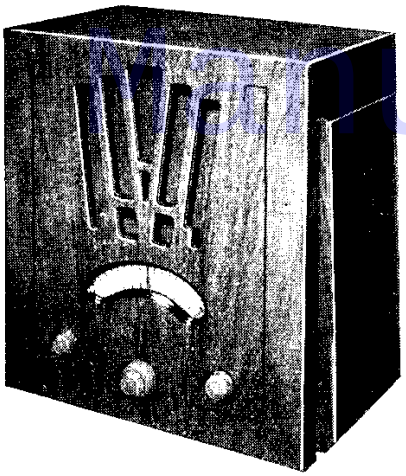


A self-contained battery portable, the P.B.5 is a product of Portadyne Radio, Ltd. It is fitted with a moving-coil speaker and the controls include a local-distance switch.

(Continued from previous page.)

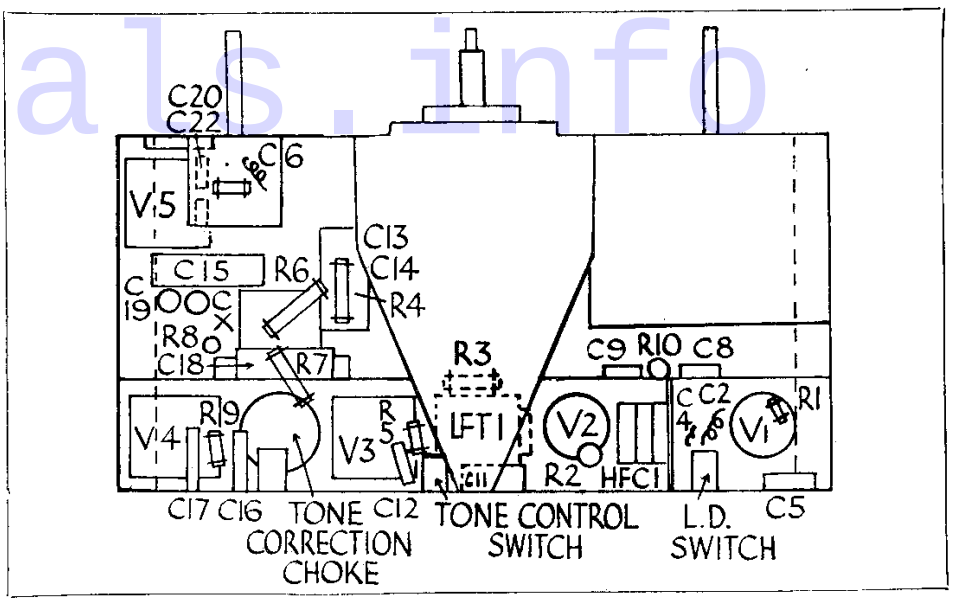
GB battery to compensate for drop in H.T. volts.

Quick Tests.—With m.a. meter in negative H.T. lead :—

Current with no signal ... 7 m.a.
,, ,, moderate signal 8 ,,
,, ,, loud signal ... 10-12 m.a.

Removing Chassis.—Remove knobs (grub screw), four wood screws underneath cabinet, battery platform and brackets, and slide chassis out complete with frame aerial.

Unsolder the two frame aerial leads on left hand side (looking from rear) (top yellow, bottom red), and the screened lead from the tag on the right-hand side. Unsolder speaker leads.



As the top-deck layout of the P.B.5 is straightforward only the underneath plan is given above.

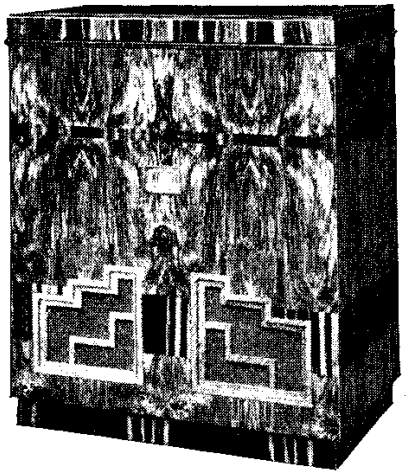
Remove four screws holding chassis to base of frame, and lift chassis out carefully. Remove screen on switch side.

If any of the components on the inside of the chassis have to be repaired, it is more convenient to remove the gang condenser first. To do this, remove the three countersunk screws holding the condenser base plate to the chassis. Unsolder the two leads to the terminal on the rear condenser and the earthing lead. Ease the condensers out and unsolder the lead to the front condenser.

General Notes.—If the reaction control becomes loose, remove the lid on the inter-valve coil box (the screws are threaded to the inside support and there are no nuts). Tighten the control by undoing the grub screw on the collar and re-tightening while pressing the collar against the spring.

Replacing Chassis.—Remember to replace screen. Lay the chassis inside the frame aerial and replace the four holding screws. Resolder the L.S. and frame aerial leads and replace the knobs.

DECCA SIX-VALVE SET



Both the Decca Gramophone Co. Ltd., and its associated company, Brunswick Ltd., market this six valve radiogram.

Circuit.—This set is a superhet on the medium waves, and a "straight" receiver on the long. The terms used will apply to the superhet features.

The H.F. valve, VP4 (V1), is preceded by a tuned secondary aerial transformer. Bias is applied to the grid by a resistance in the cathode lead and by the A.V.C. voltage. Coupling to the next valve is by H.F. choke, and a free end winding wound with the tuned grid coil.

The first detector oscillator, AC/SG (V2), is used with reaction applied by a coupling coil in the cathode circuit. Wave-band switching causes the oscillator coil to be cut out of circuit, and the tuning is transferred to an L.W. transformer.

The I.F. valve, VP4 (V3), is coupled to the second detector by a band-pass I.F. transformer (I.F. frequency 183 KC) on the medium waves and by an untuned H.F. transformer on the long. Bias is supplied solely by the A.V.C. system.

For the second detector a double-diode triode, AC/HL/DD, is used as a detector and also to provide delayed and amplified A.V.C. The anode of the triode section is resistance capacity coupled to the output pentode.

This valve is a seven-pin AC/Pen. The manual volume control is a potentiometer across the grid input, but separated from the grid leak by the inclusion of a condenser, C17, between the slider and the grid leak.

A tone correction circuit, consisting of C16, R18 and a small iron-cored choke, is connected across part of the V.C. resistance. Pentode compensation is provided by a .005 condenser directly between the anode and earth.

Bias for the valve is derived from a potentiometer across the L.S. field (in negative H.T. lead), consisting of R22, R21 and R23. The tapping between R21 and R23 provides the delay bias for the anode of the diode.

The output is fed to two speakers, which have the speech coils connected in parallel, while the 1,000 ohm field coils are connected in series in the negative H.T. lead.

Mains equipment consists of a transformer, a full-wave indirectly-heated rectifier, IW3, and electrolytic smoothing condensers.

VALVE READINGS

No signal.

Valve	Type.	Electrode.	Volts.	M.A.
1	VP4 ...	anode ...	200	.5
		aux. grid ...	80	
2	AC/SG ...	anode ...	200	.5
		screen ...	80	
3	VP4 ...	anode ...	200	3.5
		aux. grid ...	80	
4	AC/HL/DD	Triode anode ...	130	3.25
	AC/Pen ...	anode ...	275	38-40
5	(7 pin) ...	aux. grid ...	275	5-6

Special Notes.—The controls on this set are original. The large knob operates the tuning and the "gram" switch at the rear end of the ganging condenser. The small concentric knob controls the volume and by push-pull action the wave-change switch.

The tone remains the same whatever the setting of the V.C.

Visual tuning is obtained with dimming of the pilot lamp (on reception of a carrier) by means of altering the inductance of chokes in series with the A.C. supply to the lamps. This is brought about by having two chokes in series with the lamps on the same core as a much larger choke which is included in the H.T. supply to the controlled valves.

As the current to the valves decreases by the A.V.C. action the A.C. voltage drop through the lamp-chokes increases owing to the higher inductance brought about by the de-saturation of the core.

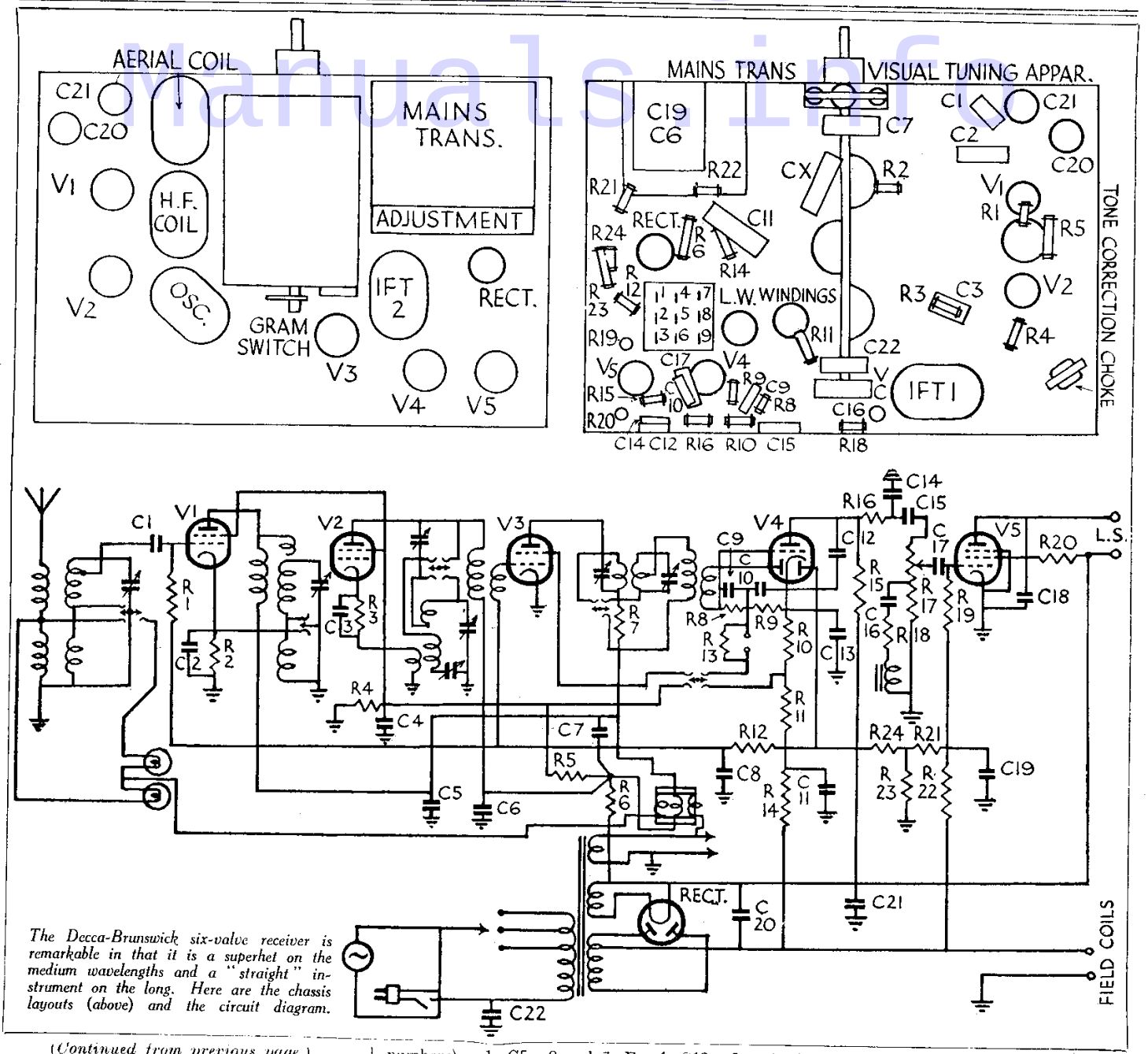
In the first models it was found that this might increase the risk of modulation hum, but in later models a 25 mfd. electrolytic condenser connected in place of C7 (nominally .1 mfd.) effectively cures this tendency.

Quick Tests.—Between casing of outer electrolytic condenser (—) and chassis (+), 135 volts.

Between second terminal from inside on L.S. transformer (—) and chassis (+), 135 volts (same point as above, i.e., H.T.—).

Between third terminal tag (+) and chassis (—), 287 (H.T. smoothed).

(Continued on next page.)



The Decca-Brunswick six-valve receiver is remarkable in that it is a superhet on the medium wavelengths and a "straight" instrument on the long. Here are the chassis layouts (above) and the circuit diagram.

(*Continued from previous page.*)

Between fourth terminal tag (+) and chassis (—), 275 (V5 anode).

Output transformer primary is between terminal tags 3 and 4.

Removing Chassis.—Pull off the large knob and remove the smaller one (grub screw). Remove four screws from underneath platform and undo the cleats holding the motor leads and cable.

Ease chassis out a little and unsolder the motor leads from the mains transformer (end terminal tags). The L.S. cable is sufficiently long to allow chassis to be examined on the floor.

For bench work the leads to the output transformer must be unsoldered. Connections are, counting terminals from inside: 2, orange; 3, red; 4, white.

General Notes.—The pilot lamps clip on to a plate.

The wiring round the AC/HL/DD and AC/Pen valves is rather complicated, and the lay-out drawing can only give the approximate positions. In case of doubt compare the code values of resistances with those given in the table.

The connections to the block condenser near the pentode valve holder are (our numbers):—1, C5; 2 and 3, E; 4, C19; 5, C8; 6, C4; 7, C13; 8, C18; 9, E.

Replacing the Chassis.—Lay chassis slantwise on platform and resolder the motor leads (shorter one is joined to outside tag). Replace four holding screws and clip the cable and motor leads. Replace knobs and reconnect P.U. and A and E plugs.

RESISTANCES

R.	Purpose.	Ohms.
1	V1 grid leak	1 meg.
2	V1 cathode bias	5,000
3	V2 Cathode bias	10,000
4	Lower part of SG ptr.	20,000
5	Middle part of SG ptr.	25,000
6	Top part of SG ptr.	5 000
7	Load across detector diode	35,000
8	Load across detector diode	250,000
9	Cathode return	50,000
10	Provides bias potential for PU cathode V4	2,000
11	Voltage dropping for amplified AVC	25,000
12	Decoupling AVC	500,000
13	Across PU	30,000
14	Decoupling from power pack negative	25,000
15	LF coupling V4, V5	50,000
16	HF stopper anode V4	50,000
17	Var. vol. control	600,000
18	In tone correction circuit	5,000
19	V5 grid leak	250,000
20	Voltage dropping to V5 alx. grid	2,000
21	Part of bias ptr.	50,000
22	Part of bias ptr.	350,000
23	Part of bias ptr.	5,000
24	Decoupling bias	1 meg.

CONDENSERS

C.	Purpose.	Mfd.
1	V1 grid	.005
2	V1 cathode	.1
3	V2 cathode	.001
4	Decoupling screens of V1 and V2	.25
5	Decoupling anode V1	.25
6	Decoupling anode V2	2
7	Across HT winding on visual tuning choke	.1*
8	Decoupling AVC to V1 and V3	.25
9	HF by-pass grid (Triode) V4	.0001
10		
11	Decoupling amplified AVC potential for V4	8 el.
12	V4 triode anode by-pass	.0005
13	V4 cathode	2
14	HF by-pass between V4 and V5	.0005
15	LF coupling	.02
16	Part of tone correction circuit	.02
17	V5 grid condenser	.02
18	Tone compensation anode V5	.005
19	Decoupling bias V5	1
20	HT smoothing	7
21	HT smoothing	8
22	HF by-pass from mains	.005

* In our model an additional condenser of 25 mfd. el. was connected across C7.