

HANDBOOK of INSTRUCTIONS.

COMMUNICATION RECEIVER

TYPE R163

36/570-1

SECTION 1 - GENERAL DESCRIPTION OF INSTALLATION

Sect.      Para.

1            1      General

The type R163 is a 7 valve superheterodyne receiver intended for reception of R.T., C.W., and M.C.W. Signals. Continuous coverage is provided from 0.55 to 22 Mc/s with direct reading calibration and two speed tuning. Provision is made for the use of headphones with or without the inbuilt loudspeaker.

2            Weight and Dimensions

<u>Details.</u>	<u>Height</u>	<u>Width</u>	<u>Depth</u>	<u>Weight</u>
R163 unpacked	8-1/4"	18"	9-3/4"	32 lbs.
R163 packed (Approx.)	14"	24"	15"	100 lbs.

3            Power Supply

The Type R163 will operate only from A.C. voltages of 110, 220, 240 and 260 volts (all  $\pm$  10%). The receiver is adjusted for operation from these voltages by means of a wander plug and socket inside the case. The power consumption on any tapping is less than 50 watts.

4            Controls

On the front panel of the Type R163 are:

1. Tuning control
2. Tuning dial, directly calibrated, 0.55 - 22 Mc/s
3. Wave change switch
4. Combined tone control and ON-OFF switch
5. Speaker ON-OFF switch
6. Power ON-OFF indicator
7. Dual headphone jack
8. A.V.C. switch, with standby position.
9. B.F.O. note control
10. B.F.O. ON-OFF switch

SECTION 2 - OPERATING INSTRUCTIONS

Sect.    Para.

2        1    Earth Connection

A good earth connection should be made to the receiver before putting it into operation.

2        2    Aerial Required

A wire at least thirty feet and preferably up to one hundred feet long should be used as an aerial. It should be erected out of doors and as high as possible above any nearby obstructions such as trees, or buildings. All joins in the aerial must be soldered.

If power lines are in the vicinity run the aerial at right angles to them, and as far away as possible. On high frequencies the ignition systems of motor cars cause interference so that keeping the aerial away from, and at right angles to a road will help to keep interference down.

3        3    Reception of Telephony (R.T.)

To receive an R.T. Signal adjust the controls as follows :-

1. Tone control ON (Clockwise). The indicator will light as soon as power is applied to the receiver.
2. Speaker switch ON, or plug in the phones.
3. Gain control to a suitable noise level.
4. Wave change switch to the required band.
5. B.F.O. Switch OFF.
6. A.V.C. Switch to A.V.C. ON.
7. Tuning dial to the required frequency.

The signal should now be found by searching over a small band of frequencies near the correct calibration.

4        4    Reception of Telegraphy (C.W.)

To receive a C.W. Signal proceed as above for the first four operations and then as follows :-

1. A.V.C. Switch to A.V.C. OFF
2. B.F.O. note control to zero
3. B.F.O. Switch to ON.
4. Tuning dial to the required frequency. The signal should now be found by searching over a small band of frequencies near the correct calibration.

Sect.    Para.

2            4            5. After locating the signal tune it to zero beat and then adjust the note to a suitable frequency with the B.F.O. note control.

5            Tone Control

Where a signal is being received through interference, reception can sometimes be improved by using the tone control to reduce high frequencies.

ELECTRICAL PARTS LIST

Pos. No. in Circuit Diagram	VALUE	DESCRIPTION	CODE NUMBER
R1A	1 Megohm	1/3 Watt Carbon Resistor	CI 051.018.1D
R1B	"	"	"
R1C	"	"	"
R1D	"	"	"
R2A	0.5 Megohm	"	CI 045.018.1D
R2B	"	"	"
R3A	70,000 ohm	1 Watt Carbon Resistor	CI 037.038.1D
R4A	150 ohm	1/2 Watt Carbon Resistor	CI 011.528.1D
R4B	"	"	"
R5A	50,000 ohm	1/3 Watt Carbon Resistor	CI 035.018.1D
R5B	"	"	"
R6A	20,000 ohm	1 Watt Carbon Resistor	CI 032.038.1D
R7A	1,000 ohm	"	CI 021.038.1D
R8A	10,000 ohm	1/3 Watt Carbon Resistor	CI 031.018.1D
R8B	"	"	"
R9A	50,000 ohm	1 Watt Carbon Resistor	CI 035.038.1D
R10A	5 Megohm	"	CI 055.038.1D
R11A	0.1 Megohm	"	CI 041.038.1D
R11B	"	"	"
R11C	"	"	"
R12A	0.5 Megohm	Potentiometer	63/417.4
R13A	0.5 Megohm	"	63/450
R14A	0.25 Megohm	1 Watt Carbon	CI 042.538.1D
R15A	0.7 Megohm	Potentiometer W/Switch	63/622

Pos. No. in Circuit Diagram	VALUE	DESCRIPTION	CODE NUMBER
R16A	500 ohm	3 Watt Wire Wound	CI 115.070.0M
R17A	25 ohm	1 Watt Carbon	CI 002.538.1D
C1A	15 $\mu$ f	Wire Trimmer	CI 395.075
C1B	"	"	"
C2A	5 $\mu$ f	Wire Trimmer	CI 395.040
C2B	"	"	"
C2C	"	"	"
C2D	"	"	"
C2E	"	"	"
C2F	"	"	"
C2G	"	"	"
C3A	3 Gang	H type Stromberg Carlson	53/223.1
C4A	100 $\mu$ f	Dutch Ceramic	CI 398.100
C4B	"	"	"
C4C	"	"	"
C4D	"	"	"
C4E	"	"	"
C4F	"	"	"
C4G	"	"	"
C4H	"	"	"
C5A	0.1 $\mu$ f	600V Tropic Proof	CI 271.030.60D
C5B	"	"	"
C5C	"	"	"
C5D	"	"	"
C5E	"	"	"

Pos. No. in Circuit Diagram	VALUE	DESCRIPTION	CODE NUMBER
C6A	0.01 $\mu$ f	600V Tropic Proof	CI 261.030.60D
C6B	"	"	"
C6C	0.01 $\mu$ f	600V Tropic Proof	CI 261.030.60D
C6D	"	"	"
C7A	33 $\mu$ f	Dutch Ceramic	CI 398.030
C8A	3 $\mu$ f	Capacitor	CI 396.010
C9A	310 $\mu$ f	Capacitor	CI 183.153.1GS
C10A	2.5-30 $\mu$ f	Metal Trimmer	CI 397.200
C10B	"	"	"
C10C	"	"	"
C10D	"	"	"
C10E	"	"	"
C11A	1450 $\mu$ f	Capacitor	CI 191.413.1GS5
C12A	.005 $\mu$ f	Capacitor	CI.195.014.OKS
C13A	80 $\mu$ f	Capacitor	CI 178.053.1GS
C13B	"	"	"
C13C	"	"	"
C13D	"	"	"
C14A	1 $\mu$ f	Special	CI 395.014
C15A	1000 $\mu$ f	Capacitor	CI 191.053.1HS
C16A	16 $\mu$ f	525V Electro	CI 311.731.LD
C16B	"	" "	"
C17A	12-170 $\mu$ f	Bak. Air Trimmer	CI 397.010
C18A	4-30 $\mu$ f	Ceramic Air Trimmer	CI 397.406
C20A	.004 $\mu$ f	600V Capacitor	CI 254.030.60D

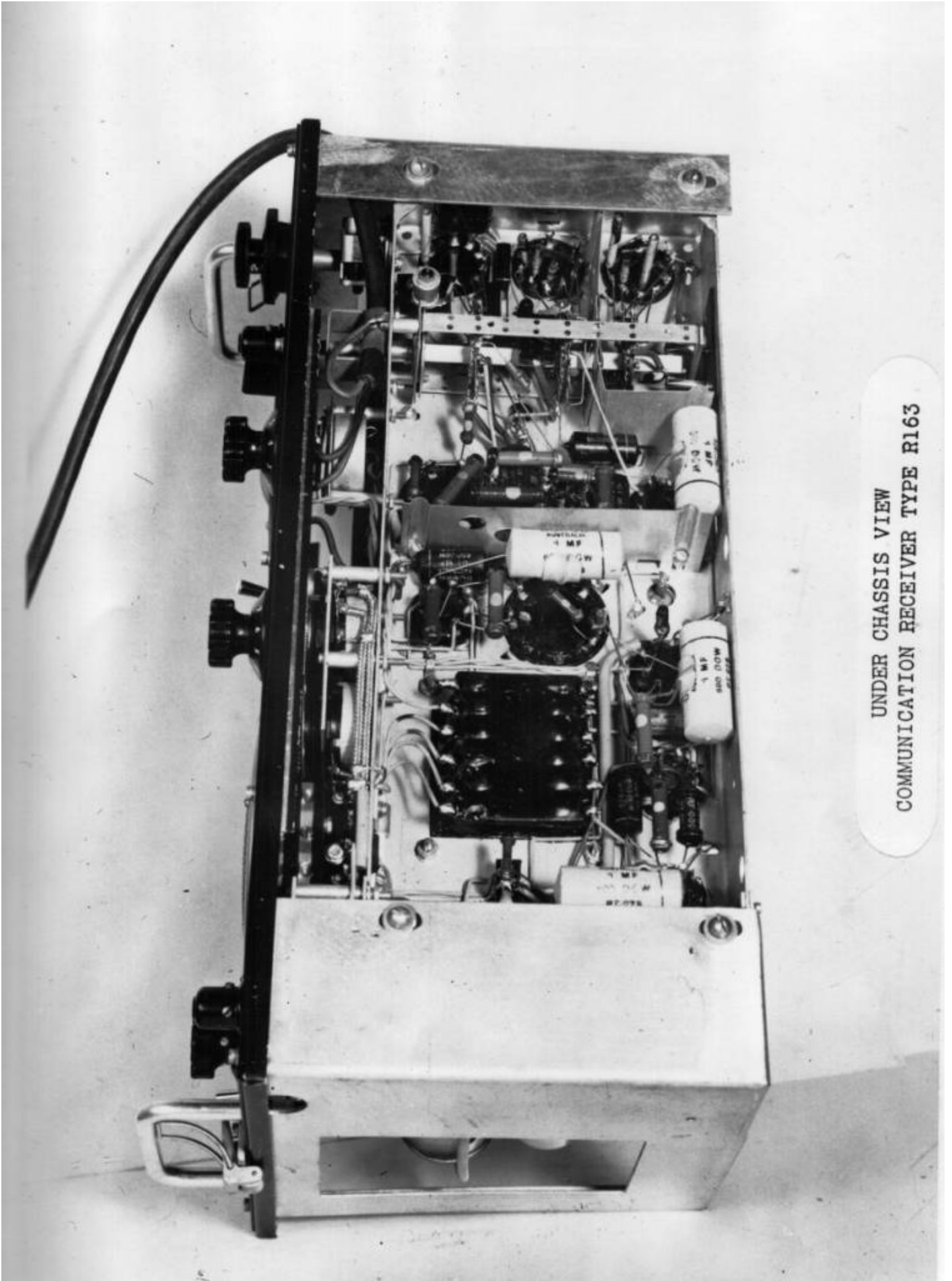
Pos. No. in Circuit Diagram	VALUE	DESCRIPTION	CODE NUMBER
C21A	200 $\mu$ f	Capacitor	CI 182.053.1PS
C22A	.002 $\mu$ f	600V Capacitor	CI 252.030.60D
C23A	1000 $\mu$ f	1000V. "	CI 191.013.1PS
<u>COILS</u>			
L1A		Coil - Aerial	42/741
L2A		" "	"
L3A		" "	"
L4A		" "	"
L5A		" "	"
L6A		" "	"
L7A		Coil - R.F.	42/818
L8A		" "	"
L9A		" "	"
L10A		" "	"
L11A		" "	"
L12A		" "	"
L13A		Coil - Osc.	42/254
L14A		" "	"
L15A		" "	"
L16A		" "	"
L17A		" "	"
L18A		" "	"
L19A		Transformer - 1st I.F.	42/341.1
L20A		" "	"



Pos. No. in Circuit Diagram	VALUE	DESCRIPTION	CODE NUMBER
L21A		Transformer 2nd I.F.	42/435.1
L22A		" "	"
L23A		Coil - B.F.O.	42/269
L24A		" "	"
L25A		Loudspeaker	45/384.1
L26A		"	"
L27A		"	"
<u>TRANSFORMERS</u>			
T1A		Transformer - Power	44/000.3
T2A		Transformer - Output	44/361.1H
<u>VALVES</u>			
V1A		6U7G	
V1B		"	
V1C		"	
V2A		6J8G	
V3A		5Y3G	
V4A		6B6G	
V5A		6V6G	

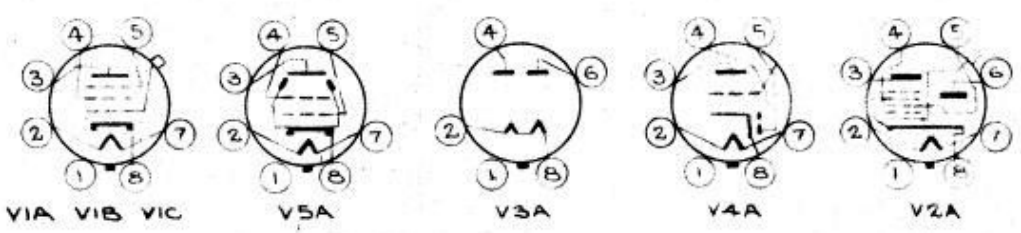
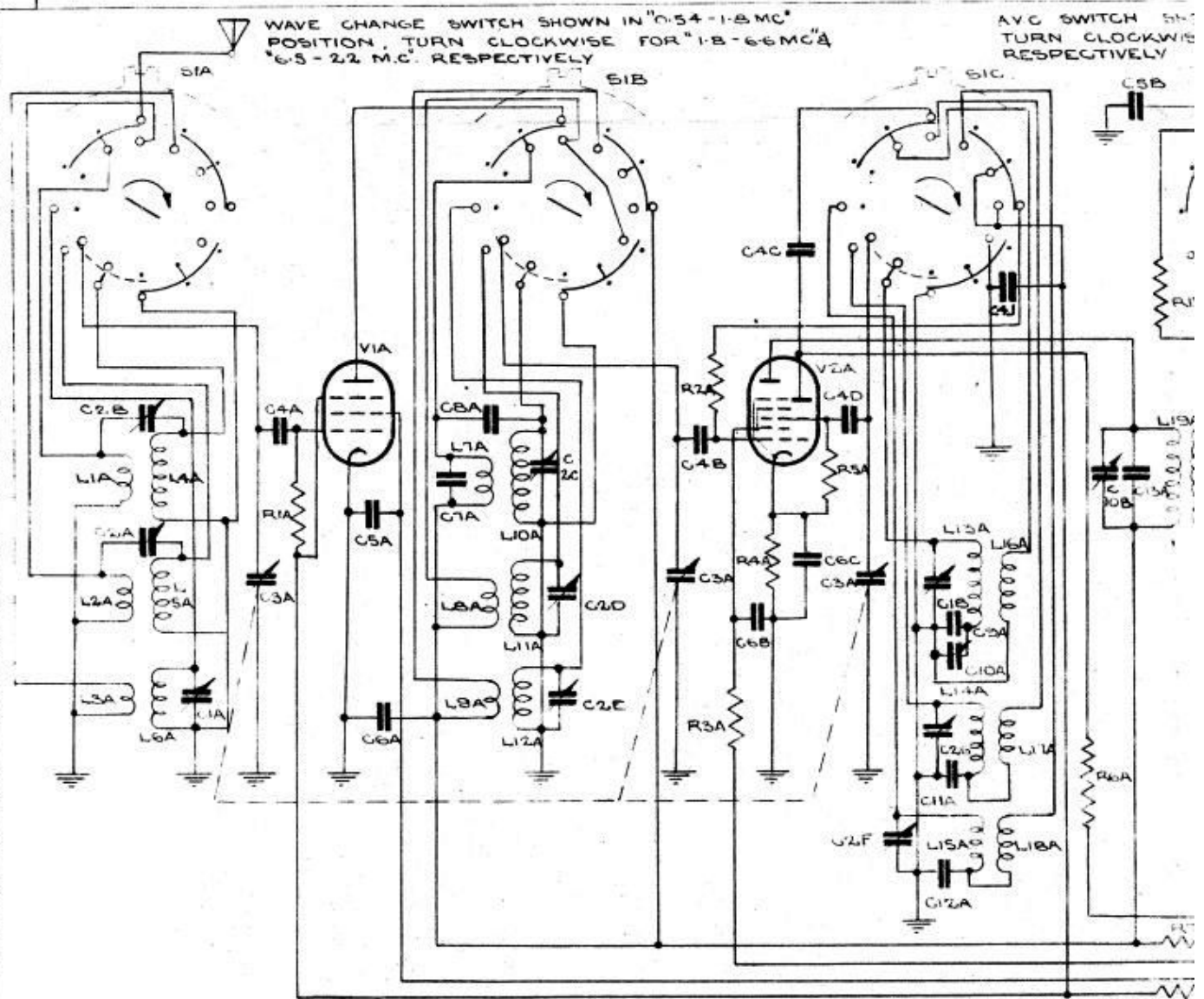


FRONT VIEW OF EQUIPMENT  
COMMUNICATION RECEIVER TYPE R163



UNDER CHASSIS VIEW  
COMMUNICATION RECEIVER TYPE R163

L	1A 2A 3A 4A 5A 6A	7A 8A 9A 10A 11A 12A	13A 14A 15A 16A 17A 18A
C	1A 2A 2B 3A 4A	5A 6A 7A 8A 2C 2D 2E	3A 4B 6B 6C 4D 3A 1B 9A 10A 10B 13A
			4C 2F 2G 11A 12A 5B



POS.	FROM	TO	DATE	CHANGES
				C19 REPLACED BY C1

17A 18A 19A 20A

21A 22A 23A 24A 25A

26A 27A

L

10B 13A 13B 10C

5C

10D 13C 5D 13D 10E 23A 4G 17A 18A 4H 5E 22A

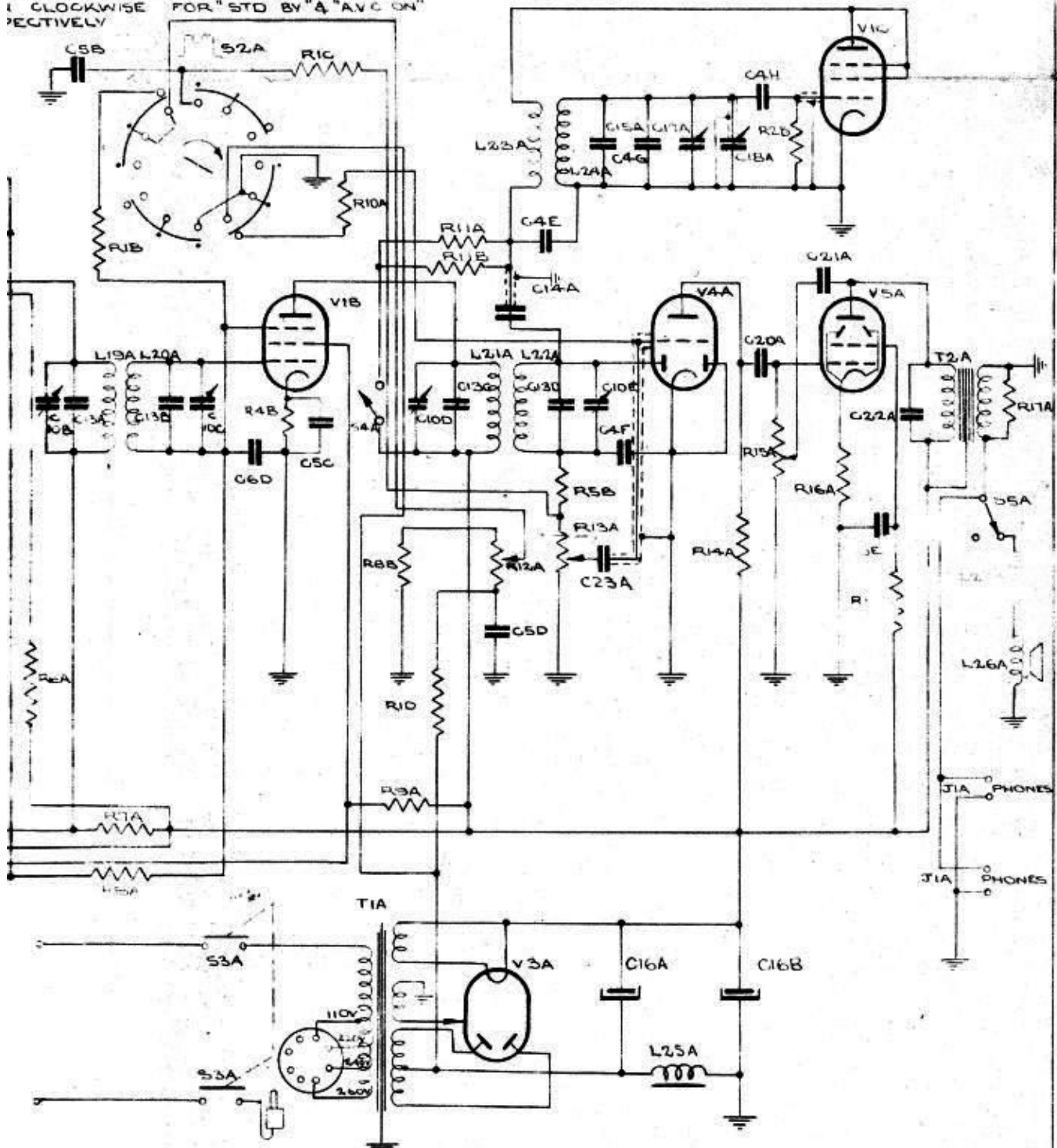
C

5B

6D

14A 4E 15A 4F 16A 16B 20A 21A 14A

SWITCH SHOWN IN "AVC OFF" POSITION  
CLOCKWISE FOR "STD BY A" "AVC ON"  
RESPECTIVELY



DESIGNED BY G16B.12.4.45

CIRCUIT DIAGRAM.

MODEL NO  
R 163

DRN.	
CHKD.	
APPR.	
DATE	13-5-45
DIR. NO	