

P.A. 6 SUPERHET BY PORTADYNE

Circuit.—The H.F. valve VP4 met. (V1) is preceded by a frame aerial, of which the long wave section is short-circuited when the medium waveband is required. Coupling to the next valve is by tuned anode coil. Bias is partly fixed by cathode resistance and partly obtained from the A.V.C. line.

The first detector oscillator AC/S2/Pen. (V2) operates with cathode injection with the tuned oscillator coil in series with the I.F. transformer primary. (I.F. 112 K.C.).

The I.F. coupling is a band-pass I.F. transformer.

The I.F. valve VP4 met. (V3) is biased partly by fixed cathode resistance and partly from the A.V.C. line, and is coupled to the next valve by another band-pass L.F. transformer.

A double diode triode, TDD4 (V4), utilises one diode anode for L.F. purposes, and the other for A.V.C. The latter is fed through a condenser from the anode of the I.F. valve. Coupling to the triode grid is through the H.F. filter R12, C10, C11, and the coupling condenser C9 to the grid leak R13. The P.U. is connected directly between the grid and chassis.

The triode anode coupling consists of a resistance with a special tone-correction circuit between the anode and chassis, followed

by the coupling condenser and grid leak, the latter being in the form of a variable potentiometer volume control.

The output pentode AC21 Pen has both grid and anode stabilising resistances, and is compensated by a condenser between anode and cathode, and another between anode and chassis.

Mains equipment consists of transformer, full-wave IW3 indirectly heated rectifier, with the L.S. field in the positive H.T. lead for smoothing in conjunction with 4 mfd. and 8 mfd. electrolytic condensers.

Special Notes.—Resistances, R4 and R27, are connected across the long-wave

windings of the tuned anode coil and the frame aerial respectively.

The tone control switch (at bottom of cabinet) connects the condenser C19 between the grid of V5 and chassis.

The noise suppressor switch at the side of the cabinet changes the return lead of the diode anode load from cathode to chassis, thereby causing a delay bias to be applied to the L.F. signal diode.

Quick Tests.—Between the following terminals on the L.S. transformer and chassis, counting from top:—

- (1) Maroon, 335 volts H.T. unsmoothed.
- (2) and (3) joined, buff, 230 H.T. smoothed.
- (4) 200, V5 anode.

Removing Chassis.—Unsolder the leads to the tone control switch and remove the four holding screws. Unscrew the one hole fixing nut of the noise suppressor switch and remove the switch.

Undo the knobs, (two grub screws) and remove the three screws holding the dial frame to the cabinet. Lift the chassis out carefully.

Removing Frame Aerial.—To reach many of the components it is necessary to remove the frame aerial. Unsolder the leads

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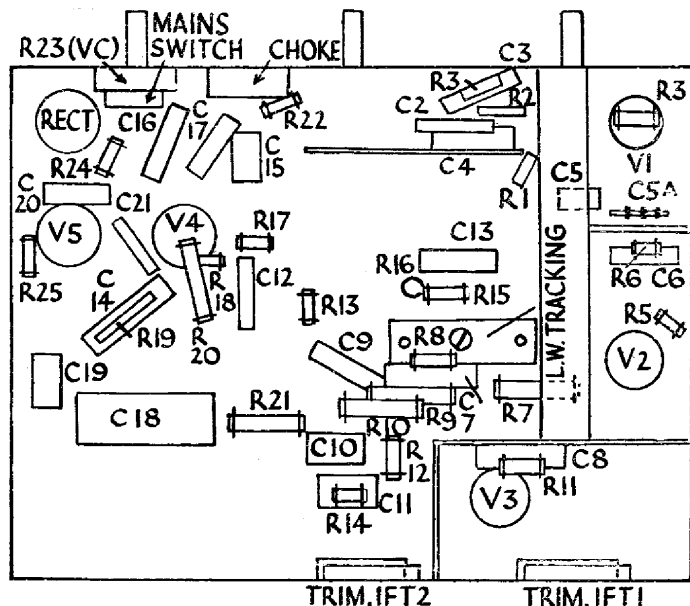
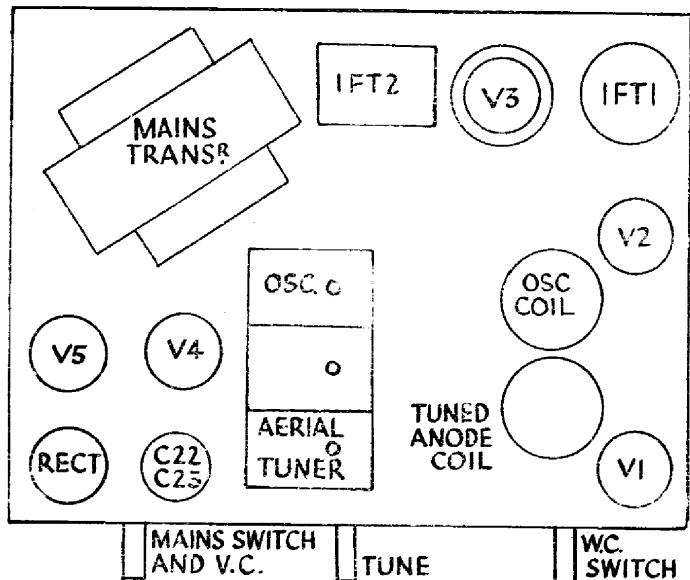
VALVE READINGS

[No signal.]

Valve.	Type.	Electrode.	Volts.	Ma.
1	VP4 met.	anode ...	165	1.6
		aux. grid ...	45	
2	ACS2 Pen. met.	anode ...	165	1.3
		screen ...	35	
3	VP4 met.	anode ...	165	3.5
		aux. grid ...	70	
4	TDD4 met.	anode ...	110	1.6
		anode ...	200	
5	AC2 Pen.	anode ...	200	29
		aux. grid ...	230	

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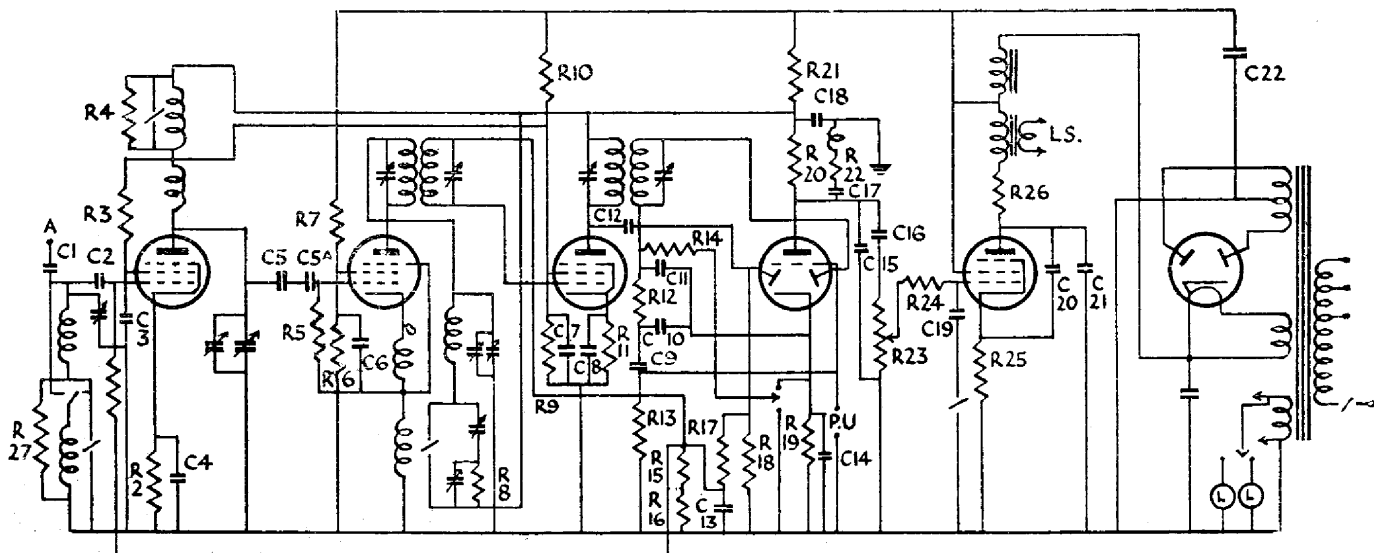
CONDENSERS

C.	Purpose.	Mfd.
2	V1 grid001
3	V1 aux. grid1
4	V1 cathode1
5	Coupling V1 to V20001
6	V2 screen ... ..	.1
7	V3 aux. grid ... ..	.1
8	V3 cathode ... ..	.1
9	L.F. coupling to V4 grid ... ..	.1
10	H.F. filter ... ..	.0001
11	H.F. filter ... ..	.0001
12	Coupling to AVC diode ... ..	.0001
13	Decoupling AVC line ... ..	.1
14	V4 cathode ... ..	.1
15	V4 anode by-pass ... ..	.0005
16	L.F. coupling V4 to V5 ... ..	.1
17	Part of tone correction circuit ... ..	.02
18	Decoupling V4 anode lead	2
19	Tone control (to switch) ... ..	.001
20	V5 anode, tone compensating ... ..	.005
21	V5 anode, tone compensating ... ..	.002
22	H.T. smoothing	8 el.
23	H.T. smoothing	4 el.

RESISTANCES

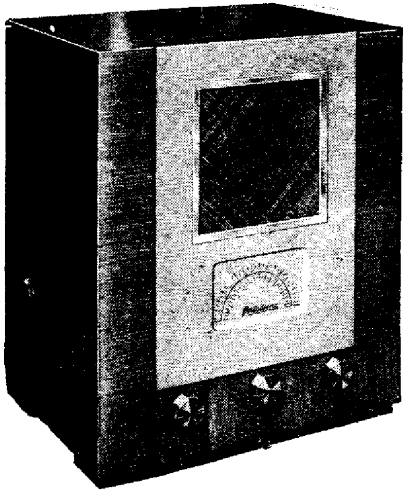
R.	Purpose.	Ohms.
1	V1 grid leak	1 meg.
2	V1 cathode bias	600
3	Decoupling V1 aux. grid	30,000
4	Across L.W. tuned anode coil	100,000
5	V2 grid leak	250,000
6	Lower part of V2 screen ptr.	10,000
7	Upper part of V2 screen ptr.	50,000
8	Across L.W. padding condenser	10,000
9	Lower part of V1 and V3 aux. grid. ptr.	25,000
10	Upper part of V1 and V3 aux. grid. ptr.	30,000
11	V3 cathode bias	300
12	H.F. stopper	50,000
13	V4 grid leak	1 meg.
14	Diode load ... ..	.5 meg.
15	Part of AVC ptr.	100,000
16	Part of AVC ptr.	30,000
17	Decoupling AVC line	1 meg.
18	AVC diode load	1 meg.
19	V4 cathode bias	1,000
20	V4 anode coupling	30,000
21	V4 anode decoupling	8,000
22	Part of tone correction circuit	15,000
23	V5 grid leak (var. V.C.) ... ..	.5 meg.
24	V5 grid stabiliser	100,000
25	V5 cathode bias	150
26	V5 anode stabiliser	300
27	Across L.W. frame aerial	30,000
—	L.S. field	2,000

Above are the chassis layouts of the Portadyne P.A.6, and below is the circuit diagram. Practically all the resistances and condensers are suspended in the wiring.



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(Continued from opposite page)

*The Portadyne P.A.6.*

to the speaker. Top (1), maroon; (2) and (3) (strapped), buff; (4), black.

Unsolder the leads to the frame aerial, counting from the back:—(1) black; (2) blue; (3) green; (4) yellow.

Remove the two screws at each end of the two plates across the chassis and two screws from each side of the frame aerial (these are screwed into the narrow flanges at the ends of the chassis).

Remove frame by easing it forward, taking care that the loose connecting wires from the chassis do not get into the frame aerial.

General Notes.—The condenser C5a consists of twisted wire adjusted to a particular value of 25 mfd., and is wound on a former between V1 and V2. Care should be taken to ensure that this is not disturbed.

The majority of the light components are suspended in the wiring.

Replacing Frame Aerial and Chassis.—Slip frame carefully on to chassis from the front, and replace two holding screws on the flange at each end of the two plates. Replace the two screws at each side.

Take the frame aerial leads up inside the frame aerial and resolder in the right order.

Take the leads to the tone control switch (one white, one blue, screened) inside the frame aerial so that they project from the front corner at that end.

Holding the L.S. leads over the chassis, slide the latter half-way into position (top leading). Push the tone control leads through the corner hole.

Push the chassis home, and replace the holding screws and solder the L.S. and the tone control leads. Replace the three wood screws on the dial frame.