

### PHILIPS FOUR-STAGE D.C. SET (Cont.)

lowing order from the barretter lamp: V5, V4, V2, V1, V3.

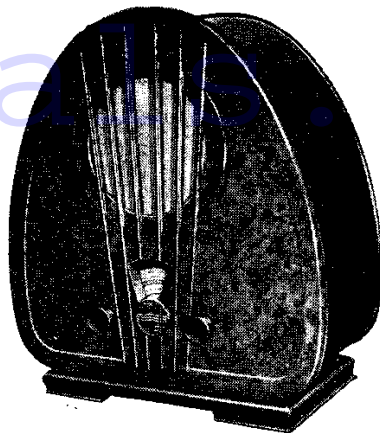
Removing any valve will break the L.T. circuit.

**Quick Tests.**—Owing to the fact that this is a D.C. mains receiver there are no easily accessible points for voltage measurement. To test the filament circuit for continuity remove V3 (the detector, HL20) and switch on. Approximately the full mains voltage should be recorded between the rear filament socket and chassis when the filaments of all the other valves are intact.

Practically the same voltage should exist between the anode socket and chassis when the H.T. circuit is in order.

**Removing Chassis.**—Remove the insulating compound from the grub screw holes in the control knobs and, after slacking the screws, remove the knobs. Remove four screws underneath—also covered by insulating compound.

Disconnect earth wire from speaker, un-



The Philips 834C is a "straight" four-stage receiver designed to operate on D.C. mains of even as low a voltage as 100. Parallel output valves ensure adequate volume.

solder L.S. leads from transformer and lift chassis out

**General Notes.**—In handling this receiver take care that an accidental short circuit is not caused by the bare connecting wires being pressed together.

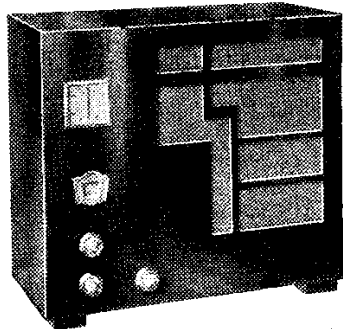
If volume control trouble develops the simpler method of replacing it is to remove the element alone. Unsolder the leads to the ends and undo the screws, taking care that the nuts are not lost (the compartments behind are shaped to take the nuts).

After working with the receiver it is advisable to check the resistance readings between the mains leads before connecting to the mains.

With all valves in position, 250 ohms. With all valves in position, but without barretter, 100,000 ohms.

**Replacing Chassis.**—Lay chassis inside cabinet and replace earthing plate between rubber buffer and left rear corner of chassis with the convex side downwards so as to make contact with the screen on the bottom.

Reconnect speaker leads and earthing wire. Replace fixing bolts and knobs and see that insulating compound covers exposed metal parts.



The "Raven" detector and 2 L.F. battery receiver produced by Aerodyne Radio, Ltd., is both simple and straightforward. It forms a useful service guide to the many similar receivers that are in use.

## AERODYNE "RAVEN"

**Circuit.**—The leaky-grid detector PM1HL met (V1) is preceded by a tuned secondary aerial transformer. Selectivity is obtained by optional series aerial condensers C1 and C2.

To increase sensitivity, the grid leak is connected to a potentiometer R3 and R4 across the filament circuit. Straight transformer coupling with anode decoupling (R2, C7) is used.

The L.F. valve, PM1LF (V2), is followed by a second L.F. transformer.

The output valve, PM2A (V3), is compensated for top-note accentuation in the speaker by a condenser, C8, between the grid and earth.

The speaker is a moving-iron type.

**Special Notes.**—H.T. —, G.B. +, and L.T. — are broken by the switch.

The series aerial condenser C2 is inside systoflex mounted on the A2 terminal.

**Removing Chassis.**—Pull off the knobs, remove three screws underneath (one is under a felt), and lift chassis out.

**General Notes.**—The beginner to service can easily trace this simple circuit. The small condensers and resistances are supported in

the wiring, and the L.F. transformers are bolted to the chassis, though the remainder of the components are riveted.

The transformers are a special low ratio type, T1 being 1.5 : 1 (brown), and T2, 2 : 1 (black). Their respective resistances are given in the table.

**Replacing Chassis.**—Lay chassis inside cabinet, replace three holding screws and the control knobs.

### VALVE READINGS

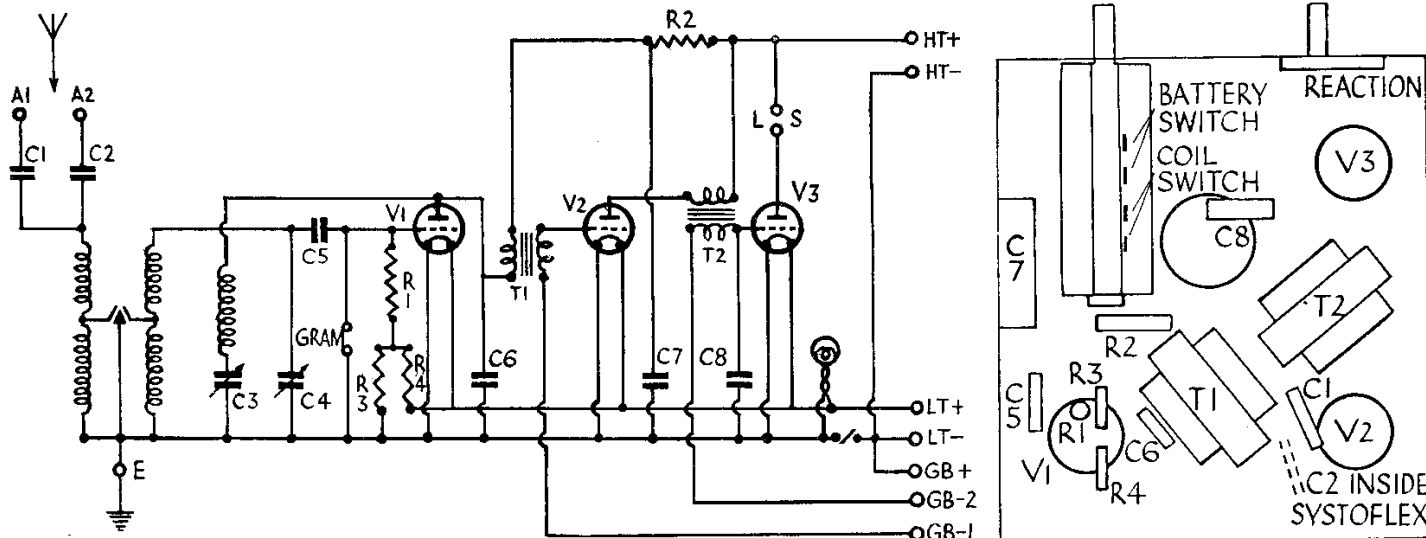
No signal. No reaction.

Valve.	Type.	Electrode.	Volts.	M.A.
1	PM1HL...	anode	80	2
2	PM1LF ...	anode	120*	4.1
3	PM2A ...	anode	118*	4

\* With a new H.T. battery.

### COMPONENT VALUES

	Purpose.	Value.
R1	V1 grid leak ...	1 meg.
R2	V1 anode decoupling ...	20,000ohms
R3	Ptr. across L.T. ...	1 meg.
R4	Ptr. across L.T. ...	2 meg.
C1	Aerial series ...	.0005 mfd.
C2	Aerial series ...	.0001 mfd.
C5	V1 grid ...	.0003 mfd.
C6	V1 anode by-pass ...	.0001 mfd.
C7	V1 anode decoupling ...	1 mfd.
C8	Across V3 grid ...	.001 mfd.
—	T1 primary resistance (DC)	1,100 ohms
—	T1 secondary resistance	1,500 ohms
—	T2 primary resistance ...	1,100 ohms
—	T2 secondary resistance ...	2,000 ohms
—	L.S. resistance ...	2,750 ohms



To increase the sensitivity of the detector the grid leak is taken to a potentiometer across the L.T. supply. On the right is the under-chassis layout of the "Raven."