TECHNICAL INFORMATION MODEL RAY

7 VALVE BANDSPREAD VIB. 1951

DESIGNED AND MANUFACTURED

by

RADIO (1936) LTD.

Power Supply	6v. Accumulator	Drain	A.Batt. 2.5 amps. PL's & M.E. F. On
Tuning Range	B/C 1600KC/S - 550KC/S	Speaker	8 H 10,000 ohms. C.T.
S.W. 21.5MC/S - 17.8MC/S — 15.2MC/S - 11.8MC/S		Power Output	2 watts. approx.
9.6MC/S - 7.15MC/S — 6.1MC/S - 3.75MC/S		I.F. Frequency	460KC/S

CIRCUIT DESCRIPTION:

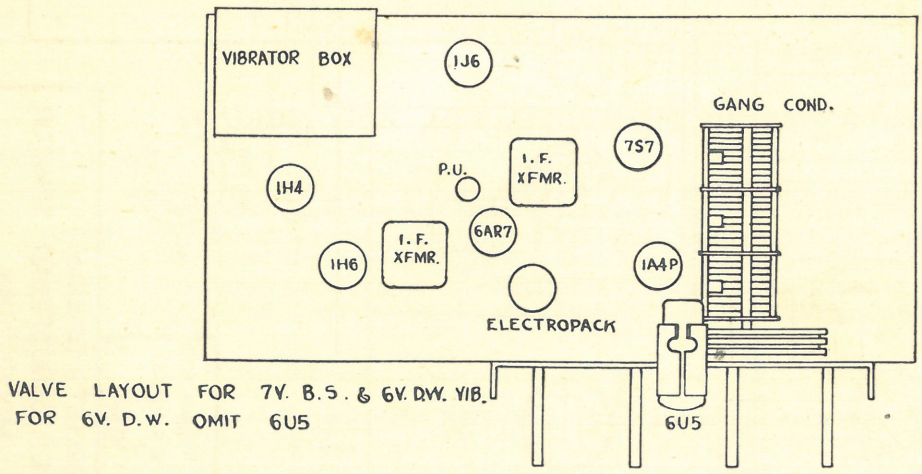
A type 1A4P valve, employed as a tuned R.F. Amplifier, is followed by a type 7S7 valve utilized as a Frequency changer, and is coupled to a type 6AR7GT valve by means of a High Gain Double Tuned Intermediate Frequency Transformer, and also combines the functions of Detection and A.G.C. source. A similar transformer couples the type 6AR7GT valve to a type 1H6 valve, which is coupled to a type 1H4 valve utilized as a Driver stage, which is transformer coupled to a type 1J6 valve operating as a class B power amplifier.

A synchronous type vibrator reed, in conjunction with a power transformer, resistance and capacitive filter, supplies the High Tension D.C. voltage.

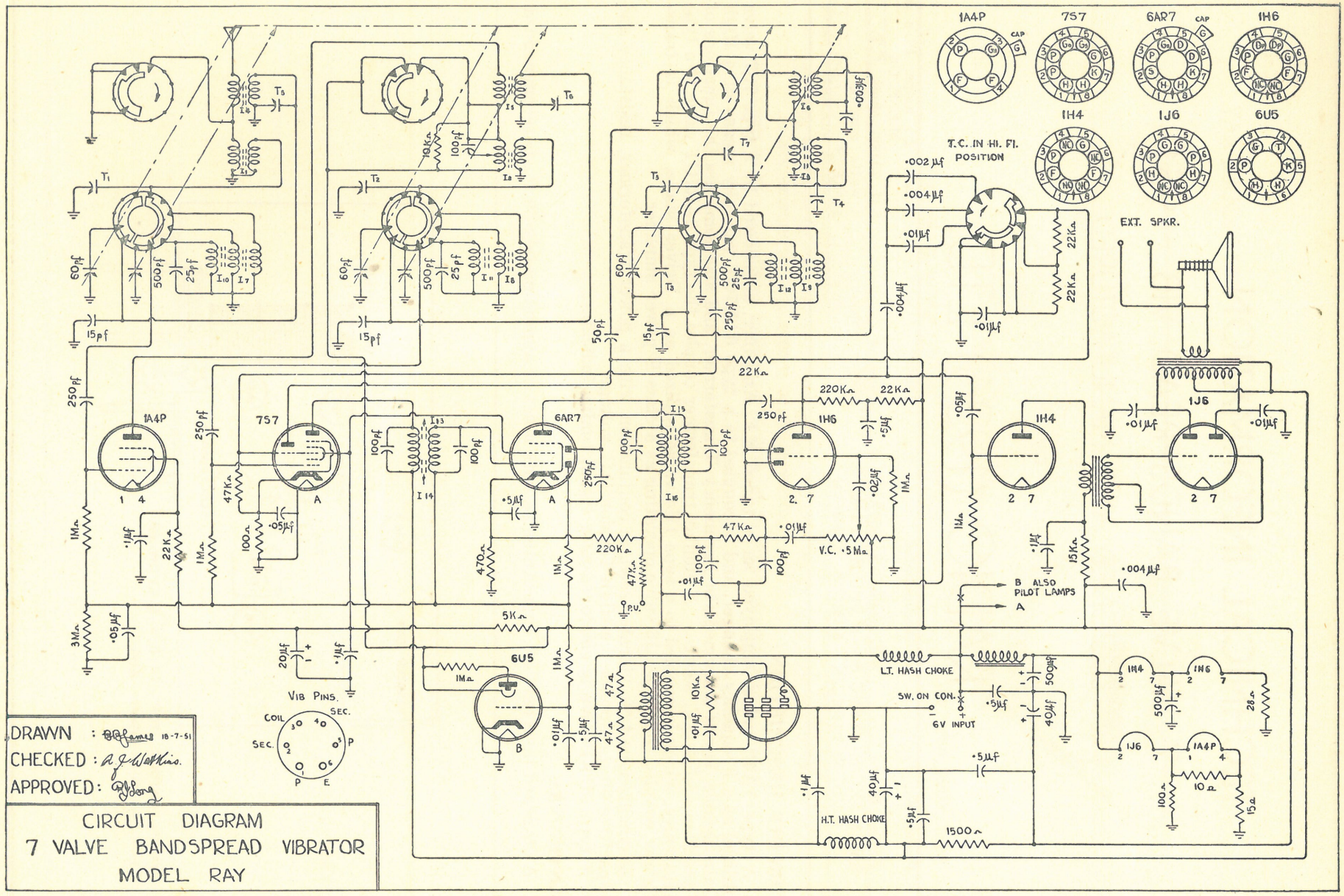
A type 6U5G valve is employed as a visual tuning indicator.

ANTENNA:

A standard inverted "L" Type Antenna, with a flat of approximately 30 ft., is recommended.



VALVE LAYOUT FOR 7V. B.S. & 6V. DW. VIB.
FOR 6V. D.W. OMIT 6U5



CIRCUIT DIAGRAM
7 VALVE BANDSPREAD VIBRATOR
MODEL RAY

VOLTAGES APPEARING BETWEEN VALVE PINS AND CHASSIS FRAME.

VALVE PIN No.----	1	2	3	4	5	6	7	8
144P R.F. Amp. ----	+ 3.8v.	+128v.	+ 72v.	+1.8v	–	–	–	–
7S7 Freq. Changer	+ 5.9v.	+150v.	+ 80v.	— 7v.	+95v.	—.5v.	+.8v.	0
6AR7GT I.F. Amp.	+ 5.8v.	0	+128v.	+90v.	+1.6v.	—.5v.	+2.1v.	0
1H6 Det- A.F. Amp.	0	+ 3.4v.	+ 70v.	0	0	0	+1.4v.	+70v.
1H4 Driver----------	+ 5.9v.	+ 5.5v.	+112v.	0	+1.4v.	0	+3.4v.	0
1J6 Power Amp. ----	0	+ 5.5v.	+148v.	0	0	+148v.	+3.6v.	+112v.

NOTE: D.C. Readings taken with a Vacuum Tube Voltmeter.
Receiver tuned off station.

D.C. RESISTANCES

Ant. Coil Prim.	18ohms	I.F. Prim. ----	10ohms	H.T. Hash Choke ----	2.3ohms
Ant. Coil Sec.	3.5ohms	I.F. Sec. ----	10ohms	L.T. Hash Choke ----	.25ohms
Det. Coil Prim.	10.0ohms	Power Xf. Prim.	.3 - .3ohms	L.T. Filter Choke ----	.5ohms
Det. Coil Sec.	3.5ohms	Power Xf. Sec.	120 - 120ohms	Interstage Xformer Sec.	450-450ohms
Osc. Coil Prim.	.9ohms	SPKR. Xf. Prim.	320 - 320ohms	Interstage Xformer Prim.	800ohms
Osc. Coil Sec.	2.75ohms	SPKR Xf. Sec.	.4ohms		

ALIGNMENT INFORMATION :

Adjust Vol. Control for Max. Gain.
Adjust Signal Generator output to no higher than necessary to obtain output meter readings.

DUMMY ANT.	Generator coupled to	Generator Freq.	Receiver Dial Setting	Adjust	Remarks	Approx. Sensitivity
.1ufd.	Grid 6AR7	460KC/S	550KC/S	I15 - I16 for Max.		7000 Microvolts
.1ufd.	Grid 7S7	460KC/S	550KC/S	I13 - I14 for Max.		50 Microvolts
Standard R.M.A.	ANT.	1400KC/S	1400KC/S	OSC. Trim. T3 for Max.		
„	„	1400KC/S	1400KC/S	AER & DET Trims. T1 and T2 for Max.		1 Microvolt
„	„	1000KC/S	1000KC/S			1 Microvolt
„	„	600KC/S	600KC/S	P. for Max.		1 Microvolt

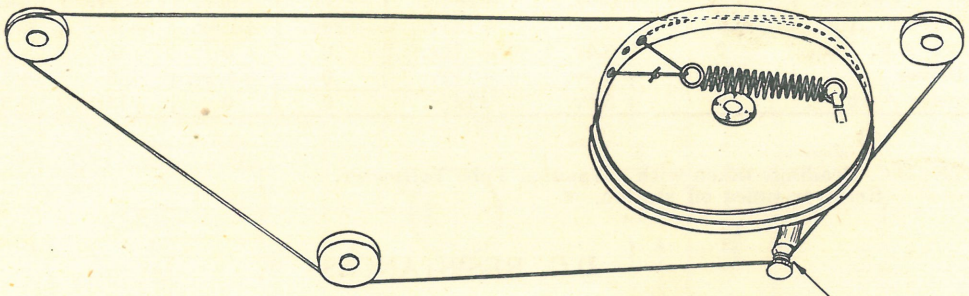
CALIBRATION AND ALIGNMENT OF S.W. BANDS.

CALIBRATION—

Band 2 — Set Signal Generator and Receiver Dial Freq. to 7.15MC/S and adjust Trimmer T7 for Max.
Set Signal Generator and Receiver Dial Freq. to 3.8MC/S and adjust Iron Core for Max.
Band 3 — Set Signal Generator and Receiver Dial Freq. to 11.8MC/S and adjust Trimmer T8 for Max.
Set Signal Generator and Receiver Dial Freq. to 9.6MC/S and adjust Iron Core for Max.
Band 4 — Set Signal Generator and Receiver Dial Freq. to 15.2MC/S and adjust Iron Core for Max.
Band 5 — Set Signal Generator and Receiver Dial Freq. to 21.5MC/S and adjust Iron Core for Max.

ALIGNMENT—

Band 2 — Set Signal Generator and Receiver Dial Freq. to 7.5MC/S and adjust Trimmers T5 and T6 for Max.
Set Signal Generator and R.D.F. to 3.8MC/S and adjust Iron Cores for Max.
Band 3 — Set Signal Generator and R.D.F. to 11.8MC/S and adjust Iron Cores for Max.
Band 4 — Set Signal Generator and R.D.F. to 15.2MC/S and adjust Iron Cores for Max.
Band 5 — Set Signal Generator and R.D.F. to 21.5MC/S and adjust Iron Cores for Max.



VIEW FROM UNDER CHASSIS

AMENDMENTS AND REMARKS:

(1) The 80M Trimmer T7 should be moved from contact shown to contact No. 2, which shows as a blank contact in Osc. section of W/C switch.

(2) Contacts No. 12 in lower sections of W/C switch in circuit diagram should be earthed.