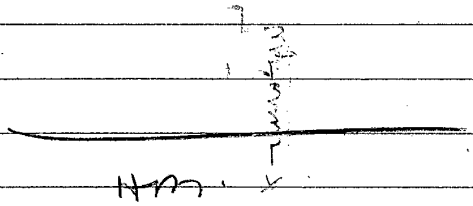
HB TOROID : 2.85 μh. Q = 180

ORIG OSC HB 2.35 μh Q = 65

ORIG OSC HB TAP = 10.35 μh Q = 95

ORIG OSC LB TOTAL = 16.1 Q = 100

OSC TAP & HB TOROID = 13.15 Q = 105



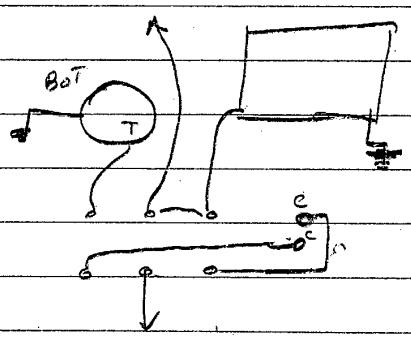
TOROID COIL - 19 TURNS ON P.I COR 1/2 dia 3/16 THICK .186 HOLE

L = 2.35 μh Q = 170

HB - 7/16" diam 26 TURNS spaced wire diam #30 wire enamled Slugged with 9IC .375 diam 3/4 long.

L = 14.1 μh Q = 150

Total L = 16.1 Q = 150



70 - 150 - 300 - 600 - 1200

STAT

ORIGINAL RS-6 PLATE TANK 3-25-57
ON Q METER

L = 17.2 mh Q = 175

@ 3 mc Q = 190 C = 155

@ 6.75 mc Q = 215 C = 30

L = 2.55 mh Q = 160

@ 7 mc Q = 150 C = 205

@ 17.75 mc Q = 190 C = 30

BOTH COILS IN PARALLEL.

L = 2.3 mh. Q = 160

@ 7 mc Q = 150 C = 225

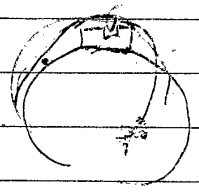
@ 18.75 Q = 180 C = 30

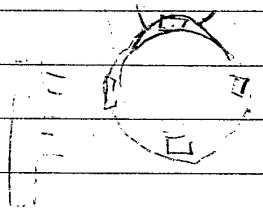
HB COIL 5/8 OD X 1 1/4 PITCH 18/IN

COIL LENGTH = 1" = 18 TURNS #22 BARE

LB COIL 1" O.D. LENGTH = 1 1/4 PITCH 22/IN

COIL LENGTH = 1" = ___ TURNS # ___





4-3-57

L = 2.3 μh. 8.5 T

Z = QX

	Z		
4.82	1625	70	QUARTZ 16 TO 6.85
4.07	2500	150	" 24.8 TO 10.5
2.79	2340	300	" 23.2 TO 9.85
2.41	3470	600	" 34 TO 14.5
1.77	3760	1200	" 37 TO 15.8

X_L @ 7mc = 101

X_L @ 16.5mc = 238

USING Z ABOVE $\frac{NT}{Na} = \sqrt{\frac{ZT}{Za}}$ $Na = \frac{NT}{\sqrt{\frac{ZT}{Za}}}$

$Na = \frac{8.5}{4.82} = 1.76 = (1.75)$

$Na = \frac{8.5}{4.07} = 2.08 \quad (2)$

$Na = \frac{8.579}{2.795} = 3.04 \quad (3)$

$Na = \frac{8.5+1}{2.41} = 3.52 \quad (3.5)$

$Na = \frac{8.5.1}{1.775} = 4.8 \quad (5)$

$\frac{q}{4.82} = 1.87 \quad (1.75)$ USE [ ] STAT

$\frac{q}{4.07} = 2.2 \quad (2.25)$

$\frac{q}{2.79} = 3.2 \quad (3.25)$

$\frac{q}{2.41} = 3.72 \quad (3.75)$

q =

4-3-52

X VARIES 100 TO 240 OR 2.4 TO 1

LET Q VARY FROM 12 TO 5 OR 2.4 TO 1

THEN Z = 100 X 12 = 1200 Ω

& Z = 240 X 5 = 1200 Ω

LET Q VARY 2.4 TO 1 USING Q 24 TO 10

THEN Z = 100 X 24 = 2400

& Z = 240 X 10 = 2400

$$N_a = \frac{N_T}{\left(\sqrt{\frac{Z_T}{Z_a}}\right)}$$

$N_T = 8.5$

$Z_T = 2400$

Z_a = 70 TO 1200

N_a = ?

WHEN $Z_a = 70$, $\sqrt{\frac{2400}{70}} = \sqrt{34.3}$ 5.86

$N_A = \frac{8.5}{5.86} = 1.45$

$\sqrt{\frac{2400}{150}} = \sqrt{16} = 4$

$N_a = \frac{8.5}{4} = 2.12$

$\sqrt{\frac{2400}{300}} = \sqrt{8} = 2.83$

$\frac{8.5}{2.83} = 3$

$\sqrt{\frac{2400}{600}} = \sqrt{4} = 2$

$\frac{8.5}{2} = 4.25$

$\sqrt{\frac{2400}{1200}} = \sqrt{2} = 1.414$

$\frac{8.5}{1.414} = 6$

Z_a	TAP
70 =	1.45 (1.5)
150 =	2.12 (2)
300 =	3.0 (3)
600 =	4.25 (4.25)
1200 =	6.0 (6.00)

TURNS
1.5
2
3
5
6

eff = $O_4 \times Q$

NOT AS GOOD AS PRIOR READINGS

RESULTS ORIGINAL

~~2E-6~~ RS-6 TRANSMITTER ORIGINAL OUTOFCASE 3-1-52 (1)

PA: Ep=400 Esg=212 6AG5 OSC: Ep=200 Esg=250 (.3 Wdrop)

f	Itotal	Ip	Eg	Ea	Po	Eff	P,
3.0 I	66	52	20	84	11.8	57.	20.8
6.0 I	71	55	20	92	14.1	64.	22.0
6.0 II	70	55	20	94	14.7	61.4	22.0
7.0 I	69	52	20	91	13.8	66.3	20.8
7.0 I *	77	63	—	24	0.96	3.8	25.0
9.0 I	74	57	3	77	9.9	43.5	22.8
9.0 II	75	59	1.5	75	9.4	39.8	23.6
9.0 III	75	59	—	56	5.2 ✓	22.0	23.6
11.0 II	74	58	2.5	78	10.1	43.0	23.2
16.0 II	75	59	2	79	10.4	44.0	23.6
16.5 III	75	60	—	65	7.1 ✓	29.0	24.4
	SAME AS ABOVE EXCEPT WITH 6BC5 IN OSC (2)						
3.0 I	70	53	22	86	12.3	58	21.2
6.0 I	72	~~57~~	~~22.5~~	~~94~~	14.7	64.5	22.8
6.0 II	91	58	22.5	94	14.7	69.0	22.0
7.0 I	68	52	25	92	14.1	68.0	20.8
7.0 I *	78	63	—	26	1.12	4.45	25.2
9.0 I	74	57	6	78	10.1	44.4	22.8
9.0 II	75	58	2.5	77	9.9	42.8	23.2
9.0 III	76	60	—	60	6.0 ✓	24.6	24.0
11.0 II	75	58	4	79	10.4	45.0	23.2
16.0 II	76	59	3	80	10.65	46.0	23.6
16.5 III	73	62	—	71	8.4 ✓	33.8	24.8

* DOES NOT QUITE RESONATE

STAT

3-18-57

Ep = 400V OUT OF CASE RT6 ORIG. OSC = 6BC5

f	$I_{p\,total}$	I_p	E_g	E_a	P_o	Eff	P_i
3.0 I	69	53	23	88	12.9	61	21.2
6.0 I	72	57	26	95	15.0	66	22.8
6.0 II	71	55	23	96	15.35	70	22.0
7.0 I	70	54	19	93	14.4	66.8	21.6
7.0 I	~~74~~	~~58~~	18	~~80~~	10.7	46.1	23.2
8.0 I	~~74~~	~~57~~	18	~~83~~	11.5	50.5	22.8
8.0 II	74	57	12	81	10.9	48	22.8
9.0 I	74	57	18.5	84	11.75	51.5	22.8
9.0 II	74	57	14	84	11.75	51.5	22.8
9.0 III	76	59	5	79	10.4 ✓	44.0	23.6
11.0 II	74	57	12	86	12.3	54.0	22.8
14.0 II	74	58	11	86	12.3	53.0	23.2
16.0 II	76	60	5	84	11.75	49.0	24.0
16.0 III	77	61	2	80	10.7 ✓	44.0	24.4

STAT

NOTE ORIG OSC COIL HB PORTION CHANGED TO A TOROIDAL TYPE FOR HIGHER Q.

	ORIG.		MODIFIED TOROID	
LB	3 MC	Q = 125		
	7 MC	Q = 150		
HB	7 MC	Q = 70	HB 7 MC	175
	16 MC	Q = 65	16 MC	110

RS-6-ORIG-WITH 6BC5 AND TOROID HB OSC -IN CASE- (4) 3-26-52

$E_b = 400V$

f	I_{tot}	I_p	E_{sg}	P_i Total	P_o	P_i plate	Eff	E_g
3.0 I*	74	58	61	29.0	6.2	23.2	26.7 *	—
6.0 I	70	55	92	28.0	14.1	22.0	64.2	26
6.0 II	70	55	92	28.0	14.1	22.0	64.2	20
7.0 I	70	55	92	28.0	14.1	22.0	64.2	25
7.0 I	74	59	75	29.6	9.4	23.6	40.5	15
8.0 I	72	58	78	28.8	10.1	23.2	43.5	18
8.0 II ⊙	72	57	76	28.8	9.62	22.8	42.25	11
7.5 III	76	61	68	30.4	7.7	24.4	32.1	4
9.0 I	72	57	80	28.8	10.67	22.8	47.0	16
9.0 II	72	57	80	28.8	10.67	22.8	47.0	13
9.0 III	75	59	75	30.0	9.4	23.6	40.0	3
11 II	72	57	82	28.8	11.2	22.8	49.1	11
10.5 III	74	56	79	29.0	9.9	22.4	44.1	6.5
14 II	72	57	82	28.8	11.2	22.8	49.1	2.05
16 II	75	59	80	30.0	10.67	23.6	45.25	7.0
16 III	76	60	74	30.4	9.12	24.00	38.0	1.6

* DOES NOT QUITE TUNE TO FREQ.

⊙ WEAK XTAL (4000 KC)

10-70

[redacted]

STAT

RS-6 - EXP.

3-22-52

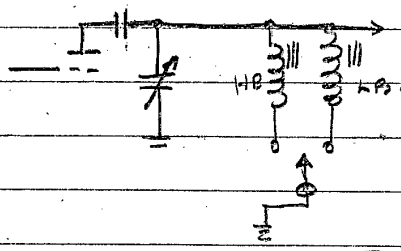
2E26 E_P = 350 E_{SG} = 185 6BC5 E_P = 270 E_{SG} = 145

f	I_{total}	I_P	E_S	E_g	P_o	Eff	P_i
3.0 I	64	50	30+	82	11.2	64.4	17.5
6.0 I	61	47	25	82	11.2	68.5	16.4
6.0 II	62	48	17	82	11.2	67.0	16.8
7.0 I	66	52	30+	90	13.5	74.2	18.2
7.0 I * / 7.0 I ⊙	71 / 71	58 / 58	30+ / 5	74 / 62	[9.12] / 6.4	45.0 / 31.5	20.3 / 20.3
7.5 III	71	58	3	62	6.4	31.5	20.3
8.0 I	66	52	23	71	8.4	46.2	18.2
8.0 II	67	54	14	70	8.17	43.2	18.9
9.0 I	66	52	23	74	9.12	50.0	18.2
9.0 II	67	54	16	73	8.9	47.0	18.9
9.0 III	66	53	7	68	7.7	41.6	18.5
11.0 II	64	50	17	75	9.4	53.6	17.5
14.0 II	64	50	14	76	9.63	55.0	17.5
16.0 II	65	51	10	74	9.12	51.1	17.8
16.5 III	67	54	4	70	8.17	43.2	18.9
WITH MINIMAX COIL IN HB PA TANK							
11 II	60	46	15	82	11.2	69.5	16.1

ABOVE TAKEN WITH TOROID HB OSC (2 TAP) COIL. RANGE 7-16.5 mc 2.36 mh. Q = 170

@ 7 mc Q = 170

@ 16 mc Q = 120



* READING WITH HB OSC & HB TANK

⊙ DOES NOT QUITE RESONATE WITH HB. ON HP

STAT

2E26 RS-6 EXP. 3-22-57

2E26 Ep 350 Esg 185 6BC5 Ep=270 Esg 145

f	I total	Ip	Eg	Ea	Po	Eff	Pi
3.0 I	63	49	30+	84	11.75	68.8	17.15
6.0 I	61	48	27	82	11.2	66.8	16.8
6.0 II	63	49	18	82	11.2	65.5	17.15
7.0 I *	67	54	4	79	(10.4)	(55.9)	18.9
7.0 I ⊙	65	52	30+	88	12.9 v	71.0 v	18.2
7.0 I	69	55	30+	71	8.4 v	43.6 v	19.25
~~7.6 II~~	~~69~~	~~55~~	~~30+~~	~~71~~	—	—	—
9.5 III	70	56	7	66	7.25	37.0	19.6
8.0 I	66	53	30+	74	9.15	49.5	18.5
8.0 II	67	53	24	72	8.65	46.8	18.5
9.0 I	65	51	30+	76	9.6	54.0	17.8
9.0 II	65	~~53~~	~~25~~	74	9.15	50.25	18.2
9.0 III	66	53	10	70	8.2	44.1	18.55
11.0 II *	75	62	—	56	(5.24)	(19.75)	20.65
11.0 II	62	49	18	74	9.18	53.4	17.15
14.0 II	64	50	14	76	9.6	54.9	17.5
16.0 II *	DOES NOT TUNE DUE TO EXCESSIVE						
16.0 III *	"L" IN HB OSC COIL.						

ABOVE TAKEN USING 3 TOROIDS IN OSC COIL ASSY. (2 TAPS)

* OSC NOT QUITE AT RESONANCE DUE TO COIL BEING A BIT TOO HIGH IN L.

⊙ USING MB OSC AND LB PA.

□ REMOVE 1 TURN FROM HB OSC COIL

STAT

5763PA RS 6 TRANSMITTER TAPPED PA TANK 3-10-5 V

PA Ep = 300 Esg 255 6BC5 OSC: Ep=200 Esg=150

f	I total	Ip	Eg	Ea	Po	Eff	Pi
3.0 I	45	30	29	60.5	6.1	68	9.0
6.0 I	~~45~~	30	~~28~~	62	6.4	71.1	9.0
6.0 II	44	28	20	61	6.2	74	8.4
7.0 I	46	32	30+	65 84	7.05 7.2	73.5	9.6
7.0 I	48	35	24	~~48~~	3.84	37.6	10.5
9.0 I	48	34	22	52	4.5	44.1	10.2
9.0 II	47	34	20	50	4.8	47	10.2
9.0 III	52	36	7	48	3.84 V	35.6	10.8
11.0 II	46	32	18	54	4.88	50.8	9.6
11.0 II	47	33	12	52	4.5	45.5	9.9
16.0 II	46	32	9	52	4.5	47	9.6
16.5 III	50	34	5	49	4.0	39.2	10.2
8.0 I	47	34	26	50	4.8	47	10.2
8.0 II	49	34	17	~~50~~	4.8 V	47	10.2

STAT

	E	R	I	Diss
PL - =	300	~~PS~~ 300 V	30 MA	9.0 W
PA SG =	255 V	1W 47K 220	7.2 MA	1.835 W
OSC PL =	200 V	1W 8K 200 V	5.5 MA	1.10 W
OSC SG =	150 V	1W 47K 110 V	2.23 MA	.334 W

Rg PA = 27K OHMS. (VALUES OF POWER OUTPUT SLIGHTLY HIGHER WITH LOWER Rg VALUE, BUT ACCOMPANIED WITH INCREASED IP ON DETUNE)

Rk PA = 200 OHMS

3763 PA — RS-6- XMTR- EXP. TAPPED TABLE — 3-12-57

Ep = 800 Esg = 240V — LANSOSC Ep = 300 Esg = 95V

f	I_{TOTAL}	I_p	E_g	E_a	P_o	EFF	P_i
3.0 I	72	46	30+	76	9.63	69.5	13.8
6.0 I	72	46	30+	78	10.1	73.2	13.8
6.0 II	72	44	30+	79	10.4	78.0	13.2
7.0 I	73	47	30+	80	10.65	75.6	14.1
7.0 I	100	68	11	80	10.65	52.25	20.4
8.0 I	102	68	10	82	11.2	55.0	20.4
8.0 II	97	63	7	78	10.1	53.5	18.9
9.0 I	95	64	7	80	10.65	55.5	19.2
9.0 II	96 (10)	64 (5)	8 (10)	81.5 (79)	10.9	56.8	19.2
9.0 III	88	65	4.5	72	8.65 V	44.4	19.5
11.0 II	95	61	7	87	10.9	59.7	18.3
11.0 II	94 (10)	60 (5)	6.5 (13)	80	10.65	59.75	18.0
16.0 II	92	57 (51)	5 (10)	78	10.1	59.1	17.1
16.5 III	82	48 (+6)	3 (6)	69	7.85 V	53.75	14.4
		150					
30							
12							
I_{sg}	I_a						
	I_{sg} PA =	45 MA					

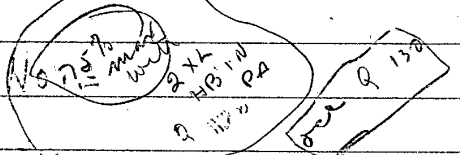
I_{sg} PA = 7.9 MA R = 4700 1,895 W

I_p osc = 13.3 MA 4.0 W

I_{sg} osc = 4.8 MA R = 30K .455 W

STAT

NOTE: Rg P.A. CHANGED FROM 17000Ω AT L.B. SETTING TO 12000Ω AT M.B. & H.B SETTINGS.



5763 PA
EP=300, ESG=240

RS-6 EXP. MODEL

3-19-52
GANSOSC EP=300 ESG=95

f	I tot	Ip	Eg	Ea	Po	Eff	Pi
5. I							
6 I							
6 II							
7. I	93	63	10	78	10.1	53.5	18.9
7. III	80	48	11	66	17.75	50.4	14.4
8 I	92	61	19	78	10.1	55.4	18.3
8 II **	89	59	10	76	9.65	54.5	17.7
9 I	90	60	11	79	9.65	53.6	18.0
9 II	89	59	10	78	9.65	54.5	17.7
9 III	80	48	8	68	7.6	57.75	14.4
11 II	90	60	13	80	10.65	59.3	18.0
16 II *	88	54	12	76	9.65	59.5	16.2
16 III	81	49.5	7.5	72	8.65	58.2	14.85
7. III	80	48	11	66	7.75		
8 III							

** WEAK XTAL.

* DOES NOT QUITE AT RESONANCE

STAT

ABOVE READINGS TAKEN WITH TOROID HB OSC COIL RANGE 7-16.5 MC. 2.6 mh. Q=130

(75% MAX EFF OBTAINED WHEN L = 2 X 2.6 mh AT 14 MC) MINIMAX COIL USE Q 7200

A MINIMAX OF 7200 WAS SUBSTITUTED FOR HIGH BAND FINAL TANK; NO IMPROVEMENT IN OUT NOTICABLE

OSC GANG RS-6 TRANSMITTER (EXP) 3-13-52
Ep=300 Esg 95 OSC. OUTPUT VOLTAGE AC MINT Q>200

f	Ip	Isg	Er	Po	Ej		*Er
3.0 I	10.5	4.0	3.9	V			7.0
6.0 II	15.0		3.05	O			5.25
6.0 II	11.5		3.6	V			6.5
7.0 I	9.5		4.3	V			9.0
7.0 I	11.0		3.4	V			7.0
8.0 I	11.25		3.6	V			7.0
8.0 II	16.0		2.5	O			5.25
9.0 I	12.0		3.4	V			5.5
9.0 II	12.5		3.4	O			5.5
9.0 III	17.5		1.2	Z high Q medium			2.5
11.0 II	14.5		3.1	O		MINIDUC.	4.75
11.0 II	15.5		2.3	O Low Z		Er 4.1	—
16.0 II	16.5		2.2	O Low Q		3.1	1
16.0 III	17.5		1.1	Z high lowest Q		1.95	
12.0 II	14.5		2.55	O		4.2	5.0
14.0 II	15.0		2.45	O		3.9	5.5
12 III	17.5		.8 POOR ROCK	Z Low & low Q			1.6
6.0 III	16.0		2.3	Z high & highest Q			4.75
4.0 II	11.5		4.0				7.5

OR 2.3V to 1.3 V

Diff of Q 170 to 110 A gives diff of output from 10.1 to 7.85 or 2.25 WATTS

STAT

*. SAME EXCEPT WITH TOROID COIL IN HB RANGES - IS 7 - 16.5

3-13-57

L = 16.6 μh.
Q = 155 @ 3.0
Q = 170 @ 6.85
Q = 162.5 AVG

f	X
3.0	313.00
4.0	417
5.0	521
6.0	626
7.0	732.00

f	Z
3.0	50600
4.0	67500
5.0	84500
6.0	101500
7.0	109,000 ✓

L = 6.6 μh.
Q = 130 @ 7.0
Q = 125 @ 11
Q = 127 AVG

f	X
7	290
8	332
9	373
10	415
11	456

f	Z
7.0	36,800
8.0	42100
9.0 ✓	47400
10.0	52600
11.0	58,000 ✓

L = 3.075
Q = 122 @ 11
Q = 110 @ 15.75
Q = 116 AVG

f	X
11	212
12	232
13	251
14	270
15	290
16.5	31.8

f	Z
11	24600
12	26900
13	29100
14	31300
15	34500
16.5	36900 ✓

36 Ω / 144

Zo USING Osc Coil (2 TAP)

6AN5 Osc

STAT

E 1

3-10-52

2E26 RS-6 TRANSMITTER - EXP. HOMER TAPPED TANK

PA: Ep = 400 V Esg = 270 V. 6BC5 OSC: Ep = 190 Esg = 150

f	I total	Ip	Eg	Ea	Po	Eff	Pi
3.0 I	71	58	25	94	14.7	63.5	23.2
6.0 I	74	61	24	96	15.3	63.0	24.4
6.0 II	72	59	24	96	15.3	65.0	23.6
7.0 I	75	62	30+	102	17.38	70.0	24.8
7.0 I:	76	62.5	22	82	11.2	44.8	25.0
9.0 I.	76	63.5	23.5	88	12.8	50.5	25.4
9.0 II	77	64	18.5	86	12.35	48.2	25.6
9.0 III	80	66	5.5	80	10.07 ✓	40.5	26.4
11.0 II	76	62	16.5	88	12.8	51.75	24.8
11.0 II	76	62	10-	86	12.35	50.0	24.8
16.6 II	77	64	6	85	12.0	47.0	25.6
16.5 III	80	66	1	77	9.9 ✓	37.5	26.4

DON'T QUITE TUNE UP

32W

OSC Isg = 2.1 MA Sg Diss = .315 W Rated .5W

OSC Ip = 16.35 MA PL Diss = 1.14 W Rated 2.0W

PA Sg = 69 MA Sg Diss = 1.52 W

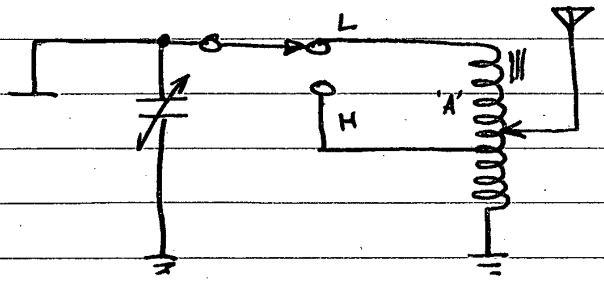
STAT

OSC P Res = 33K

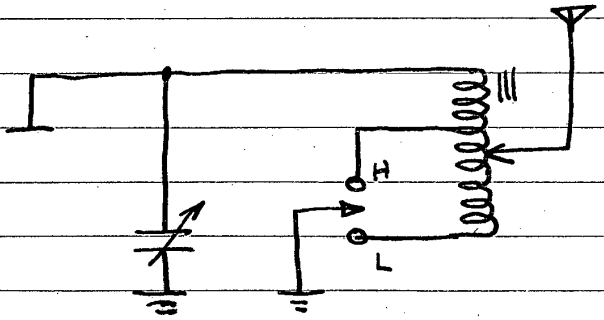
OSC Sg Res = 33K

PA Sg Res = 20K

3-4-52



METHOD 1



METHOD 2

METHOD 1 TRIED FIRST WITH POOR RESULTS DUE TO EXCESSIVE MINIMUM CAPACITY IN HIGH BAND POSITION; IE., HIGH END OF BAND LIMIT CANNOT BE REACHED ENDING ABOUT 15.75 INSTEAD OF 16.5 MC. LOW END OF HIGH BAND IS JUST POSSIBLE WITH MAXIMUM CAPACITY, IE., 7 MC. IT IS BELIEVED THAT SOME PERCENTAGE OF MINIMUM CAPACITY IS DUE TO THIS METHOD OF TAPPING AND SWITCHING, PLUS LOSS DUE TO COIL 'A' BEING AT PLATE END OF COIL IN HIGH BAND POSITION.

STAT

METHOD 2 INSTALLED WITH GOOD RESULTS INDICATING REDUCTION OF MINIMUM CAPACITY ON HIGH BAND.

RT-6 2-28-57

PATANIC (TAPPED COIL TYPE)

AFTER ASSEMBLY OF HARDWARE ETC.

FULL TURNS = 13.8 mh Q = 148 @ 2.5

TAP = 2.16 mh Q = 115 @ 7.9

3.0 MC	Q = 160	C = 205 MAX
7.0 MC	Q = 170	C = 35 MIN
7.6 MC	Q = 110	C = 205
16.5	Q = 100	C = 35

TOTAL TURNS = 32

TAP = 9

AFTER REMOVING METAL BOTTOM PLATE AND INSTALLING PLASTIC.

FULL TURNS = 13.8 mh Q = 170 @ 2.5

TAP = 2.2 mh. Q = 170 @ 7.9

3.0 MC	Q = 185	C = 205
7.0 MC	Q = 200	C = 35
7.5 MC	Q = 170	C = 205
16.5	Q = 100	C = 35

ABOVE PRIOR TO INSTALLATION IN CHASSIS OF RS-6

STAT

2-25-52

RS-6 P.A. TANK

TAPPED COIL

FULL TURNS 2 13.85 mh Q = 180 @ 2.5

TAP = 2.2 mh. Q = 140 AT 7.9 mc

3.0 MC Q = 200 C = (20 TOTAL MAX) = 15 MMF

7.0 MC Q = 213 C = 35 MMF.

TAPPED

7.0 MC Q 132 C = (2 3 7) = 12 MMF

17.25 Q 172 C = 35

TOTAL TURNS = 32

TAP FROM GND END: 9

POSSIBILITY REQUIRE 10 TURNS ON TAP.

WITH PLUGS

SEE 2-28-52

[redacted] STAT

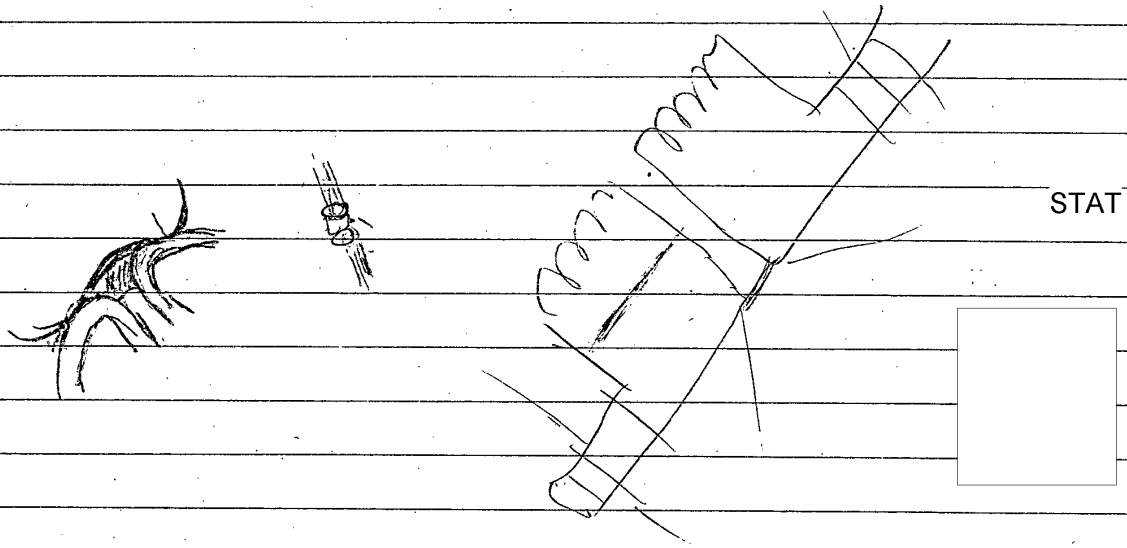
SINGLE TAPPED PLATE TANK 2-20-57
RS-6 TRANSMITTER

L = 8 μh. (LESS SLUGS) Q = 250
L = 14 μh. (3 SLUGS · 65) Q = 217

C @ 3.0 μc = 166 (20 μμf) Q = 222
C @ 7.0 μc = 34 Q = 242
TOTAL TURNS = 32
PITCH = 20/IN

TAP 4B:9 TURNS FROM GND Q = 115
C = 166 @ 7.75 μc Q = 165
C 34 @ 16.75 Q = 135

SEE 2-25-57 FOR
ACTUAL READINGS AFTER CONSTRUCTION
OF COIL WITH COLLECTOR PINS
INSTALLED.



STAT