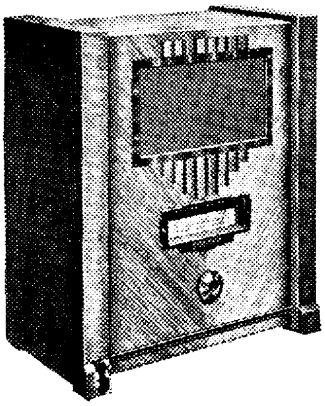
REGENTONE QUADRADYNE



A straight "four" circuit with metal rectification is utilised in the Regentone Quadradyne.

Circuit.—The first H.F. valve, VM4V (V1), is preceded by a loose-coupled aerial transformer with tuned secondary. The volume control circuit consists of a variable resistance and a series bias-limiting resistance which are common to both H.F. valves.

To increase and stabilise the current flowing through the biasing circuit a 50,000-ohm resistance is connected between H.T.+ and the cathodes. The anode of the first valve is decoupled, and the condenser is taken to cathode instead of chassis. Tuned secondary transformer coupling is used to the next valve.

The second H.F. valve, VM4V (V2), is coupled to the detector by a similar tuned secondary transformer.

The detector valve, SP4 (V3), is an H.F. pentode, working on the anode-bend principle. Pick-up connections are included in the cathode lead, and a short lead with a wander-plug is used to connect the low H.T. potential end of the cathode circuit to earth.

Resistance capacity coupling is employed, the resistance being .25 meg. with a decoupling resistance of 100,000 ohms. The screen potential is obtained through a 2-megohm resistance.

The output valve, Pen 4VA, a seven-pin pentode, has a tone control condenser operated by a switch connected between the grid and earth.

Full-wave metal rectification is on the voltage doubler principle, and the LS field is in the positive H.T. lead, with 8-mfd. electrolytic condensers as smoothing.

Special Notes.—When the set fails to operate first, see that the black wander-plug at the back is in the right-hand P.U. socket (looking from the back).

When this is out the detector cathode circuit is broken and, as there are very high resistances in the anode lead and there will be a considerable voltage across them, even with a high resistance meter, the reading obtained may lead one to suppose the valve is drawing current.

Quick Tests.—Between two joined top terminals of output transformer and chassis, 230 volts (H.T. smoothed).

Between third terminal and chassis, 210 v. (V4 anode).

Between lowest terminal and chassis, 330 v. H.T.+ unsmoothed.

Removing Chassis.—The receiver is in two sections, consisting of (1) the H.F. and detector valves on one large chassis, and (2) the output valve and mains equipment on the smaller chassis. Both are bolted to a wood baseboard, and must be removed together.

Remove six countersunk screws from flat section of bottom of cabinet (the screw holding the cleat for the mains lead will hold the chassis securely when the cabinet is lying on its side).

Remove the screw holding the cleat between the two chassis, and unscrew the wave-change switch lever (below VC).

Remove the tuning knob (grub screws) and manœuvre the chassis out past the volume control. The leads to the latter and the speaker are sufficiently long to allow testing when they are connected.

To examine either of the chassis, remove the four screws holding it to the baseboard. The connecting leads between the chassis are also long.

(Continued on next page.)

VALVE READINGS

V.C. max, no signal.

Valve.	Type.	Electrode.	Volts.	M.A.
1	VM4V	anode ...	225	4
		screen ...	90	—
2	VM4V	anode ...	230	4
		screen ...	90	—
3	SP4*	anode	—	.1-.2
4	Pen4VA	anode ...	207	30
		aux. grid ...	230	5

* Anode bend detector with high resistances in circuit causes entirely misleading readings even with high resistance meters.

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General Notes.—The fact that there are two chassis complicates their removal, but the leads between them are straightforward: heaters, earth, H.T.+ and X the lead from .015 L.F. coupling condenser, C11, to the grid of the output valve.

The leads to the volume control are taken from chassis and from R1.

Switches are opposite their respective coils and though that for the second H.F. trans-

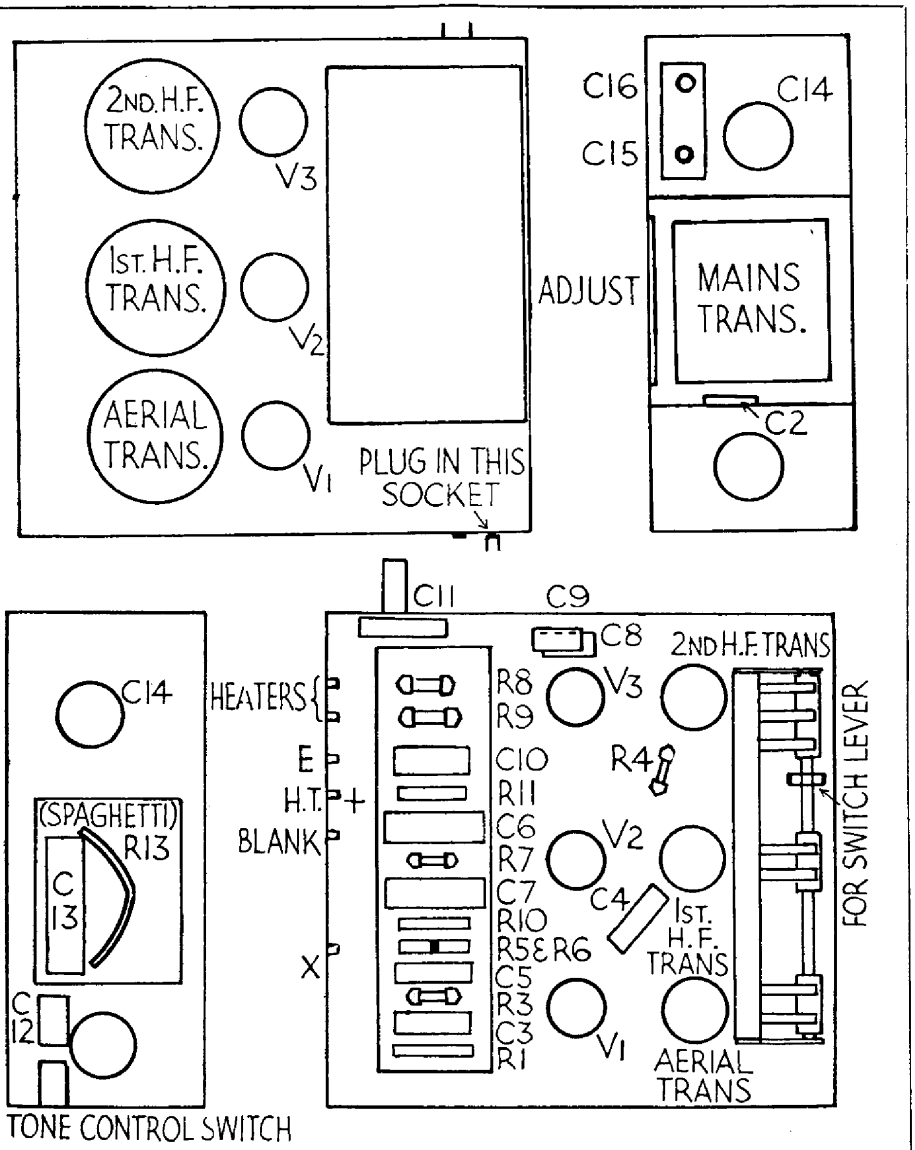
(*Continued on opposite page.*)

CONDENSERS

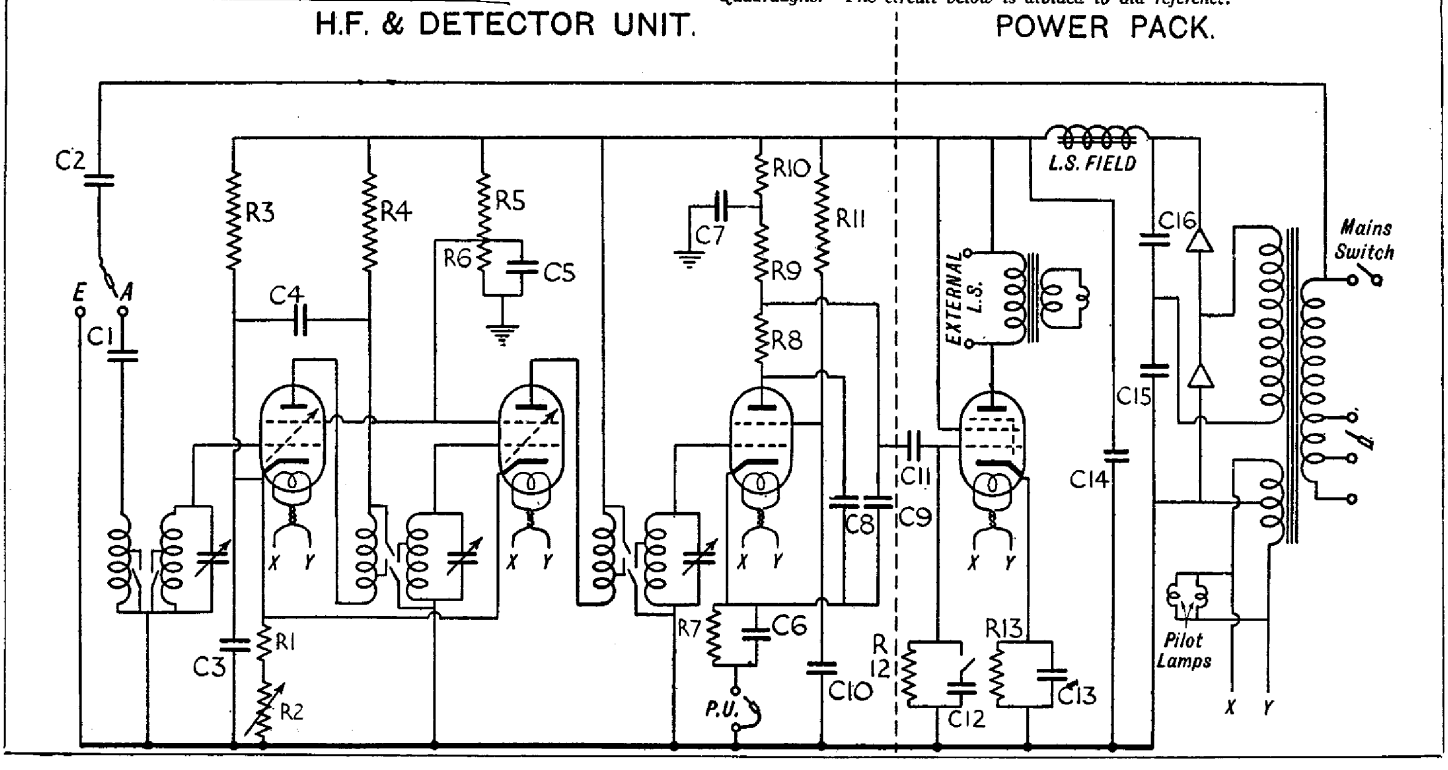
C.	Purpose.	Mfd.
1	Aerial series condenser ...	.0001
2	Mains aerial	.0001
3	V1 and V2 cathodes	.1
4	V1 anode decoupling	.1
5	V1 and V2 screens	.1
6	V3 cathode	.5
7	V3 anode decoupling	.5
8	V3 anode by-pass	.001
9	Tone compensation between V3 and V4	.0005
10	V3 screen	.1
11	L.F. coupling V3, V4	.015
12	Tone control grid V4	.002
13	V4 cathode	.5
14	Smoothing (electrolytic) ...	8
15, 16	Smoothing in voltage doubler circuit	8

RESISTANCES

R.	Purpose.	Ohms.
1	Bias limiting in cathodes V1 and V2	120
2	Variable bias resistance V1 and V2 (V.C.)	5,000
3	Increasing current through R1 and R2	50,000
4	V1 anode decoupling	2,000
5	Top part of screening grid ptr.	50,000
6	Lower part of screening grid ptr.	
7	V3 cathode bias	5,000
8	H.F. stopper V3 anode ...	15,000
9	L.F. coupling V3, V4	250,000
10	V3 anode decoupling	100,000
11	Voltage dropping to V3 screen	2 meg.
12	V4 grid leak	1 meg.
13	V4 cathode bias	340
—	Field coil	2,000
—	Output transformer primary ...	730



The four drawings above are top and bottom "views" of the two chassis of the Regentone Quadradyne. The circuit below is divided to aid reference.



QUADRADYNE FOUR BY REGENTONE (Cont.)

former has three contacts, only two are actually used.

The condensers, C15 and C16, are of the small electrolytic type in a green container on which the terminals are positive, while the negatives are connected to black leads alongside their corresponding positive terminals.

In our model the values of two of the components were different from those given by the manufacturers—R7 was 10,000 ohms, instead of 5,000, as given; R11 was 1 megohm, instead of 2 megohms.

The leads from the mains transformer were coloured as follows:—Underneath, electrolytic condenser side: two dark red, set heaters with black as centre tapping; two silk-covered stranded wires in thick systoflex, ends of high voltage secondary (the joint of the lead from C15 is inside the systoflex).

At the V4 end: buff lead to switch; green, 200 v. tap; red, 220 v. tap; black, 240 v. tap.

Replacing Chassis.—Before laying the chassis on the baseboard take the mains lead underneath the power chassis to its original position.

Replace the bolts holding the chassis to the baseboard and slide the assembly into the cabinet. The best method appears to be to slide it in at an angle, so that the coil can is just clearing the volume control when the condenser drive spindle is at the side of the aperture. Hold the V.C. leads and mains switch leads clear of the front of the chassis.

Replace the woodscrew holding the cleat on the mains lead. This holds the baseboard firmly to the cabinet, so that the set can be laid on its side without danger of the chassis slipping.

Screw in the wave change switch lever. In our model there was no additional grub screw holding the collar to the switch spindle, and as the position of the switch was uncertain one or two trials were required to obtain the correct position.

Replace the six woodscrews underneath the cabinet, and replace the tuning knob.