

TECHNICAL INFORMATION

TYPE A.W. 99.

RECEIVER

COLLIER & BEALE LTD.

WELLINGTON

"RADION" ALL WAVE RECEIVER.

Technical details.

The New Radion All Wave Receiver, uses a total of 6 valves in the following arrangement.

One type 58 R.F. Amplifier.
One type 2A7 Oscillator & 1st. Detector.
One type 58 I.F. Amplifier.
One type 2B7 Diode Detector & Audio Amplifier.
One type 2A5 Power Amplifier.
One type 80 Power Supply Rectifier.

In this receiver use is made of the R.F. stage on both Broadcast, and 19-50 metre ranges, providing excellent short wave reception under almost any conditions of aerial effectiveness.

The Intermediate Frequency used, is 225 K.C. This has been chosen as representing a sufficiently great difference between Oscillator and R.F. sections to provide for a good image ratio, without unduly increasing the band width of the I.F. Amplifier. Higher Intermediate Frequencies give greater image ratios, but usually in domestic receivers show a very broad amplifier characteristic. Adjustment of the I.F. amplifier should under no conditions, be altered from 225 K.C.

Alignment. Separate H.F. Trimmers are provided for all Bands. Those for the Broadcast band are the usual type on the gang condenser, while the short wave adjustments are located underneath the chassis. It should be noted that an adjustment made to the gang condenser trimmers will have a very great effect on the short wave sections. Normally these adjustments should not require alteration, and unless a full knowledge of the operation of these is available, alteration of the factory adjustment should not be attempted.

There are two further capacities, C. 1 and C. 4, which are for providing the correct amount of antennae coupling to the 19-50 and 80 metre bands. There is a certain latitude of adjustment in these capacities, and may under certain conditions be altered for widely different aerial lengths. The normal factory adjustment however should be satisfactory under all conditions. Most cases of irregular operation can be traced to defective valves, and replacement should be made before attempting adjustment.

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13/7/34.

COMPONENT DATA ON "RADION" ALL WAVE RECEIVER.

Condensers.

C.	1	19-50 metre Antennae Coupling.	30-50 mffd.
C.	2	" " R.F. Trimmer	" "
C.	3	" " Interstage Trimmer.	" "
C.	4	80 metre Antennae Coupling.	" "
C.	5	19-50 metre Oscillator Trimmer	" "
C.	6)		
C.	7)	3 Gang Condenser.	.00037 mfd.
C.	8)		
C.	9	80 metre Padding.	.002 mfd.
C.	10	Broadcast Padding.	-
C.	11)		
C.	12)	19-50 metre Padding.	- 1.005 1.002 = 007.
C.	13	A.V.C. Filter	.02 mfd.
C.	14	R.F. Stage Cathode by-pass.	.1 mfd.
C.	15	H.T. to ground	.1 mfd.
C.	16	Oscillator grid condenser.	.00025 mfd.
C.	17	R.F. I.F. & 1st Detector Screens.	.25 mfd.
C.	18	I.F. & 1st Detector Cathode by-pass.	.25 mfd.
C.	19	A.V.C. Filter	.02 mfd.
C.	20	Diode Load by-pass.	.00025 mfd.
C.	21	2B7 R.F. Plate Filter	.00025 mfd.
C.	22	2B7 Audio plate filter.	.25 mfd.
C.	23	Pentode Bias Filter	.1 mfd.
C.	24	Coupling Condenser	.01 mfd.
C.	25	Tone Control Condenser.	.05 mfd.
C.	26	2-B7 Screen to ground	.05 mfd.
C.	27	Insulated Electrolytic.	8 mfd.
C.	28	Grounded "	8 mfd.

(2)

Resistances.

R. 1	Audio Plate Filter.	.5 megohm.	$\frac{1}{2}$
R. 2	R.F. Bias Resistance.	600 ohms.	$\frac{1}{2}$
R. 3	Screen Voltage Potentiometer.	15,000 ohms.	$\frac{2}{2}$
R. 4	Screen Voltage Potentiometer.	15,000 ohms.	$\frac{1}{1}$
R. 5	Oscillator grid leak.	75,000 ohms.	$\frac{1}{2}$
R. 6	I.F. & 1st. Detector Bias Resistance.	300 ohms.	$\frac{1}{2}$
R. 7	A.V.C. Filter	1 megohm.	$\frac{1}{2}$
R. 8	2B7 Screen Feed Resistance.	1 megohm.	$\frac{1}{2}$
R. 9	2B7 Audio plate filter.	.1 megohm.	$\frac{1}{2}$
R. 10	2B7 Plate Load-Resistance.	.25 megohm.	$\frac{1}{2}$
R. 11	Pentode Grid Leak.	1 megohm.	$\frac{1}{2}$
R. 12	Grid Bias Filter	.5 megohm.	$\frac{1}{1}$
R. 13	Grid Bias Potentiometer.	.5 megohm.	$\frac{1}{2}$
R. 14	" "	75,000 ohms.	$\frac{1}{2}$
R. 15	Diode Load Resistance Volume Control	.5 megohm.	72105
R. 16	Tone Control.	.1 megohm.	72104

VOLTAGE DETAILS.

Measured with .25 megohm Voltmeter, Receiver in Broadcast Position.

Line voltage, 230v. 50 cycles.

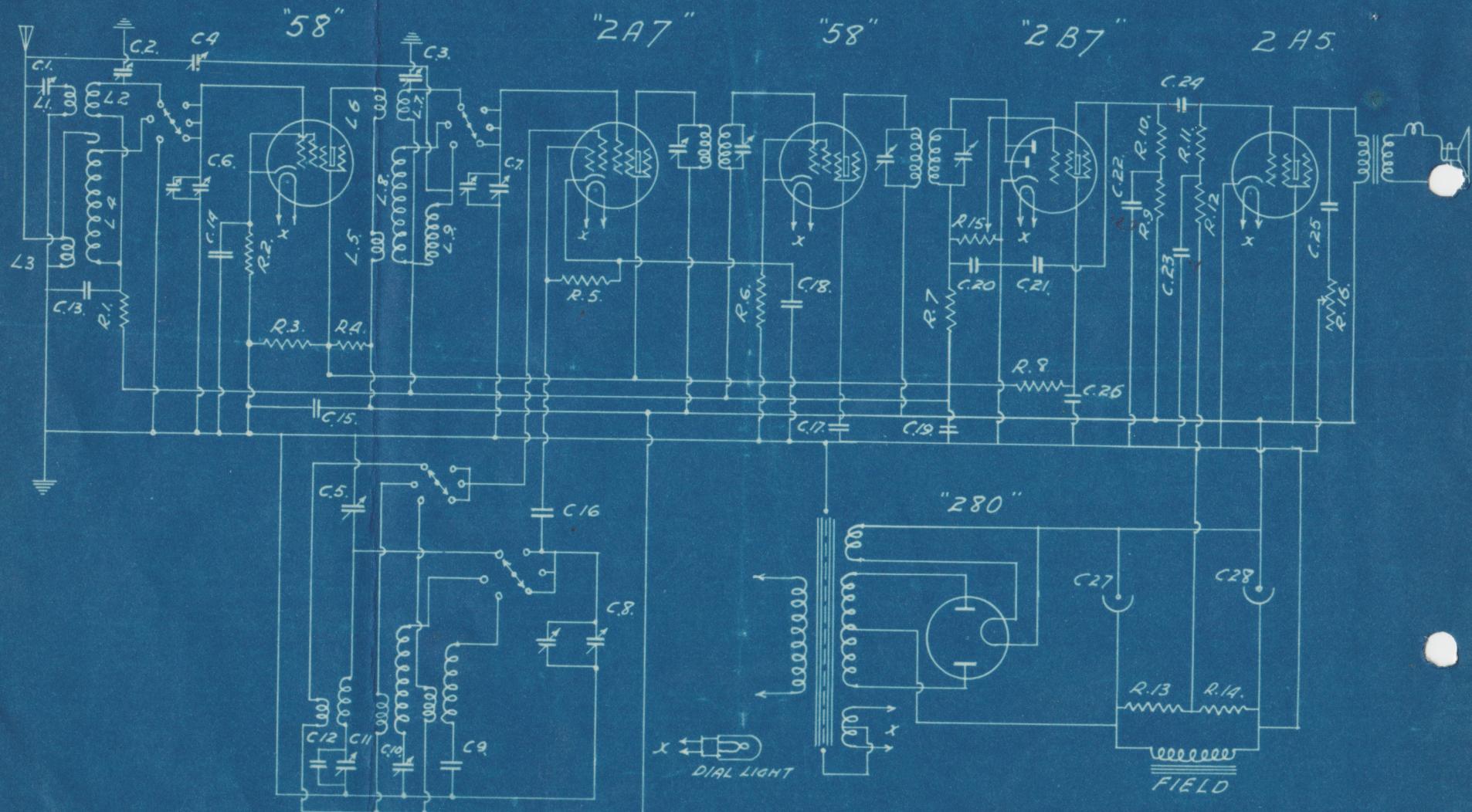
Speaker field, 130v. Main H.T. 240v.

R.F. I.F. & 1st.Det.Screens, 90v. 2B7 Screen 8v.

2B7 Plate, 50v. R.F.Cathode 3.8v,

I.F. & 1st Detector Cathode 3.8v.

"RADION" ALL WAVE RECEIVER



TF 225. K.C.