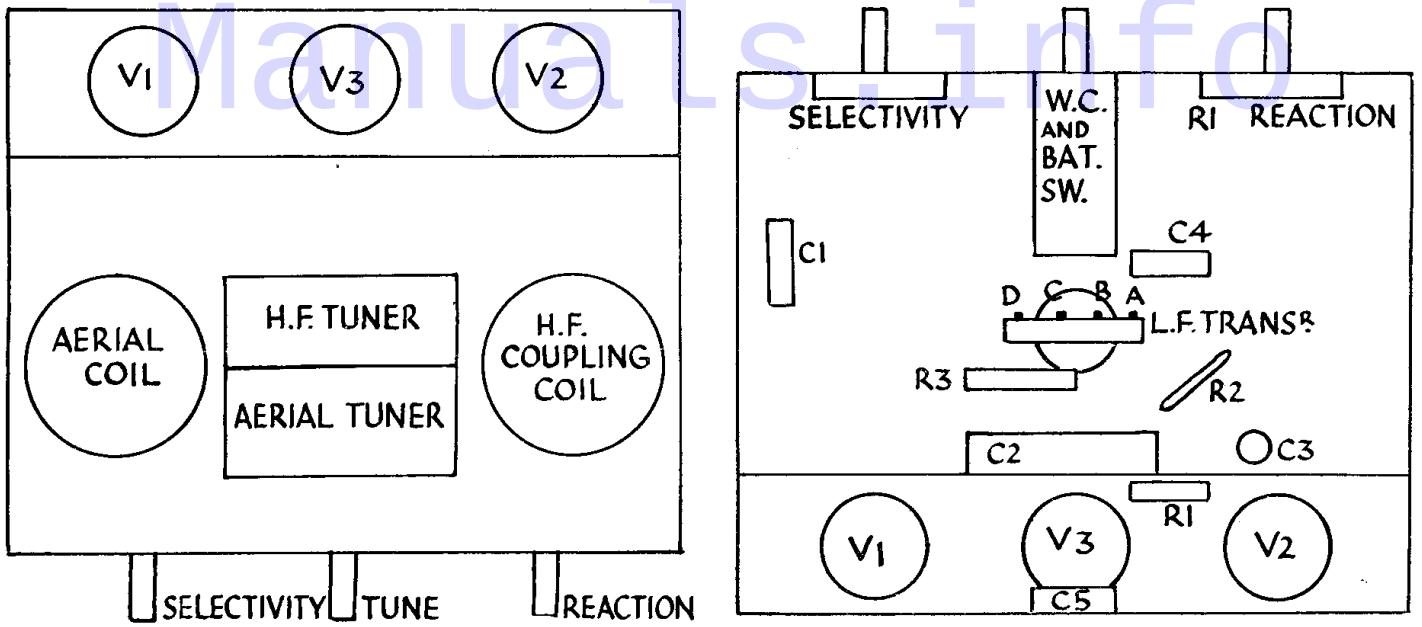
VIDOR BATTERY THREE (Continued)



These two diagrams indicate how the components are situated above (left) and below (right) the chassis of the three-valve battery set produced by Vidor Ltd. Stepped chassis construction is used and the small components are suspended on the wiring.

wave change switch breaks only the L.T.– connection.

Special Notes.—This is a perfectly straightforward set and is a useful subject for the beginner.

Battery connections are :—H.T.1, 80; H.T.2, 50 to 60; H.T. max., 120; G.B.–, 3 to 4½ volts negative.

Quick Tests.—Total H.T. consumption, taken in H.T.– lead is 9 m.a. approx. Any reading substantially greater than this may be caused by a disconnection inside the G.B.– (yellow) plug. See that the metal plug is actually making contact with the bare section of the wire.

Removing Chassis.—Remove the knobs (grub screw). Remove one screw underneath the cabinet and two round-headed screws from the back of the chassis (inside). Undo the two cleats holding the leads on each side.

To remove the chassis properly it is necessary either to unsolder the L.S. leads or to remove the battery platform by easing it up with a screwdriver.

General Notes.—On the switch the three pairs of contacts are :—

Front.—Aerial coil.
Middle.—L.T. battery.
Rear.—Tuned anode coil.

If crackling, not due to a run-down H.T. battery or to dirty leads, is experienced, contacts should be cleaned by inserting a thin screwdriver with a piece of clean cloth round it between the contacts which are visible from the aerial-coil side of the chassis.

The condenser C5 may be connected to chassis instead of to H.T.+.

The connections on the parallel fed L.F. transformer are (see diagram) :—A and B primary, C and D secondary. A is connected to D and to G.B.–.

The selectivity control condenser and the reaction condenser are each .0005 mfd.

Replacing Chassis.—Lay chassis inside cabinet, replace two screws inside and one underneath. Replace the knobs and the cleats holding the leads.

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 1W3 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

(*Continued on page 143.*)

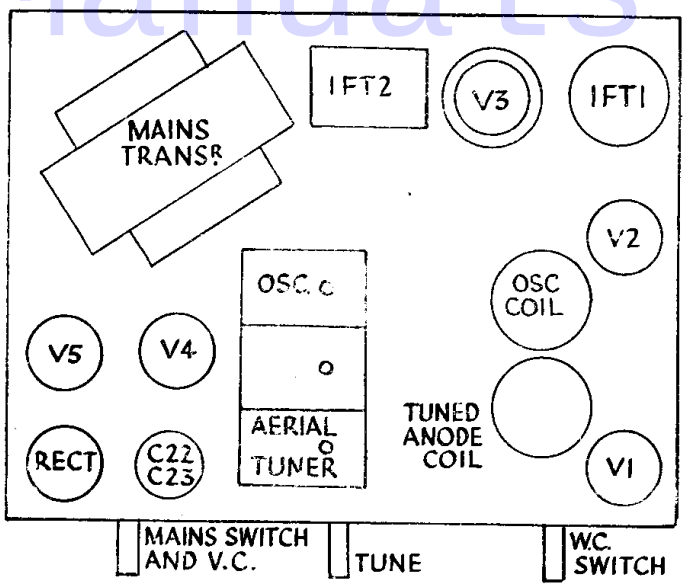
VALVE READINGS

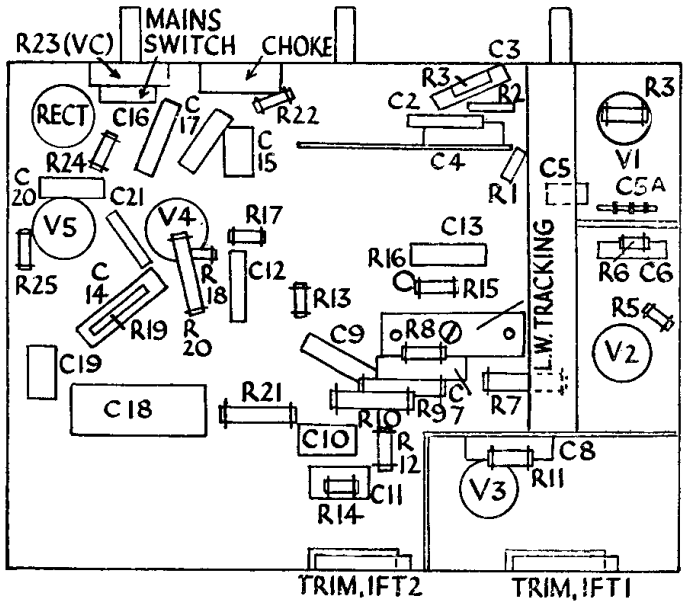
[No signal.]

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
5	AC2 Pen.	anode ...	200	29
		aux. grid ...	230	5.8

PORTADYNE P.A.6 MAINS TRANSPORTABLE

(Continued from previous page)





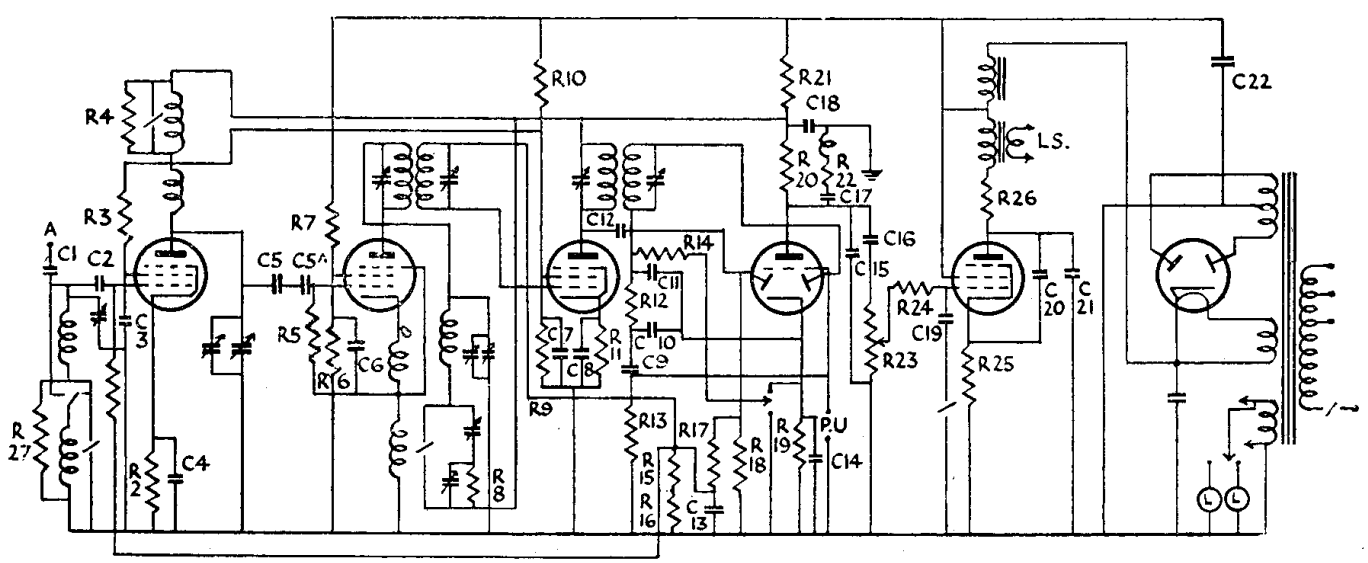
CONDENSERS

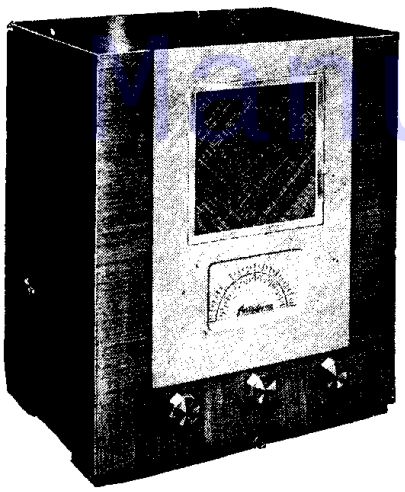
C.	Purpose.	Mfd.
2	V1 grid	.001
3	V1 aux. grid	.1
4	V1 cathode	.1
5	Coupling V1 to V2	.0001
6	V2 screen	.1
7	V3 aux. grid	.1
8	V3 cathode	.1
9	L.F. coupling to V4 grid ...	.1
10	H.F. filter	.0001
11	H.F. filter	.0001
12	Coupling to AVC diode ...	.0001
13	Decoupling AVC line	.1
14	V4 cathode	.1
15	V4 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 anx. 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.





The Portadyne P.A.6.

PORTADYNE P.A.6 MAINS TRANSPORTABLE

(Continued from opposite page)

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.

BURGOYNE BATTERY SUPERHET 5

Circuit.—The combined detector oscillator, SP2 met. (V1), is preceded by a band-pass aerial coupling with optional inputs to the grid provided by taking the grid lead to a tapping on a potentiometer, R1 and R2, across the input coil.

Oscillation is maintained by coupling coils in the filament leads, while the primary of the first intermediate transformer acts as an H.F. choke. The intermediate frequency is 117.5 kc.

The I.F. valve, VP2 met. (V2), has a resistance, R5, in series with the grid return lead to act as an H.F. stopper, and volume is controlled by a potentiometer across the G.B. battery with damping of the aerial circuit as bias is increased.

Coupling to the next valve is by a second band-pass I.F. transformer.

In the second detector position a PM1HL met. (V3) operates as a leaky grid detector with a low value of grid condenser. Fixed reaction is applied to the grid coil by means of a condenser in series with a reaction coil. Coupling to the next valve is by auto-coupled transformer.

The driver valve, PM2DX met. (V4), has an H.F. stopping resistance in the grid lead with a by-pass condenser to chassis. It is coupled to the output valve by a typical Class B. transformer.

The Class B. output valve, PM2B, is compensated for top note distortion by a condenser between the anodes.

By-pass condensers are connected both across the H.T. and the L.T. batteries, and the H.T.— lead is fused.

Special Notes.—Battery connections :—Drydex S.48— H.T.+ 1, 85 volts; H.T.+ 2, 120 volts. G.B.— 1, 1.5 volts; G.B.— 2, 9 volts.

Quick Tests.—These consist of routine tests of the batteries and valves with observation of the "plops" produced.

Removing Chassis.—Remove knobs (grub screw) and the one-hole fixing nut of the switch. To remove the H.T. battery slide out the shelf above it. Remove the four wood screws at the ends of the back of the chassis and lift the chassis out.

If work has to be done, the leads from the speaker should be unsoldered.

General Notes.—The block condenser, C7, has four terminals. The outer two are joined, as are the inner two, the former being earthed.

The connections on the driver transformer are not labelled. Two underneath are the ends of the primary, and the two on top are the ends of the secondary, while the centre tapping on the secondary is soldered to the casing.

The oscillator tracking condenser is in two parts, one fixed and the other semi-variable. The variable section can be adjusted from above the chassis, and is situated between the ganged condensers and the band-pass coils.

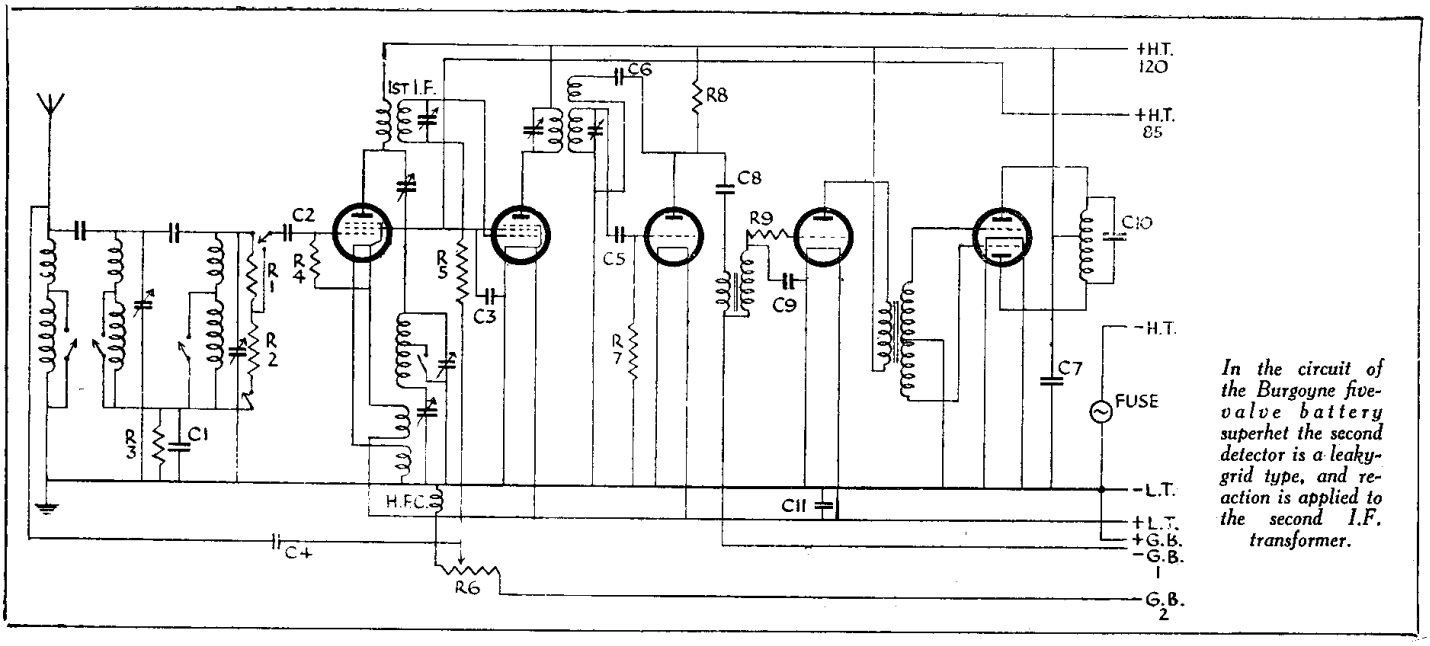
Replacing Chassis.—Lift chassis into position. Replace one-hole fixing screw and, after replacing the four wood screws, replace the knobs.

(*For lay-outs and tables, see next page.*)

VALVE READINGS

[No signal.]

Valve.	Type.	Electrode.	Volts.	Ma.
1	SP2 (7) ...	anode ...	120	1
		aux. grid ...	83	
2	VP2 (7) ...	anode ...	120	1
		aux. grid ...	83	
3	PM1HL (4)	anode ...	65	2
4	PM2DX (4)	anode ...	118	4.7
5	PM2B (7) ...	each anode	118	.85



In the circuit of the Burgoyne five-valve battery superhet the second detector is a leaky-grid type, and reaction is applied to the second I.F. transformer.