GL mark III C: appendix to PRA-25

National Research Council Canada. Radio Section

PRA; no. PRA-25 App., 1941-12

SECRET

APPENDIX TO PRA-25

Copy No. 2

NATIONAL RESEARCH COUNCIL OF CANADA

RADIO SECTION

G L MARK III C

LARGE DRAWINGS

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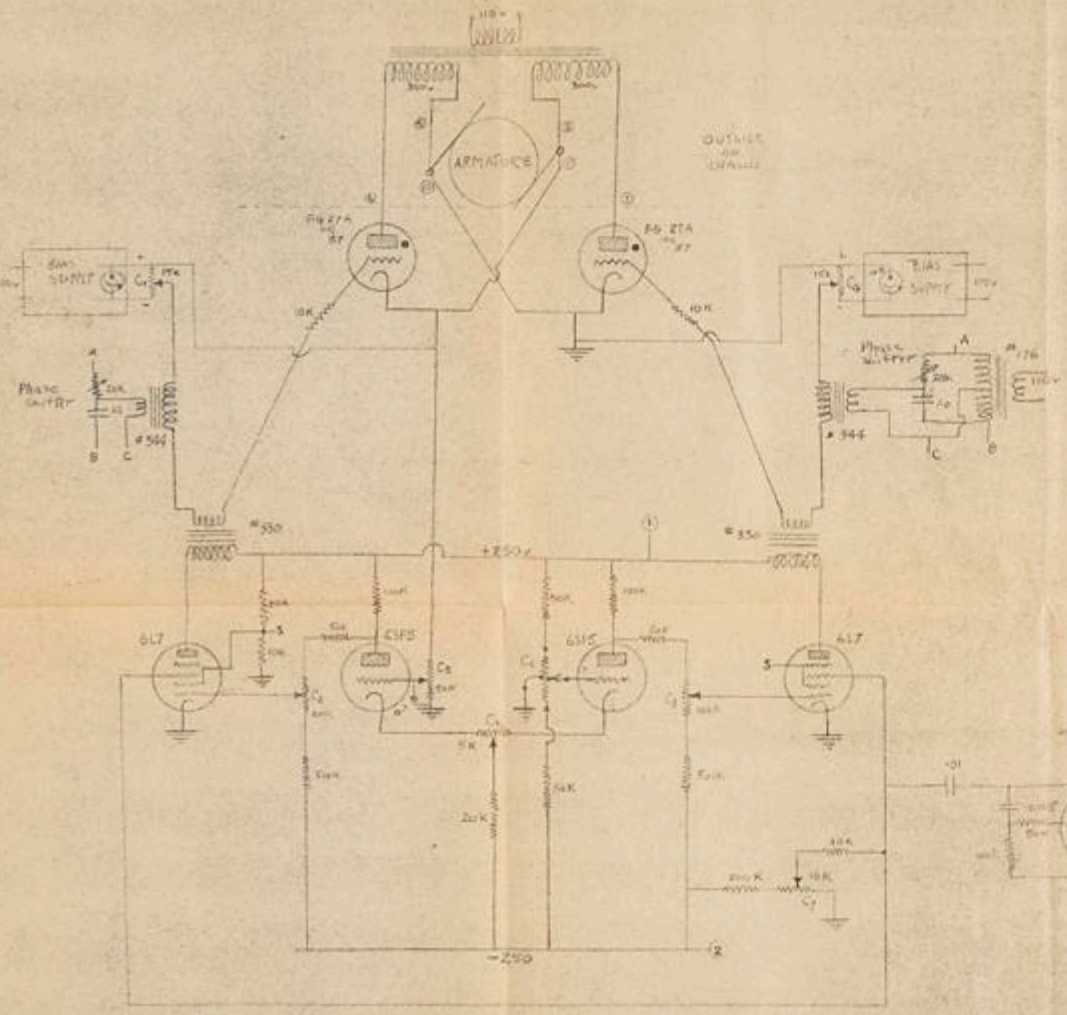
OTTAWA

DECEMBER, 1941



TOP VIEW OF CONTROL PANEL

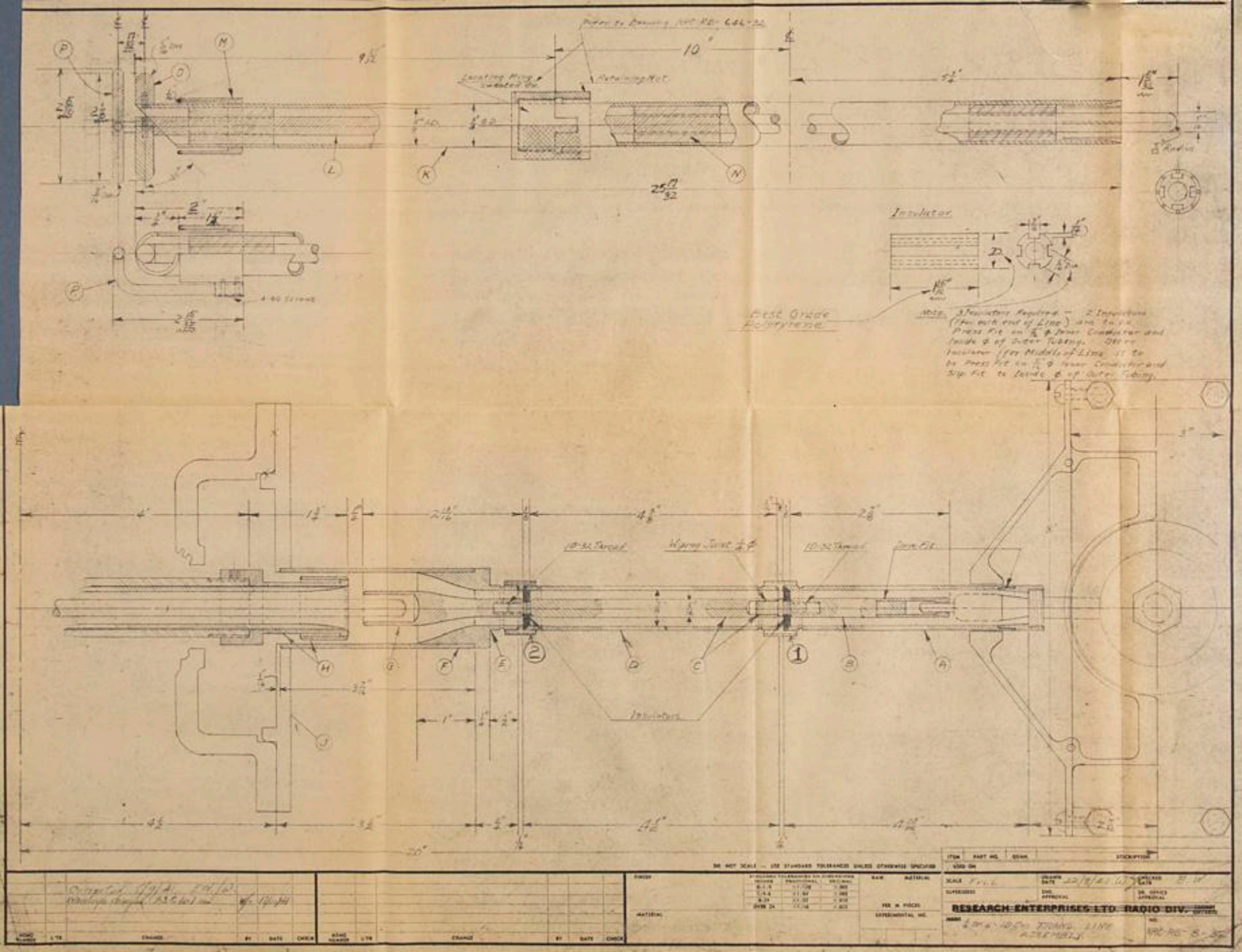
TOP VIEW OF TERMINAL STRIP

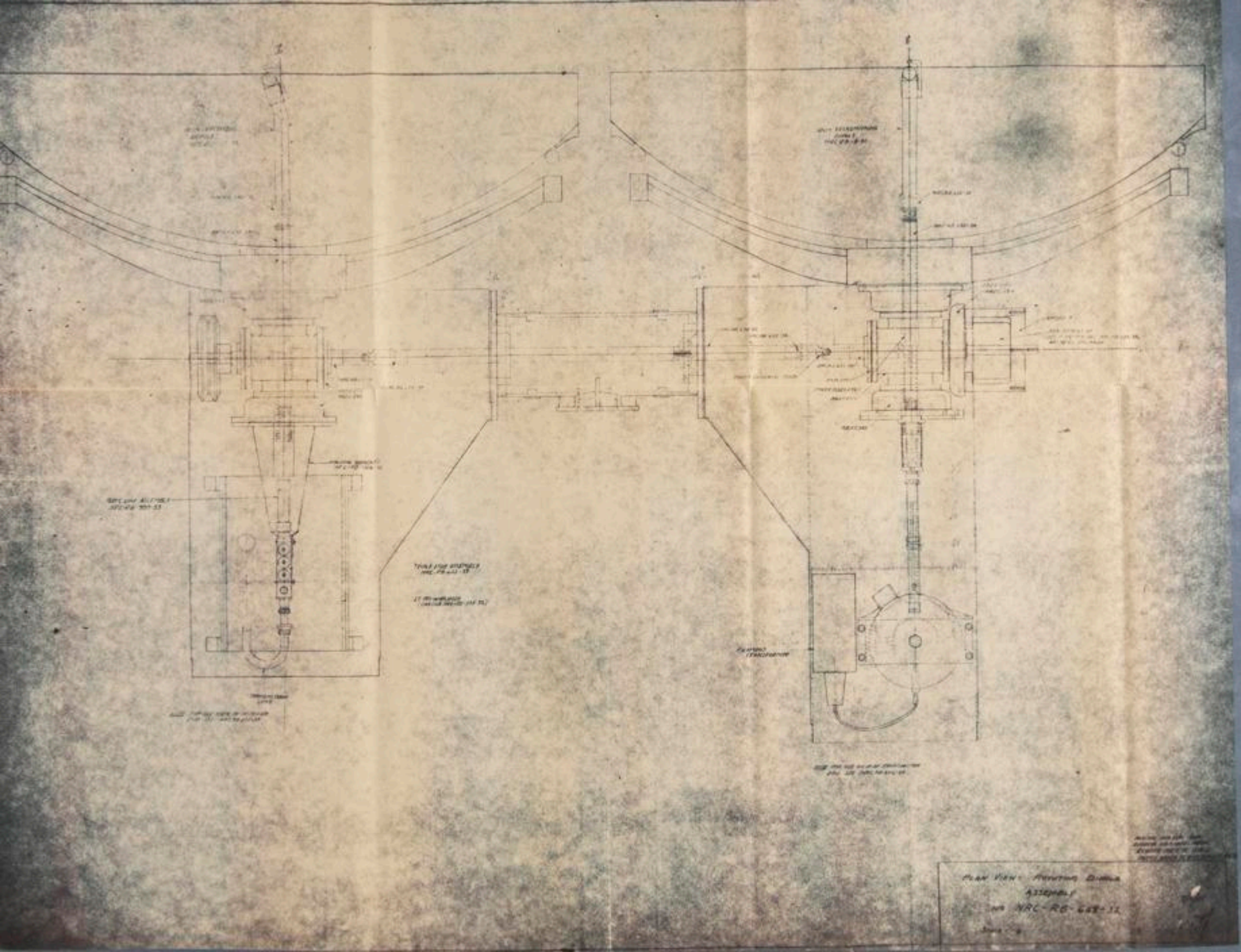
NATIONAL RESEARCH COUNCIL

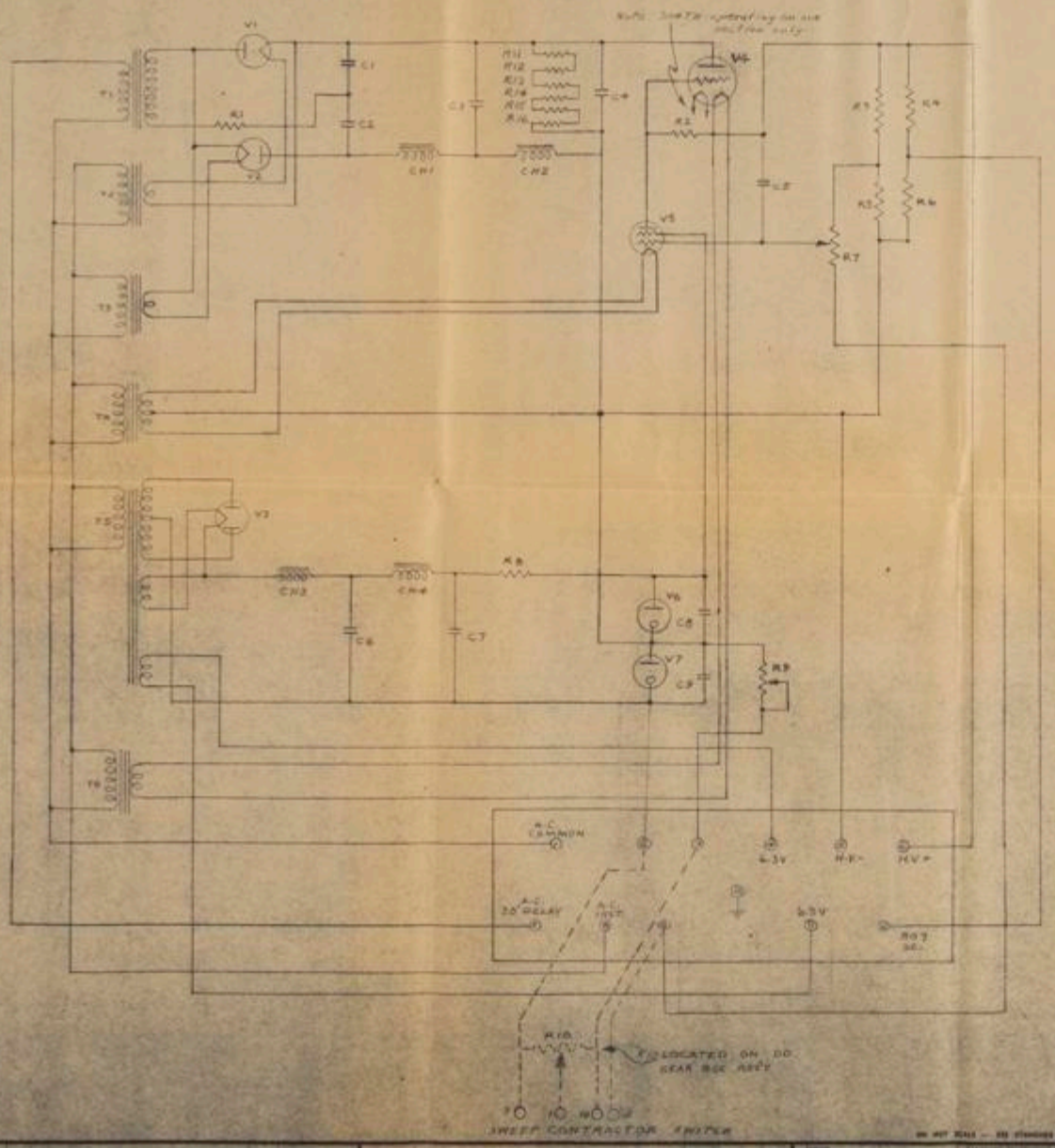
THYRATRON CONTROL

PROVISIONAL DRAWING #1446 DEC 2/41

J.W.B.


Insulator
Best Grade Polystyrene
Note: 3 Insulators Required — 2 Insulators (One each end of Line) are to be Press Fit on ⅜ Ø Inner Conductor and Inside Ø of Outer Tubing. One Insulator (For Middle of Line) is to be Press Fit on ⅜ Ø Inner Conductor and Slip Fit to Inside Ø of Outer Tubing.
10-32 Thread
Keyway Slot ¼ Ø
10-32 Thread
Slip Fit
Insulators
DO NOT SCALE — USE STANDARD TOLERANCES UNLESS OTHERWISE SPECIFIED
RESEARCH ENTERPRISES LTD. RADIO DIV.
¼ Ø x 40 Cm TRANS. LINE ASSEMBLY
VRE-RG-8-35



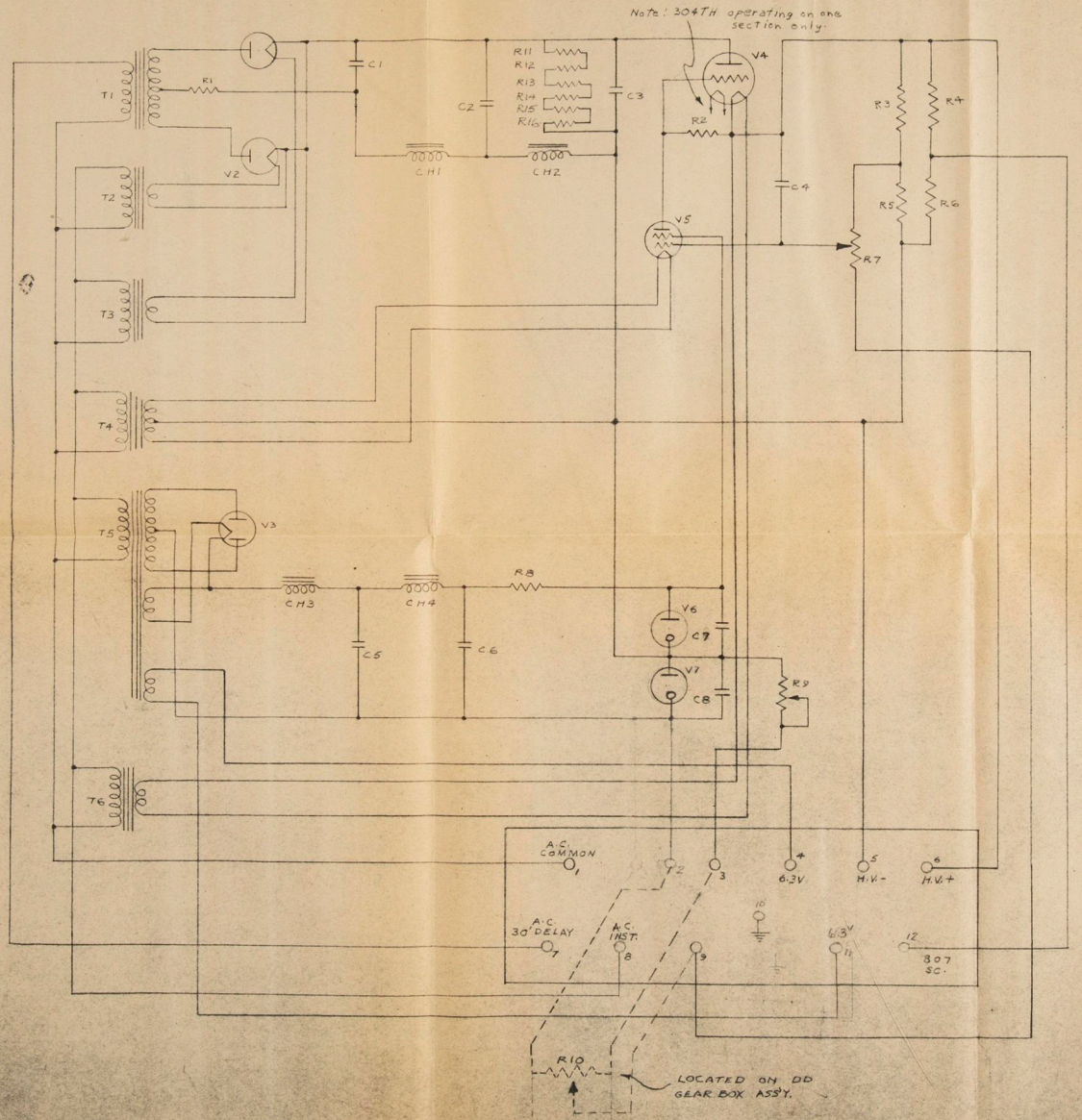


CH1	KB-Ea 200	330 ohms	
CH2	KB-Ea 260	350 ohms	
CH3	KB-Ea 211	150 ohms	
CH4	KB-Ea 211	100 ohms	
T1	KB-Ea 201	* 1334	
T2	KB-Ea 204	* 1396	
T3	KB-Ea 209	* 1396	
T4	KB-Ea 205	* 1398	
T5	KB-Ea 104	* 1397	
T6	KB-Ea 206	* 1397	
C1	2 μfd	3000V oil capacitor	
C2	2 μfd	3000V oil capacitor	
C3	.1 μfd	5000V oil capacitor	
C4	.1 μfd	5000V oil capacitor	
C5	.165 μfd	5000V oil capacitor	
C6	4 μfd	600V oil cap. 2000V test	
C7	4 μfd	600V oil cap. 2000V test	
C8	1 μfd	600V oil cap. 3000V test	
C9	1 μfd	600V oil cap. 3000V test	
R1	500	2W	±10% Type "C" Cent. IRC
R2	100K	2W	±5% Type "C" Cent.
R3	400K	8W	±5% Type "C" Cent.
R4	200K	4W	±5% Type "C" Cent.
R5	100K	2W	±5% Type "C" Cent.
R6	100K	2W	±5% Type "C" Cent.
R7	100K	12W	A.P.S. Type 47A
R8	2K	10W	±10%
R9	6K	6W	G.R. Pot.
R10	6K	G.R. Pot.	Not on chassis
R11	180K	4W	±1% Evic 207
R12	180K	4W	±1% Evic 507
R13	180K	4W	±1% Evic 507
R14	180K	4W	±1% Evic 507
R15	180K	4W	±1% Evic 507
R16	180K	4W	±10% Evic 507
V1		1616	
V2		1616	
V3		5Y4G	
V4		304TH	
V5		5U3	
V6		VR 150-30	
V7		VR 105-30	

ITEM	PART NO.	DESIGN	DESCRIPTION
			AS BUILT

RESEARCH ENTERPRISES LTD. RADIO DIV.

H.V. SWEEP POWER SUPPLY.



CH1	R.B.-Ex. 200		30 Henry
CH2	R.B.-Ex. 200		30 Henry
CH3	R.B.-Ex. 211		30 Henry
CH4	R.B.-Ex. 211		30 Henry
T1	R.B.-Ex. 197		#13422
T2	R.B.-Ex. 204		#13416
T3	R.B.-Ex. 204		#13416
T4	R.B.-Ex. 205		#13418
T5	R.B.-Ex. 196		#13419
T6	R.B.-Ex. 206		#13417
C1	2 μfd	5000V	oil capacitor
C2	2 μfd	3000V	" "
C3	2 μfd	3000V	" "
C4	.05 μfd	5000V	" "
C5	4 μfd	600V	" "
C6	4 μfd	600V	" "
C7	1 μfd	600V	" "
C8	1 μfd	600V	" "
R1	500	20W	±10% Type "C" Coat IRC
R2	100K	24W	±5% " " " "
R3	400K	80W	" " " " " "
R4	200K	48W	" " " " " "
R5	100K	24W	" " " " " "
R6	100K	24W	" " " " " "
R7	100K	12W	G.R. Pat. Type 471A
R8	2K	10W	±10% Type C Coat IRC
R9	6K	6W	G.R. Pot.
R10	6K	G.R. Pot.	Not on chassis
R11	180K	4W	±10% Erie 507
R12	180K	4W	" " "
R13	180K	4W	" " "
R14	180K	4W	" " "
R15	180K	4W	" " "
R16	180K	4W	" " "
V1			1616
V2			1616
V3			5Y4G
V4			304TH
V5			B13
V6			VR 150-30
V7			VR 105-30

DO NOT SCALE — USE STANDARD TOLERANCES UNLESS OTHERWISE SPECIFIED

STANDARD TOLERANCES ON DIMENSIONS		
INCHES	FRACTIONAL	DECIMAL
0-1/4	±1/128	±.005
1/4-6	±1/64	±.005
6-24	±1/32	±.010
OVER 24	±1/16	±.015

FINISH

MATERIAL

RAW MATERIAL

PER M PIECES

EXPERIMENTAL NO.

MEMO NUMBER	L'TR	CHANGE	BY	DATE	CHECK

ITEM	PART NO.	QUAN.	DESCRIPTION
USED ON			

SCALE

SUPERSEDES R.B.-Ex. 325

DRAWN DATE 25/8/47

ENG. APPROVAL G.R.M.

CHECKED DATE 25/8/47 J.G.

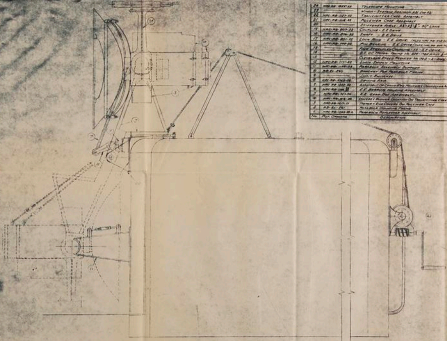
DR. OFFICE APPROVAL

NAME RESEARCH ENTERPRISES LTD. RADIO DIV. ~~TRANSVIC ONTARIO~~

L.V. SWEEP POWER SUPPLY.

NO. NRC-RB-835-3

FORM AD 3509-7-43



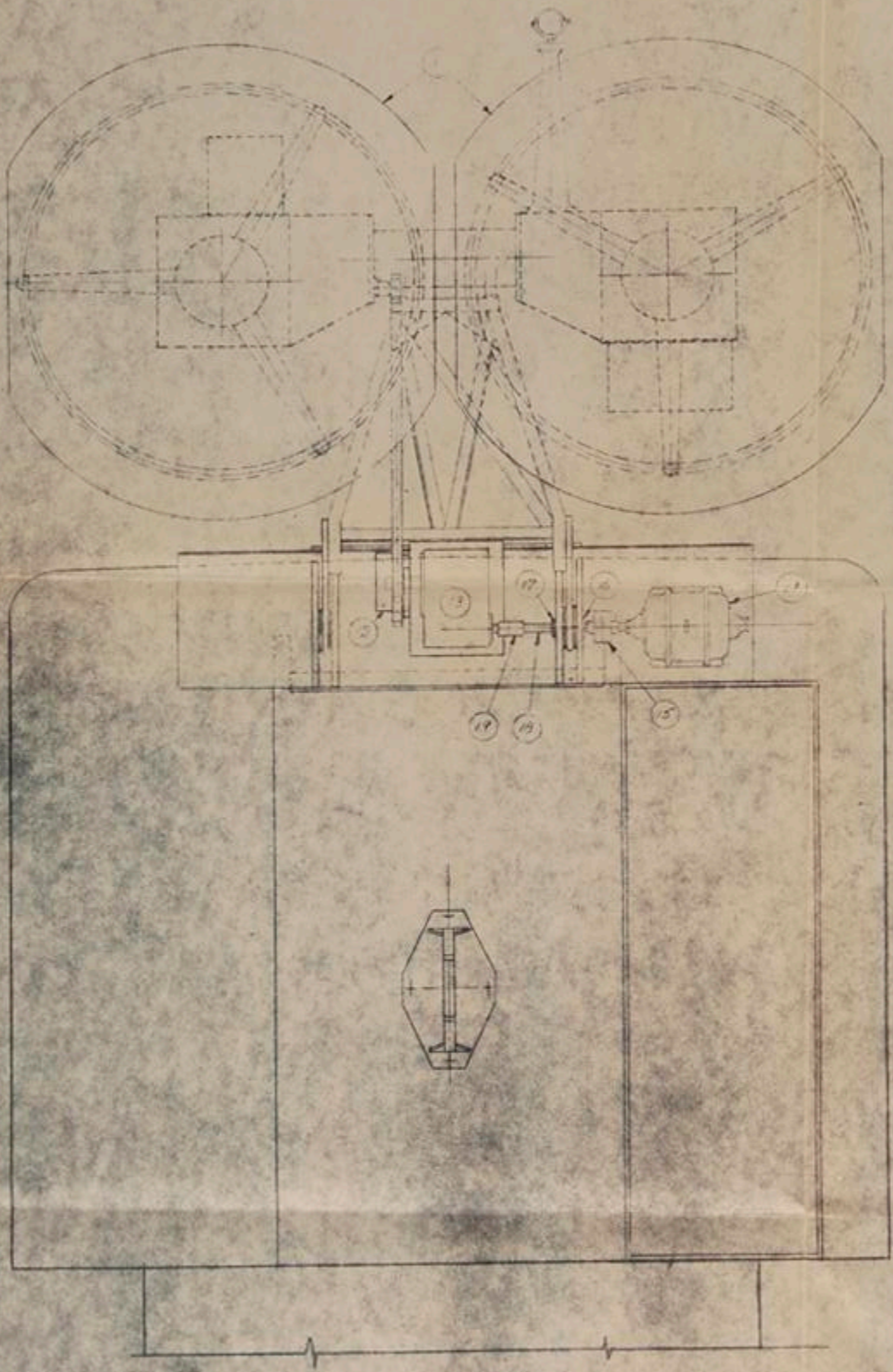
No.	Ref. Drawing	Description
24	NRC-RB-1255-32	Telescope Mounting
23	—	Winch - Stevens Adamson 331 (or 32)
22	NRC-RB-1127-32	Transmitter Case Assembly
21	NRC-RB-1118-32	Receiver Case Assembly
20	—	Stiffener Angle - 2½ × 2½ × ¼" - 90" Long
19	NRC-RB-807-32	Coupling - E.E. Drive
18	NRC-RB-806-32	Shaft - E.E. Drive
17	NRC-RB-801-32	Lock Ring - E.E. Drive (Also NRC-RB-[illegible])
16	NRC-RB-799-32	Pin Bearing - E.E. Drive (Also NRC-RB-800-32)
15	—	Fast Flexible Coupling - [illegible] - E.E. Drive
14	—	G.E. DC Motor - Frame No. 836-[illegible]
13	—	Cleveland Speed Reducer No. 100-[illegible]
12	NRC-RB-1171-32	Limit Switch Mounting
11	NRC-RB-1155-32	Parabola Assembly Support
10	RB-EX-260	Bracket for Parabola Frame
9	—	Limit Switches
8	NRC-RB-1062-32	Driving Arm
7	NRC-RB-1253-32	Assembly of Cranking Mounting Connecting [illegible]
6	NRC-RB-1186-32	E.E. Bearing Housing Assembly
5	NRC-RB-1210-32	E.E. Gear Box Assembly
4	NRC-RB-1214-32	Covers & Bushes Location on Transmitter Case
3	NRC-RB-1217-32	Mtng. & End Covers on Receiver Case
2	RB-EX-251	Parabola Mounting Frame
1	NRC-RB-1252-32A	Parabolic Reflector Assembly

SIDE ELEVATION

DWG No NRC RB 1251-32 A

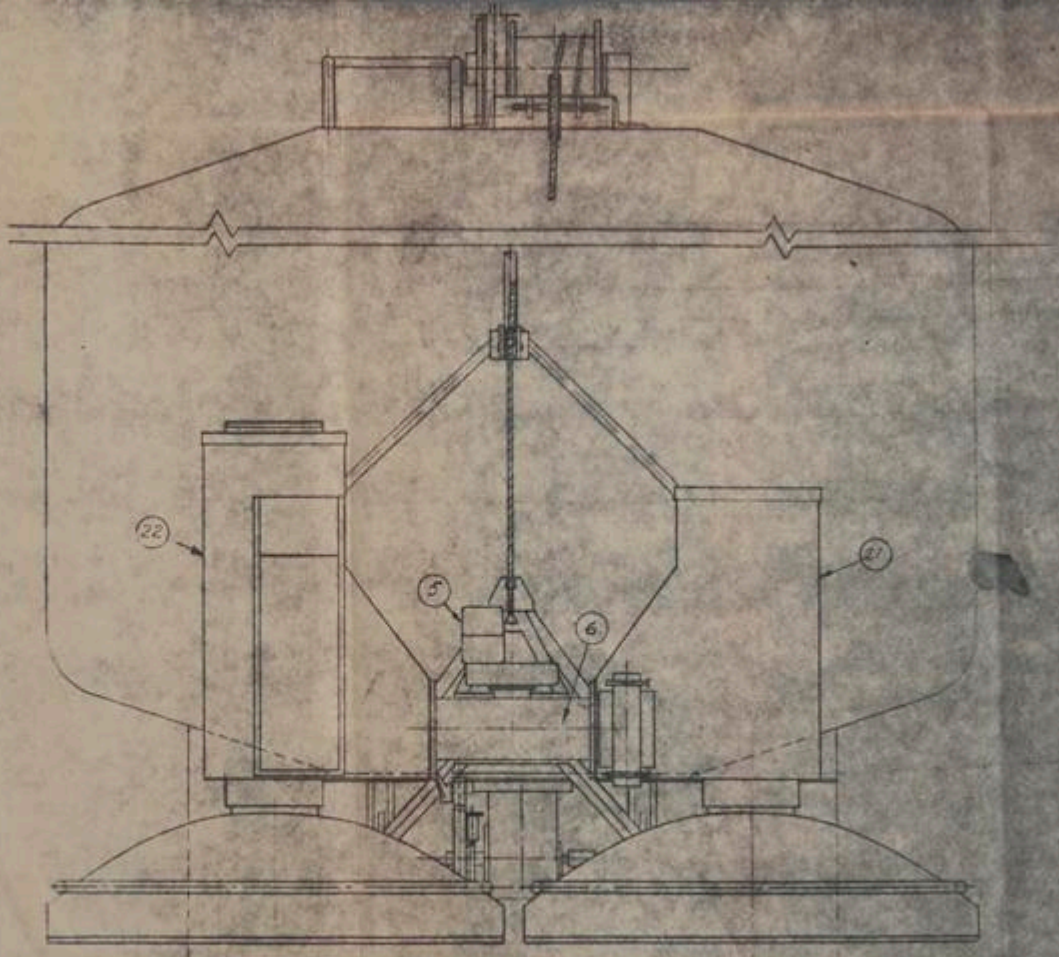
(SEE ALSO B + C)

NATIONAL RESEARCH COUNCIL - RADIO SECTION



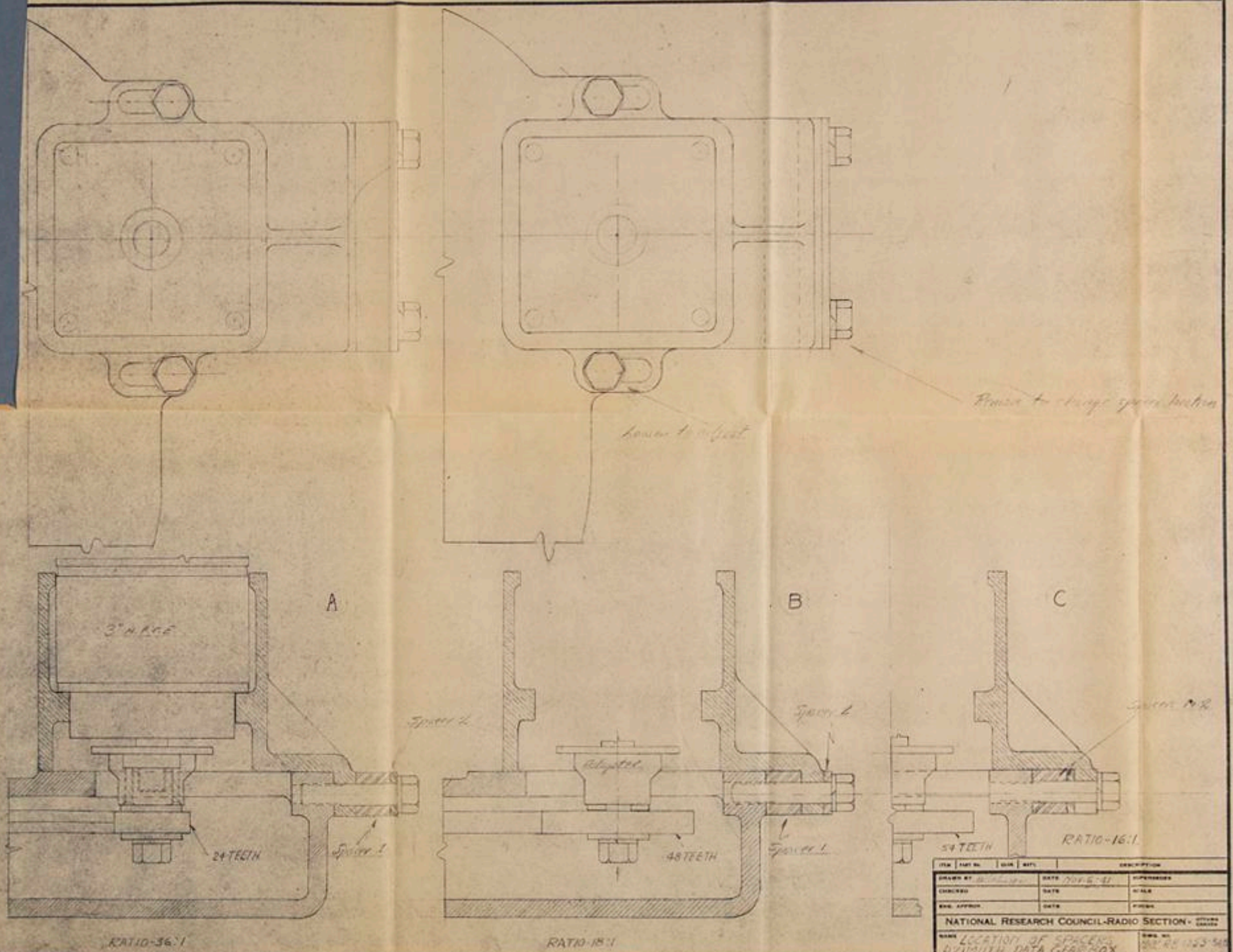
FRONT ELEVATION

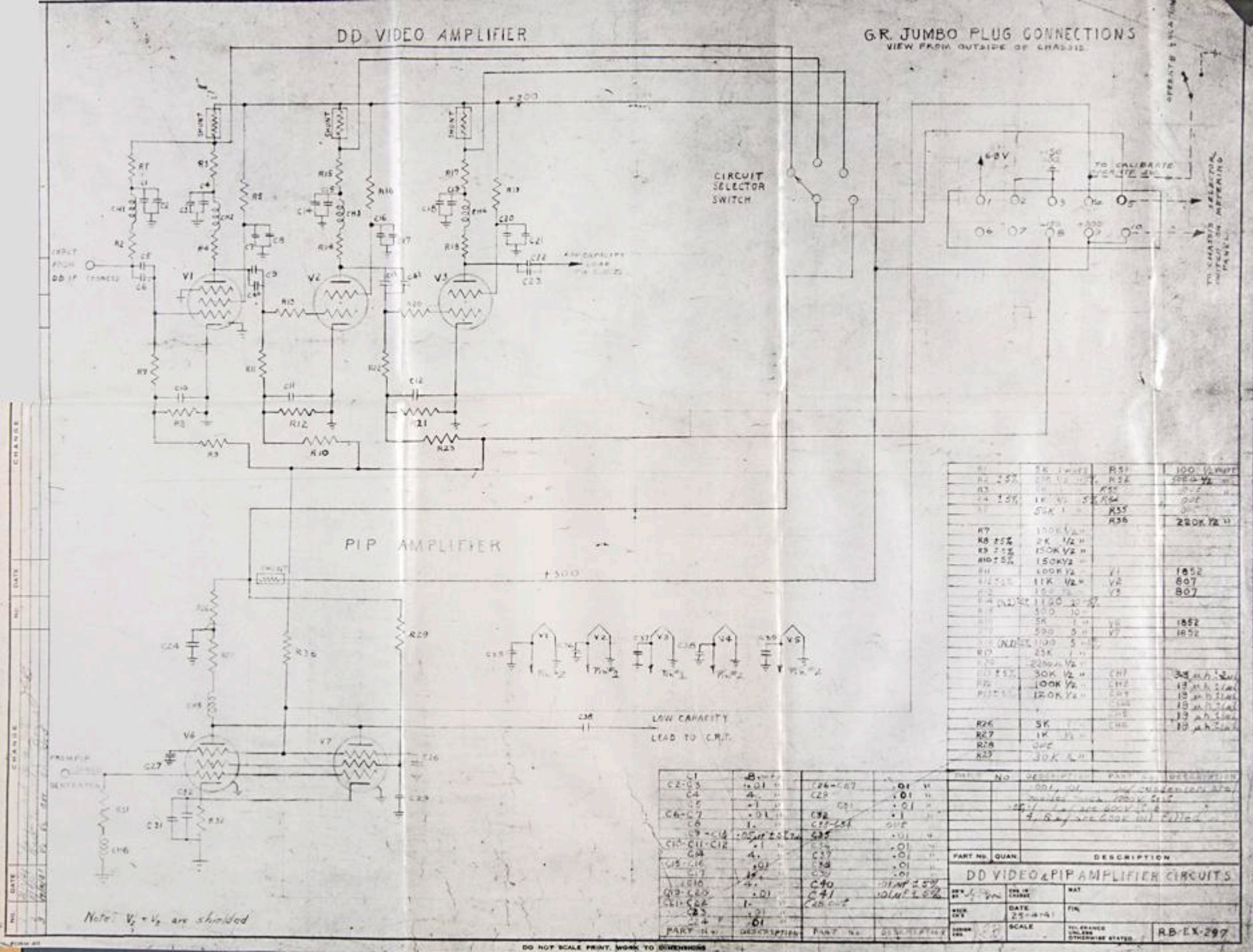
DWG NO NRC AM-1251 92-A

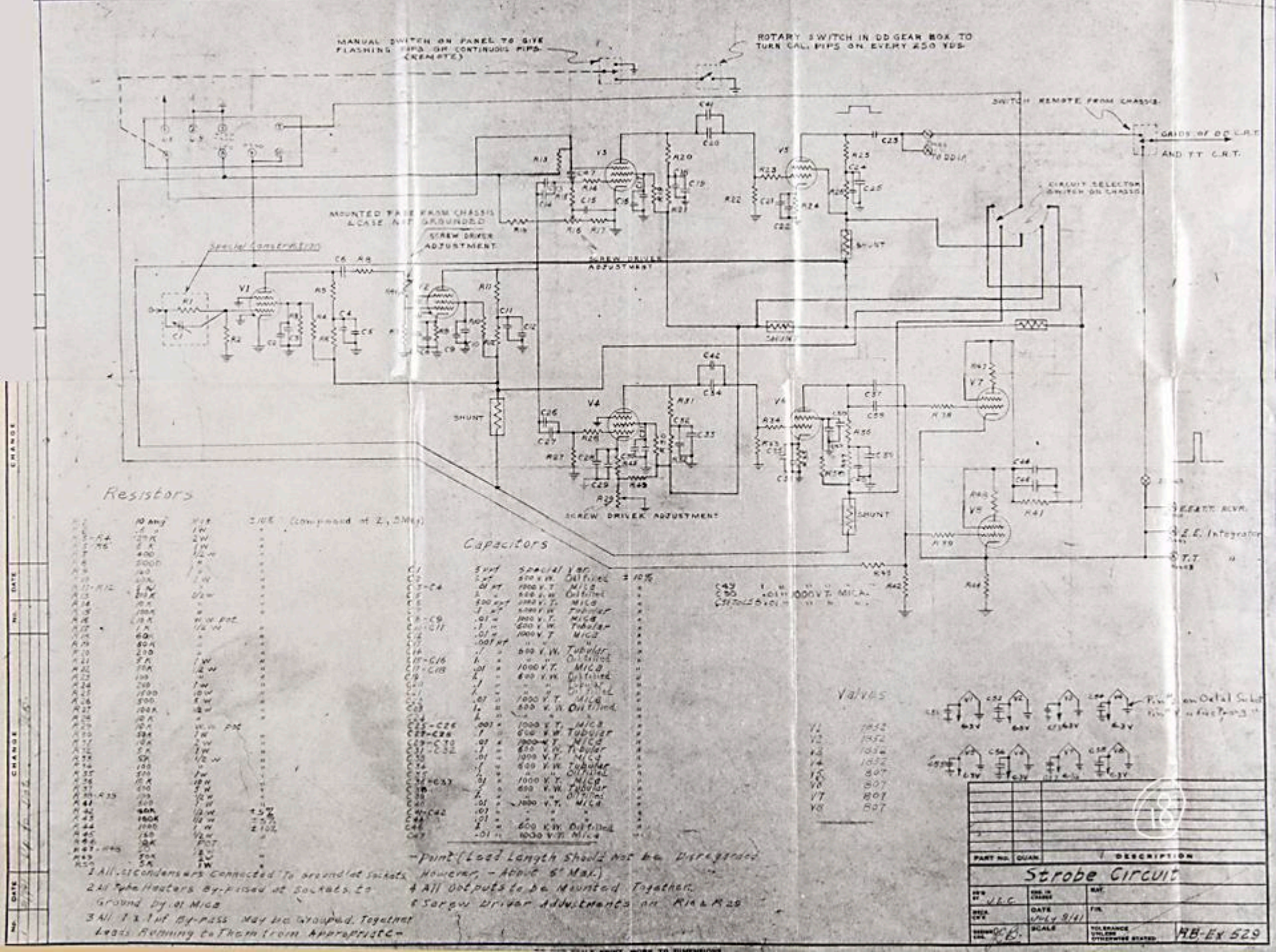


PLAN VIEW

D'WG NO NAC-RB-1251-92-C


A
B
C
3" H.R.F.
24 TEETH
48 TEETH
54 TEETH
Spacer 1
Spacer 2
Spacer 4
Spacer 1/2
RATIO-36:1
RATIO-18:1
RATIO-16:1
NATIONAL RESEARCH COUNCIL-RADIO SECTION-
LOCATION OF SPACERS
AZIMUTH DATA GEAR BOX


DD VIDEO AMPLIFIER
G.R. JUMBO PLUG CONNECTIONS
VIEW FROM OUTSIDE OF CHASSIS
CIRCUIT SELECTOR SWITCH
PIP AMPLIFIER
+300
+68V
TO CALIBRATE
TO CHASSIS SELECTION SWITCH ON MEASURING PANEL
LOW CAPACITY LEAD TO C.R.T.
Note: V5 + V6 are shielded
DD VIDEO & PIP AMPLIFIER CIRCUITS
RB/EX-297
DO NOT SCALE PRINT, WORK TO DIMENSIONS



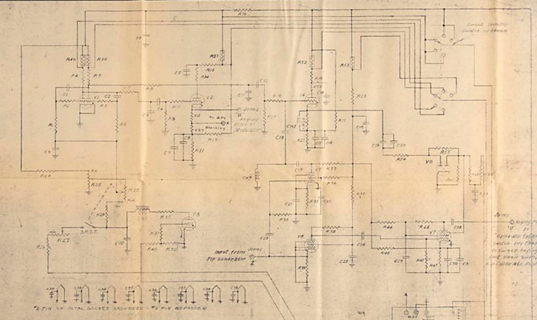
- Point (Lead Length Should not be Disregarded However, - Appx 6" Max.)
- All Outputs to be Mounted Together.
- Screw Driver Adjustments on R14 & R29

1 All .1 Condensers Connected To grounded Sockets
2 All Tube Heaters By-Passed at Sockets to Ground By .01 Mica
3 All .1 & 1 uf By-Pass May be Grouped Together Leads Running to Them from Appropriate-

PART No.	QUAN.	DESCRIPTION
		Strobe Circuit

DRN BY V.E.C.	SUB. IN CHARGE	REF.
DES'D BY	DATE 9/41	FIL.
TRACED BY	SCALE	TOLERANCE UNLESS OTHERWISE STATED

RB-Ex 529



Controls, Left to Right on Front Panel
Circuit Selector Switch
R25 – Recurrence Frequency
R27 Rate of Modulation
R28 Depth of Modulation
S.P.S.T. Switch on Control R28 Closes at Beginning of Clockwise Rotation of Control

Resistors

R1	10K-1/2 Watt	R21	10K-1/2 Watt	R38	2K-1 Watt
R2-R3	50K- " " ±5%	R22	60K-2 "	R39	150Ω-1/2 "
R4-R5	20K-1 Watt 5%	R23	7K-2 " Erie 347	R40	500Ω- " "
R6-R7-R8	14K-1/2 "	R24	350K-1/2 " 5%	R41	40K- " "
R9	50K- " "	R25	50K-Pot.	R42	15K- " "
R10	20K- " "	R26	250K-1/2 " 5%	R43	40K- " "
[illegible]	1K-1/2 " 5%	R27	500K-Pot.	R44	3K-1
[illegible]	[illegible]	R28	10K-Pot.	R45	1K-1/2
[illegible]	40K-1/2 "	R29	500K-1/2 Watt	R46	10K-1/2
[illegible]	15K-1 "	R30	2K-1/2 Watt	R47	250Ω-1/2 "
[illegible]	250K-1/2 "	R31	[illegible]	R48	15K ±5%
[illegible]	25K-2 Watts	R32	10K- " " 5%	R49-R50	Meter Shunts
[illegible]	300K-1/2 Watt	R33-R34	5K-1 "	R51	" Shunt
[illegible]	20K- " "	R35	[illegible]	R52	" "
[illegible]	150K-1 "	R36	20K- " "	R53	" "
[illegible]	5K-1/2 "	R37	3K-1 "	R54-R55	1K 1/2 Watt
		[illegible]	1K-1	[illegible]	[illegible]

Capacitors

C1-C2	.005μf 1.5% 1000 V.T. Mica	C19	.01μf 1000 V.T. Mica
C3	.00005μf 1000 V.T. Mica	C20	.05μf 600 V.W. Tubular
C4	.0001μf " " "	C21-C22	.01μf 1000 V.T. Mica
C5	.0005μf " " "	C23	.001μf " " "
C6	8μf 600 V.W. Oil Filled	C25	.01μf " " "
C7	.25μf " " Tubular	C26	.01μf
C8	.01μf 1000 V.T. Mica	C27	.25μf 600 V.W. Tubular
C9	.25μf 600 V.W. Tubular	C28-C29	.01μf 1000 V.T. Mica
C10	4μf " " Oil Filled	C30	.1μf 600 V.W. Tubular
C11	.00025μf 1000 V.T. Mica	C31	.01μf 1000 V.T. Mica
C12	.0005μf " " "	C32-C33	.01μf " " "
C13	.00002μf " " "	C34-C35	.01μf " " "
C14	.001μf " " "	C36-C37	.01μf " " "
C15	.25μf 600 V.W. Tubular	C38-C39	.01μf " " "
C16-C17	.01μf 1000 V.T. Mica		
C18	1μf 600 V.W. Oil Filled		

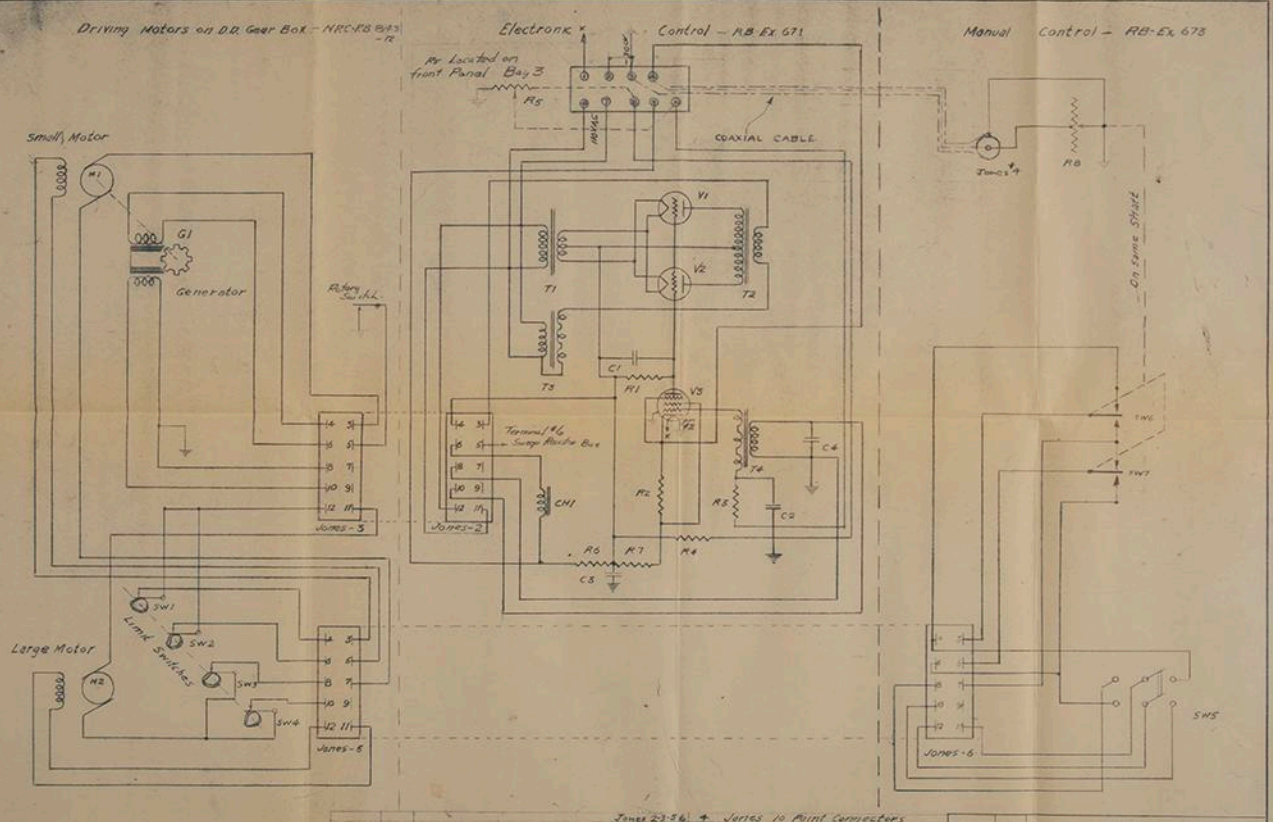
Chokes & Valves

PART NO.	QUAN	DESCRIPTION
CH1		Choke [illegible] 700 H
CH2		" 5 MH
CH3		" 250 μH
V1		[illegible]
V2-V5-V6		884
V3-V4-V7		[illegible]
V8		[illegible]

Recurrence Frequency Control

DATE [illegible]

RB-EX-651



Jones 23-36	4	Jones 10 Point Connectors
Jones 4	1	" " Single " "
C1-3	3	1mf 600V Oil Filled Condensor
R1	1	250 K Watts Resistor
R2	1	2K 4 " "
R3	1	100 K " "
R4	1	350K 1 Watt "
R5	1	5K Pot.
R6	1	2K 2 Watts Resistor
R7	1	12 K 10 " "
RB	1	GR G.R. Pot.
SW1-2-3-4	4	Micro-Switches
SW5	1	Key Switch - Anti-Capacity Type
SW6-7	2	Micro Switches
CH1	1	Choke
C4	1	100 mf 1100 V.T. Mica
G1	1	Generator (Special)
M1	1	Bodine Type YA
M2	1	" " NSF-11

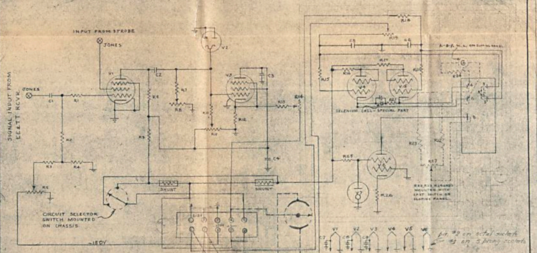
T1	1	TRANS RB #
T2	1	" "
T3	1	" "
T4	1	" "
V1-V2	2	2A3
V3	1	1852

PART No. | QUAN. | DESCRIPTION

Motor Control Circuits

RB Ex 669

DO NOT SCALE PRINT, WORK TO DIMENSIONS



R5-R8-R11-R13-R19 MOUNTED ON CHASSIS (KNOB ADJUSTMENT)

R1	5K	1/2 W	±10%
R2	5K	"	"
R3	75K	"	"
R4	2K	"	"
R5	100K	POT	
R6	50K	1W	"
R7	250K	1/2W	"
R8	500K	POT	
R9	10K	1W	"
R10	2 Meg	1/2 W	"
R11	1 Meg	POT	
R12	10K	1W	"
R13	100K	1/2W	"
R14	250K	POT	
R15	1K	1/2W	"
R16	200	"	"
R17	200	1/2 W	±10%
R18	50K	"	"
R19	100K	POT	
R20	1K	1/2W	"
R21	25	"	"
R22	1K	1W	" NOT ON CHASSIS
R23	1K	"	" " " "
R24	500	1/2	" " " "
R25	10K	10W	"
R26	500	2W	"
R27	1K	POT	(NOT ON CHASSIS)
C1	.02 mfd.	1000V T.	MICA
C2	.002 "	" "	"
C3	.01 "	" "	"
C4	4 "	600V W	OIL FILLED
C5-C6	.3 " ±5%	" "	" " METAL CONTAINER
C7-C8-C9	.01 "	1000V T	MICA

PART No.	QUAN.	DESCRIPTION
V1		1852
V2		6H6
V3		1852
V4		807
V5		807
V6		807
V7		VR150

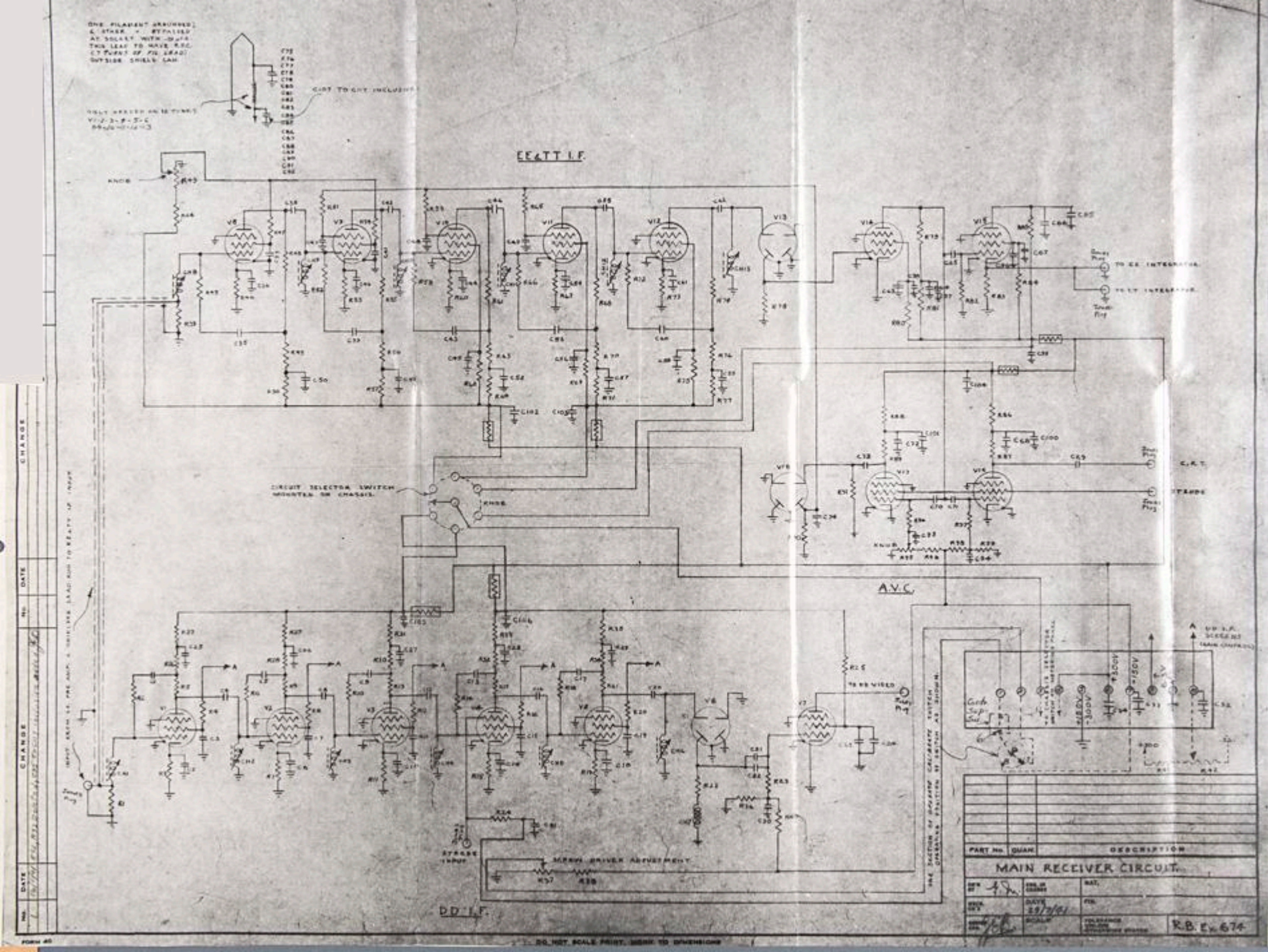
EE&TT INTEGRATOR CIRCUIT

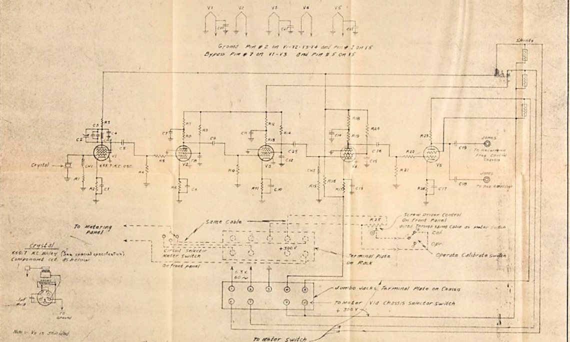
DR'N BY: [illegible] | ENG. IN CHARGE: | MAT.:
MECH. CH'K: | DATE: 24/7/41 | FIN.:
DESIGN ENG.: Jw.B. | SCALE: | TOLERANCE UNLESS OTHERWISE STATED: | R.B. Ex. 667

NO.	DATE	CHANGE
1	11/4/?	[illegible]
2	11/4/?	[illegible]
3	11/4/?	5 V Sup. [illegible]

FORM 25

DO NOT SCALE PRINT. WORK TO DIMENSIONS


EE&TT I.F.
A.V.C.
D.D. I.F.
CIRCUIT SELECTOR SWITCH MOUNTED ON CHASSIS.
KNOB
STROBE INPUT
MAIN DRIVER ADJUSTMENT
C.R.T. STAGE
MAIN RECEIVER CIRCUIT.
K.B. E.v. 674
DO NOT SCALE PRINT. WORK TO DIMENSIONS



Resistors

R1	100 K	1/2 Watt	±10%
R2	1000 Ω	1/2 "	"
R3	75 K	1 "	"
R4	10 K	1/2 "	"
R5	50 K	1/2 "	"
R6	160 Ω	1/2 "	"
R7	5 K	1 "	"
R8	5 K	1 "	"
R9	60 K	1 "	"
R10	10 K	1/2 "	"
R11	160 Ω	1/2 "	"
R12	5 K	1 "	"
R13	1000 Ω	1/2 "	"
R14	100 K	1 "	"
R15	1000 Ω	1/2 "	"
R16	100 K	1/2 Watt	±10%
R17	160 Ω	1/2 "	"
R18	5 K	1 "	"
R19	1000 Ω	1/2 "	"
R20	60 K	1 "	"
R21	1000 Ω	1/2 "	"
R22	100 Ω	1/2 "	"
R23	1000 Ω	10 Watts N.I.	"
R24	200 Ω	2 "	"
R25	5 K	Pot. W.W.	

Condensers & Chokes

C1	.1 µf 600 v.w. Tubular
C2	5-30 µµf Ceramic Trimmer — Style T360 Type NPO
C3	600 µµf 500 µµf Silvermica and — 100 µµf Ceramic N680 Erie
C4	.1 µf 600 v.w. Tubular
C5 to C22	.01 µf 1000 V.T. Mica
C23	50 µµf " "
CH1	10 mh RFC
CH2	95 µh 60 T. #28 Enn. 1/4" Form (Arn)
CH3	50 µh

Tubes

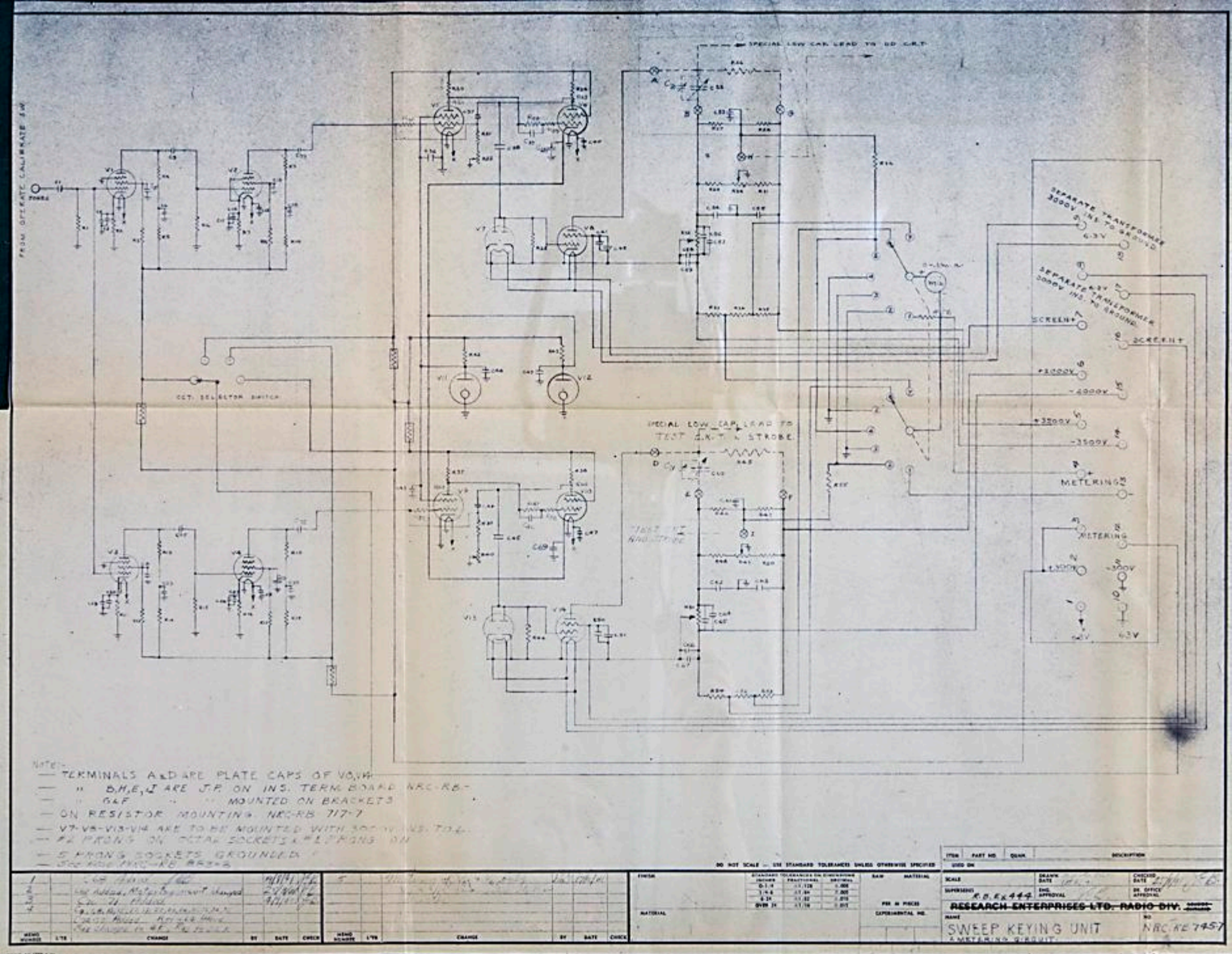
Part No.	Quan	Description
V1-V2		1852
V3-V4		1852
V5		807

Cal. Osc. & Pip Generator

DRN BY J.L.C.	ENG IN CHARGE	MAT	
BOCK CK'D	DATE Aug. 5/41	FIN	
DESIGN ENG.	SCALE	TOLERANCE UNLESS OTHERWISE STATED	RBEX.678

DO NOT SCALE PRINT. WORK TO DIMENSIONS

FORM 40



NOTE:-
- TERMINALS A & D ARE PLATE CAPS OF V6, V9
- " B, H, E, J ARE J.F. ON INS. TERM. BOARD NRC-RB-
- " G & F " " MOUNTED ON BRACKETS
- ON RESISTOR MOUNTING NRC-RB 717-7
- V7-V8-V13-V14 ARE TO BE MOUNTED WITH SOCKET [illegible]
- P2 PRONG ON OCTAL SOCKETS & P1 PRONG ON
- 5 PRONG SOCKETS GROUNDED
- SEE NRC NRC-RB 882-A

DO NOT SCALE — USE STANDARD TOLERANCES UNLESS OTHERWISE SPECIFIED

ITEM	PART NO.	QUAN.	DESCRIPTION
USED ON			

MEMO NUMBER	L/TR	CHANGE	BY	DATE	CHECK
1		[illegible]		9/11/61	
2		[illegible]		9/11/61	
3		[illegible]		9/11/61	
4		[illegible]		9/11/61	

MEMO NUMBER	L/TR	CHANGE	BY	DATE	CHECK
5		[illegible]			

FINISH

STANDARD TOLERANCES ON DIMENSIONS		
INCHES	FRACTIONAL	DECIMAL
0-1/4	±1/128	±.008
1/4-6	±1/64	±.005
6-24	±1/32	±.015
OVER 24	±1/16	±.015

MATERIAL

BASIS MATERIAL

PER M PIECES

EXPERIMENTAL NO.

SCALE	DRAWN DATE
SUPERSEDES R.E. Ex 442	ENG. APPROVAL
NAME	NO
SWEEP KEYING UNIT & METERING CIRCUIT	NRC KE 7457

CHECKED DATE

DR. OFFICE APPROVAL

RESEARCH ENTERPRISES LTD. RADIO DIV.