## AERODYNE CURLEW RECEIVER (Cont.)

cathode II, (5) anode I, (6) blank, (7) blank, (8) anode II.

The anode I and anode II terminals are connected together, as are the cathode I and cathode II terminals.

Only terminals (5) and (8) are used for the barretter lamp. The pilot lamp is a 6.2 v. .3 amp. type.

**Quick Tests.**—Caution : Remember that both on A.C. and D.C. the chassis is live with relation to true earth.

Voltages between the following terminals at side of output transformer panel and chassis :—

Top.—Blue, 190 v., V3 anode.
Second.—Blue, 225 v., H.T. smoothed.
Third.—Black, 0.
Bottom.—Red, 235 v., H.T. unsmoothed.

As the grid terminals are at the top of the bulbs, an easy quick test is obtained by touching them in order, and marking the strength of the "clicks."

**Removing Chassis.**—Pull off the knobs, remove two screws (inside) at top of dial frame, release the cleat holding the L.S. leads. Remove four screws underneath and lift chassis out.

**General Notes.**—Except for the wave-change switch, all the components are readily accessible. To reach the switch, it is necessary to undo two nuts at the corners and to unsolder the wires to only one side of the resistance panel (marking them in the order of connection).

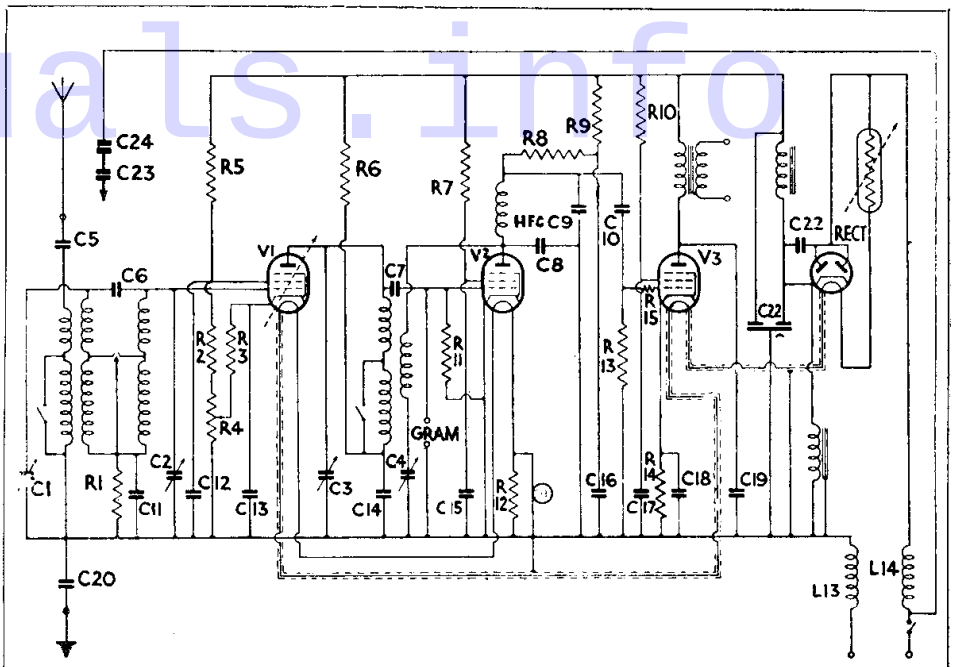
The filaments are wired in series from the barretter lamp in this order :—Rectifier, V3, V1, V2.

The coupling condenser C6 between the band-pass coils is of twisted wire, and is underneath the resistance panel. These wires should not be disturbed, as the band-pass adjustment would be affected.

The screened leads are those to the filaments of the valves.

The small screened tubular condensers screwed on to the chassis should not be mistaken for electrolytic condensers. They are paper dielectric types, and the maximum value used is 1 mfd.

**Replacing Chassis.**—Lay chassis inside cabinet, replace holding screws, knobs, cleat for L.S. leads, and the two screws at the top of the dial frame.




*How the Mullard A.C./D.C. valves are used by Aerodyne Radio in their Curlew universal straight three is shown by this circuit.*

# MARCONIPHONE 279 PORTABLE

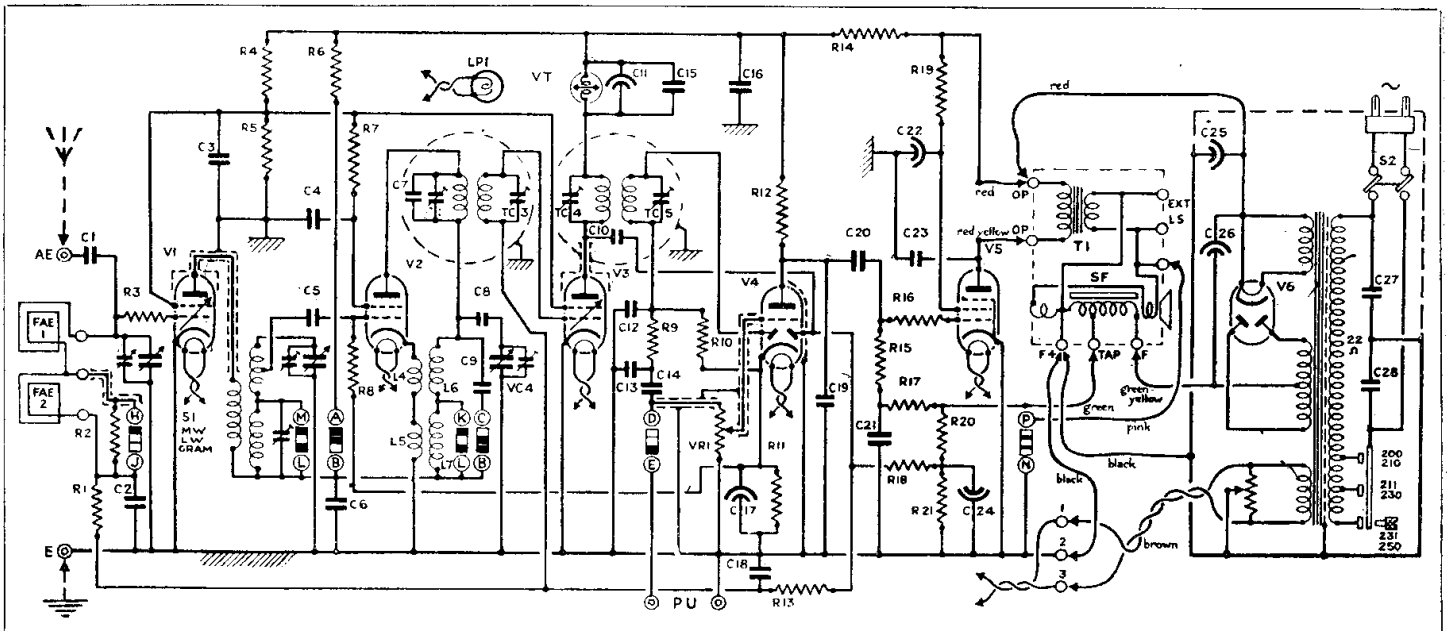
**Circuit.**—The H.F. valve, VMS4B (V1), is preceded by the frame aerial, of which the L.W. section is short circuited for use on M.W. Bias is controlled entirely from the A.V.C. line. Coupling to the next valve is by H.F. transformer and the grid connection is taken from a tapping on the secondary.

The first detector-oscillator, MS4B (V2), has reaction applied by coupling coils in the cathode lead, and the tuned oscillator coil is in series with the primary of the first band-pass I.F. transformer (frequency 125 k.c.). Bias is obtained by connecting the grid leak, R8, to the cathode of the second detector, which is positive with relation to chassis.

The I.F. valve, VMS4B (V3), is biased from the A.V.C. line and is coupled to the second detector by a second band-pass I.F. transformer. The I.F. feed to the A.V.C. diode anode is taken from the anode of V3 through a condenser, C10.

The second detector valve, MHD4 (V4), is

(*Continued on next page.*)




*Five valves and a rectifier are employed in the circuit of the Marconiphone model 279 transportable for A.C. mains.*

## MARCONIPHONE 279 PORTABLE (Cont.)

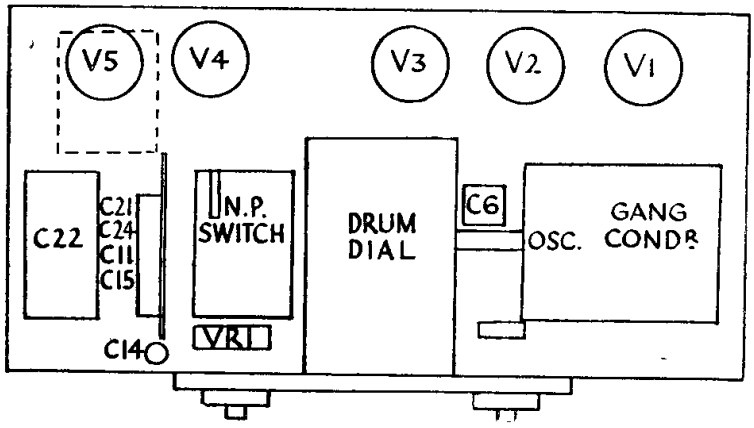
a double-diode triode, one diode anode being used for L.F. purposes and the other for A.V.C. The diode load is R10 and the L.F. coupling to the triode grid is C14. The grid leak is a variable potentiometer which forms the volume control. Bias for the triode is obtained from a resistance in the cathode lead, and "delay" is accomplished by biasing the A.V.C. anode from a potentiometer across part of the L.S. field. The triode section is followed by resistance capacity coupling.

The output valve, MPT4, has a grid stabilising resistance and obtains its bias from a tapping on the L.S. field, which is in the negative H.T. lead.

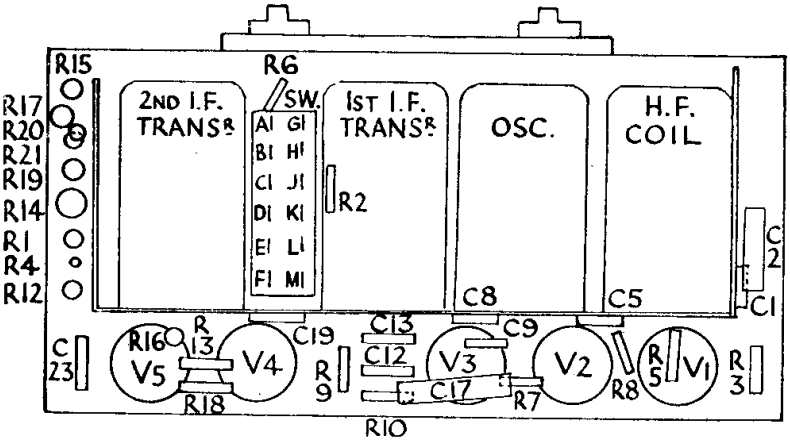
Mains equipment (in separate unit) consists of transformer, full-wave indirectly-heated rectifier, MU12, and the L.S. field in conjunction with electrolytic condensers for smoothing. As usual, an artificial centre tap of the filament winding is obtained by a potentiometer which acts as a hum control.

**Special Notes.**—The visual tuning meter is connected in the anode of the I.F. valve. The terminals on the L.S. transformer panel

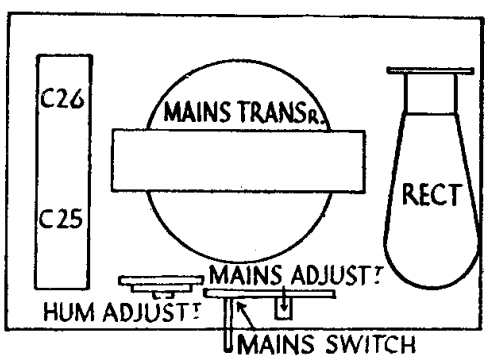
(*Continued on opposite page.*)

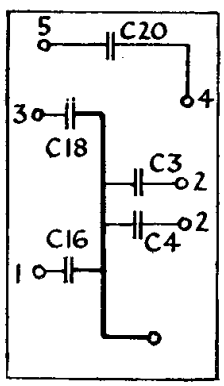



*The components on the top of the 279 chassis can be identified with the aid of this diagrammatic layout.*




*Below the chassis of the Marconiphone mains transportable the components are grouped round the coils as shown here.*




*On the left is the layout of the mains unit housed in the bottom of the cabinet. On the right are details of the condenser block.*

*Marconiphone's Model 279.*

## VALVE READINGS

No signal.

| Valve. | Type. | Electrode. | Volts. | N.A. |
|---|---|---|---|---|
| 1 | VMS4B ... | anode ... | 140 | 2.4 |
| | | screen ... | 55 | |
| 2 | MS4B ... | anode ... | 140 | .3 |
| | | screen ... | 30 | |
| 3 | VMS4B ... | anode ... | 130 | 2.7 |
| | | screen ... | 55 | |
| 4 | MHD4 ... | anode ... | 80 | 1.2 |
| 5 | MPT4 ... | anode ... | 225 | 33 |
| | | aux.grid | 225 | 6 |

## RESISTANCES

| R. | Purpose. | Ohms. |
|---|---|---|
| 1 | Decoupling A.V.C. to V1 .. | 1 meg. |
| 2 | Across L.W. frame aerial .. | 35,000 |
| 3 | H.F. stabiliser V1 grid .. .. | 1,000 |
| 4 | V1 and V3 screen ptr. .. .. | 23,000 |
| 5 | V1 and V3 screen ptr. .. .. | 23,000 |
| 6 | H.F. decoupling V1 and V2 from H.T. .. .. .. | 1,000 |
| 7 | Voltage dropping to V2 screen) .. | 100,000 |
| 8 | V2 grid leak .. .. .. | .5 meg. |
| 9 | H.F. stopper from diode anode .. | 50,000 |
| 10 | Diode load .. .. .. | .5 meg. |
| 11 | V4 cathode bias .. .. .. | 1,000 |
| 12 | V4 anode coupling .. .. | 50,000 |
| 13 | Decoupling A.V.C. line .. .. | .5 meg. |
| 14 | Voltage dropping to V1, V2, V3 and V4 .. .. .. .. | 10,000 |
| 15 | V5 grid leak .. .. .. | .5 meg. |
| 16 | V5 grid stabiliser .. .. .. | 230,000 |
| 17 | Decoupling V5 bias .. .. | 230,000 |
| 18 | Decoupling delay bias for A.V.C. diode .. .. .. .. | .5 meg. |
| 19 | Voltage dropping to V5 aux. grid | 5,000 |
| 20 | Delay bias ptr. .. .. .. | 100,000 |
| 21 | Delay bias ptr. .. .. .. | 10,000 |
| — | L.S. field .. .. .. .. | { 250+ { 2,000 |
| — | P. of output transformer .. | 750 |

## CONDENSERS

| C. | Purpose. | Mfd. |
|---|---|---|
| 1 | Series aerial ... ... ... | .00005 |
| 2 | Decoupling AVC to V1 ... ... | .1 |
| 3 | V1 screen ... ... ... ... | .2 |
| 4 | V2 screen ... ... ... ... | .2 |
| 5 | V2 grid ... ... ... ... | .0001 |
| 6 | Decoupling V1 and V2 from H.T. | .4 |
| 7 | Across P. of I.F.T.1. ... ... | .0001 |
| 8 | Tracking for osc. tuning ... | .0017 |
| 9 | Pad. on L.W. osc. coil ... ... | .00015 |
| 10 | I.F. feed to AV.C. anode ... | .0002 |
| 11 | Across tuning indicator meter ... | 10 el. |
| 12 | Diode H.F. filter ... ... | .0002 |
| 13 | Diode H.F. filter ... ... | .0002 |
| 14 | L.F. feed to triode grid ... ... | .1 |
| 15 | Across tuning indicator meter ... | .1 |
| 16 | Decoupling V1, V2 and V3 from H.T. ... ... ... | 2 |
| 17 | V4 cathode ... ... ... | 25 el. |
| 18 | Decoupling A.V.C. ... ... | .1 |
| 19 | V4 anode by-pass ... ... | .001 |
| 20 | L.F. coupling V4 to V5 ... ... | .1 |
| 21 | Decoupling bias to V5 ... ... | — |
| 22 | V5 aux. grid ... ... ... | 4 el. |
| 23 | Tone compensating V5 anode ... | .003 |
| 24 | Decoupling delay bias to A.V.C. anode ... ... ... ... | 25 el. |
| 25 | H.T. smoothing ... ... ... | 4 el. |
| 26 | H.T. smoothing ... ... ... | 8 el. |
| 27 | H.F. by-pass from mains ... | .002 |
| 28 | H.F. by-pass from mains ... | .002 |

## MARCONIPHONE 279 (PORTABLE Cont.)

are labelled, and the wiring is colour coded with the new system :

H.T.+, red.

Valve anodes not direct to H.T., red and yellow.

Screening and auxiliary grids not direct to H.T., red and black.

Grid circuits, green.

Earth, black.

Mains, orange.

Heaters, filaments and cathodes, brown.

When leads not included in the above are needed yellow systoflex will be used, and this colour will also be used if stocks of any one colour are temporarily exhausted.

**Quick Tests.**—Between the following terminals on L.S. transformer and chassis (note the polarity) :—

F. (green and yellow), 113 volts negative (H.T.—).

Tap (green), 10 volts negative (MPT4 bias).

O.P. (red), 250 volts positive H.T.+ smoothed.

O.P. (red and yellow), 225 volts positive V5 anode.

**Removing Chassis.**—There is no need to remove the knobs as the whole escutcheon is free from the cabinet. Remove four screws from underneath the support brackets. Unsolder the aerial leads from the frame (green on top, maroon on bottom) and release the cleat.

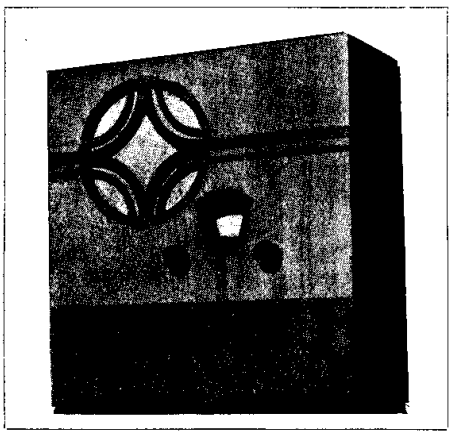
**Removing Power-pack.**—Remove four screws underneath, and after lifting unit out remove three screws at each end and one between the mains connector and switch. The cover can then be removed by easing it towards the switch side.

**General Notes.**—The H.T. to V1 and V2 is switched off for gram. See that switch is on radio when taking voltages.

To reach valve holders remove the screening plate.

**Replacing Chassis.**—Replace cover over valve sockets, slide chassis into cabinet and replace four holding screws. Resolder aerial leads and clip the leads.

# PHILIPS 834B BATTERY RECEIVER



*Five valves in a straight circuit and a moving coil speaker are provided in the 834B receiver by Philips Lamps, Ltd.*

**Circuit.**—The first H.F. valve, PM12A (V1), follows a single tuned aerial coil with optional aerial series condensers. The grid is biased negatively by means of a variable resistance in series with a limiting resistance in the negative L.T. lead. Both the anode and screen circuits are properly decoupled. Coupling to the next valve is by tuned secondary H.F. transformer.

The second H.F. valve, PM12A (V2), is biased by a small fixed resistance in the negative L.T. lead, and the screen potential is obtained from the decoupling point in the detector anode circuit. The coupling following this valve is semi-aperiodic.

A PM2DX (V3) operates as a leaky grid detector, and is followed by "straight" transformer coupling.

The output pentode, PM22A, is biased from a point on a H.T. and bias potentiometer, and the operation of this valve is controlled by an extra valve.

The control valve, PM1HL (V5), operates by rectifying a portion of the L.F. output of V4, and the resultant decrease in the H.T. current through R2 causes a rise in positive potential at the junction of R4 and R5 (R's 2, 3, 4 and 5 form a potentiometer across the H.T. and G.B.) allowing the output valve to be correctly biased on receipt of an L.F. signal, but keeping it slightly over-biased when no signal is impressed on the grid.

The moving-coil speaker is a standard Philips permanent magnet type.

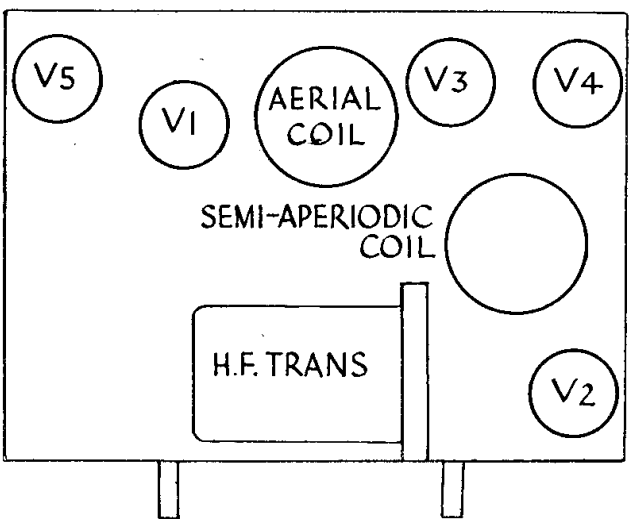
**Special Notes.** — Battery connections, Drydex H1088 (the leads are labelled with tags and are connected to screws on a small panel at the back of the set). These are, counting from inside :—

Top row (1) +B1, 63 volts,
(2) +B2, 130 volts,
(3) +A, L.T.+ volts.

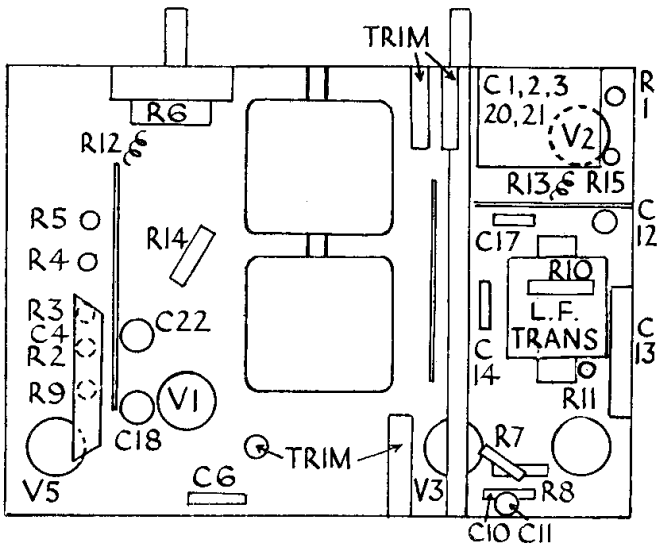
Bottom row (1) —C1, 0 volts (i.e., G.B.— ),
(2) —B, 9 volts (i.e., H.T.—),
(3) —A, L.T.—.

The series aerial condenser, C5, shown in the diagram, is formed by the capacity between the A1 and A2 terminals, and the fact that there is nothing attached to the terminal does not mean that any component has been omitted.

(*Continued on next page.*)




*Considering the nature of the circuit, the top of the Philips chassis is particularly clean.*




*The under-chassis arrangement of parts in the Philips 834B is indicated here.*