

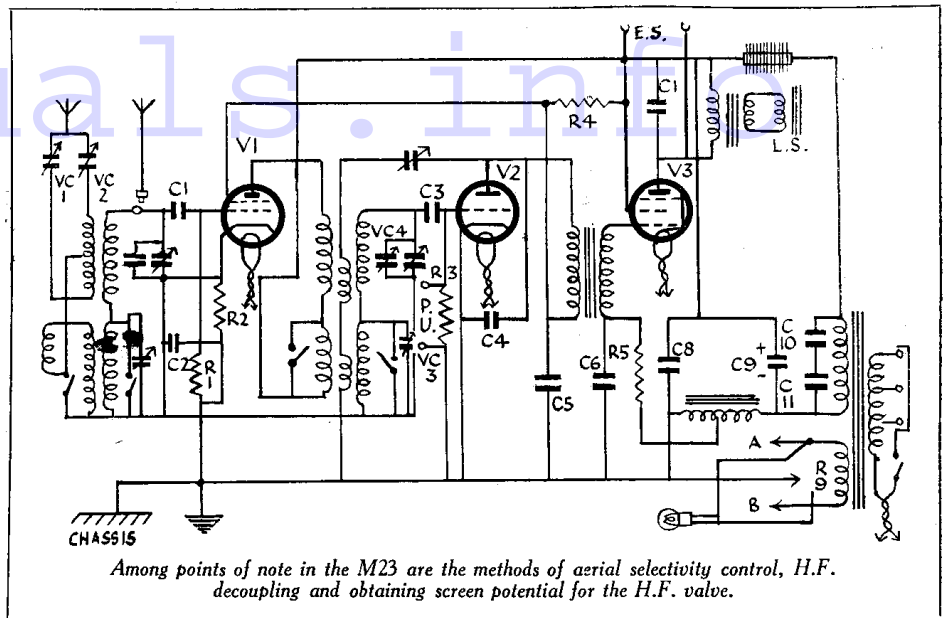
## EKCO M.23 MAINS THREE (Cont.)

**General Notes.**—The switch is of the wiping type. Should it be necessary to clean it, remove the rotor section by undoing the grub screw on the collar. Before replacing  
(Continued in col. 2.)

CONDENSERS		
C.	Purpose.	Mfd.
1	V1 grid .. .. .	.0001
2	V1 cathode by-pass .. .	.1
3	V2 grid .. .. .	.0003
4	V2 anode by-pass .. .	.001
5	V2 anode decoupling .. .	1
6	V3 grid decoupling .. .	1
7	V3 anode, tone compensating .. .	.004
8	H.T. smoothing .. .	2
9	H.T. smoothing .. .	8 el.
10	By-pass condenser from H.T. winding .. .	.004
11	Series with 10 .. .	.004

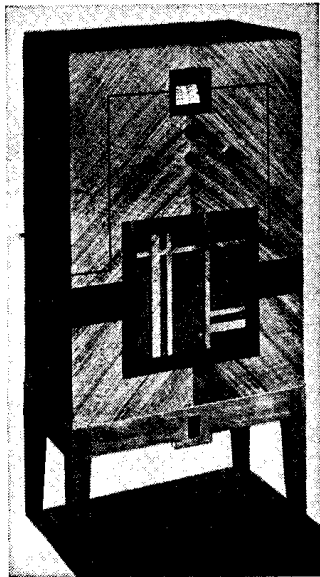
RESISTANCES		
R.	Purpose.	Ohms.
1	V1 grid leak .. .	2 meg.
2	V1 cathode bias .. .	300
3	V2 grid leak .. .	1 meg.
4	V2 anode decoupling .. .	25,000
5	V3 grid decoupling .. .	.5 meg.
6	Hum adjustment* .. .	1,350
	Smoothing choke .. .	1,350

\* Owing to the fact that the valve heaters and the heater winding are across this resistance, it is impossible to obtain an accurate reading. Test for continuity between the slider and each end.



bend the contact makers slightly inwards. Note that the case of C9, the electrolytic condenser, is insulated from chassis. The lay-out and construction are very simple and all the components are readily accessible.

**Replacing Chassis.**—Lay chassis inside cabinet, and, holding the case in position, replace the holding screws—those at the front first. Replace the fibre cover.



Kolster-Brandes' 888 receiver was produced in models A, B, and C. This review covers all these types.

**Circuit.**—The H.F. valve, 9A1 (V1) (see notes on alternative valves), is preceded by a tuned secondary aerial transformer which is suitable for K.-B. "Rejectostat" aerial coupling.

Bias is obtained partly by fixed cathode resistance and partly from the A.V.C. supply. Coupling to the next valve is by another tuned secondary transformer.

The combined first detector-oscillator, AC/S2/Pen met. (V2) operates with cathode injection as an anode bend detector, and is followed by a band-pass I.F. transformer (frequency 130 kc.).

A V.P.4 I.F. valve (V3) is also coupled to the next valve by a band-pass I.F. transformer, and bias is partly fixed by cathode resistance common to V1 and partly from the A.V.C. potentiometer. The second I.F. trans-

## KOLSTER-BRANDES 888 EIGHT-V ALVE SET

former has two secondary windings, one connected to V3 and the other to V4.

The noise suppressor valve, SD4 (V4), a diode tetrode, is connected in such a way that when the grid is biased on the receipt of a carrier by the diode anode, no current flows in R2, which is the grid biasing resistance of V5, and V5 operates with normal bias on the control grid. When no signal is being received, the voltage drop through R2 causes an excess bias on V5 with consequent paralysing of the L.F. side of the receiver.

The second detector and L.F. amplifier, MHD4 (V5) is a double diode triode. The diode anodes are connected in parallel. Coupling to the triode grid is by H.F. stopping resistance R8 through C5 to the volume control, grid leak VR1, and through the L.F. coupling condenser C10.

In this set the A.V.C. potentiometer is the

L.F. diode load, and consists of R8, R7 and R5. The L.F. coupling to the output stage is by split secondary push-pull transformer.

The output stage consists of two pentodes, 7A2's, in push-pull. The grid circuits are stabilised by resistances in the return leads from the low potential ends of the two secondary windings, and tone compensation is provided by a condenser and resistance in series between the anodes. Tone control consists of a resistance in series with a variable condenser across the grid input.

Mains equipment consists of transformer, full-wave R3 rectifier with smoothing by choke and electrolytic condensers in series, with the L.S. field in the negative H.T. lead.

**Special Notes.**—Both the push-pull input and output transformers are mounted on the speaker, the input being on the side of the speaker and the output on the top. The connections to the input transformer strip are given in quick tests.

**Quick Tests.**—Voltages between the following tags on transformer terminal strips and chassis, no signal and noise suppressor fully clockwise:—

Input (on side): Top (1) red, V5 anode, 100 volts positive; (2) blue, H.T. lead to V5, 102 volts positive; (3) yellow, V6 grid return, 0 v. (4) black, V7, grid return, 0 v.; (5) and (6) green (or blue), V6 and V7 grids.

**Output Transformer** (on top): From left (1) black, earth, 0 volts; (2) blue, V6 anode, 270 volts positive; (6) blue, V7 anode, 270 volts positive; (7) red, H.T.+ smoothed 285 volts positive; (8) red and black, junction of smoothing choke and L.S. field, 110 volts negative.

**Removing Chassis.**—Remove both sec-  
(Continued on next page.)

VALVE READINGS				
No signal. Suppressor control at max.				
Valve	Type.	Electrode.	Volts.	M.a.
1	9A1	anode ..	200	.2
		aux. grid ..	43	
2	8A1	anode ..	200	.7
		aux. grid ..	40	
3	9A1	anode ..	200*	1.5
		aux. grid ..	110	1.3
4	SD4	anode ..	-5	
		screen ..	-90†	
5	11A2	anode ..	130	1
6&7	7A2	anode ..	270	34
		aux. grid ..	285	8

\* Valve must be stabilised by grid or anode condenser method.  
† Note that these are only nominally negative. The cathode is 110 volts negative.

Alternative valves: (V1) VP4, VMP4, MVS Pen E447; (V2) ACS2 Pen, SP4, MSPen, E446; (V3) VP4, VMP4, MVS Pen, E447; (V5) TDD4, MHD4, DDT; (V6 and V7) Pen 4VA, MPT4, MP Pen.

# KOLSTER-BRANDES MODEL 888 (Continued)

tions of the back, pull out the L.S. plug and unsolder the two lower leads (green or light blue) from the push-pull input transformer. Pull off the control knobs and remove the four holding screws from underneath the shelf.

Before lifting the chassis out ease the green or blue leads up through the hole and undo the cleat holding the L.S. cable.

**General Notes.**—Ganging. The I.F. is 130 kc. Short circuit cathode oscillator coil of V2 and inject I.F. between junction of R29 and C21, and chassis. Set gang condenser to maximum and adjust the I.F. trimmers to maximum output in order from the second detector.

Remove short circuit and inject 1,400 kc. to A and E terminals. Switch to M.W., and turn condenser till pointer is at "S.W. converter" mark.

Unscrew the oscillator trimmer and screw in the H.F. and aerial trimmers on the gang condenser. Adjust oscillator trimmer to maximum. The proper signal as distinct from the more anti-clockwise direction of the dial.

Adjust the H.F. and aerial trimmers, and then readjust the oscillator.

Inject 600 kc., tune receiver, and adjust M.W. tracking condenser. Set the pointer to 500 m.

Switch to L.W. and inject 300 k.c. Adjust L.W. trimmer.

Inject 175 kc., tune to signal and adjust L.W. tracking condenser.

When adjustments have been made on each waveband, check each by making slight alterations to see if "peak" has been obtained.

The mechanical construction is straightforward and components are easily traced. In case there is any difficulty in recognising the resistances and condensers in the assembly at the end of the chassis, these are, in order from the front, R11, R10, R9, C9, C8, C7, C6, R8, C5, C4, R7, R6, R5, C3, R4, R3, C2, C1 and R2.

Mains transformer leads are:—

On front side: 2 red sistoflex, rectifier heaters; 2 black sistoflex, set heaters; 1 orange, to chassis.

On rear side: 2 red braided, rectifier anodes; 1 brown with red tracer, mains negative; 1 blue, mains zero of transformer; 1 yellow,

## CONDENSERS

C.	Purpose.	Mfd.
1	V4 anode L.F. by-pass	.1
2	V4 cathode by-pass	.1
3	Decoupling V1 grid	.0005
4	Decoupling A.V.C. line	.0001
5	L.F. feed to V.R.I.	.02
6	H.F. by-pass from diode	.0001
7	H.F. by-pass from V6 and V7 grids	.0001
8	Decoupling V4 anode	25 el.
9	Part of pentode compensating circuit	.006
10	L.F. feed V5	.1
11	Part of tone correction circuit	.006
12	Part of tone correction circuit	.05
14	H.T. smoothing	8 el.
15	Decoupling H.T. to V2	1
16	H.T. smoothing	8 el.
17	H.T. smoothing	8 el.
18	V1 cathode by-pass	.5
19	V2 cathode by-pass	.01
20	V1 aux. grid by-pass	.5
21	V2 grid	.0001
22	V2 aux. grid by-pass	.1
23	Decoupling V3 grid	.1
24	V3 aux. grid by-pass	.5
25	V6 and V7 cathode by-pass	25 el.
26	Decoupling A.V.C. to V1	.1

245 v. tapping; 1 orange, 225 v. tapping; 1 green, 205 v. tapping.

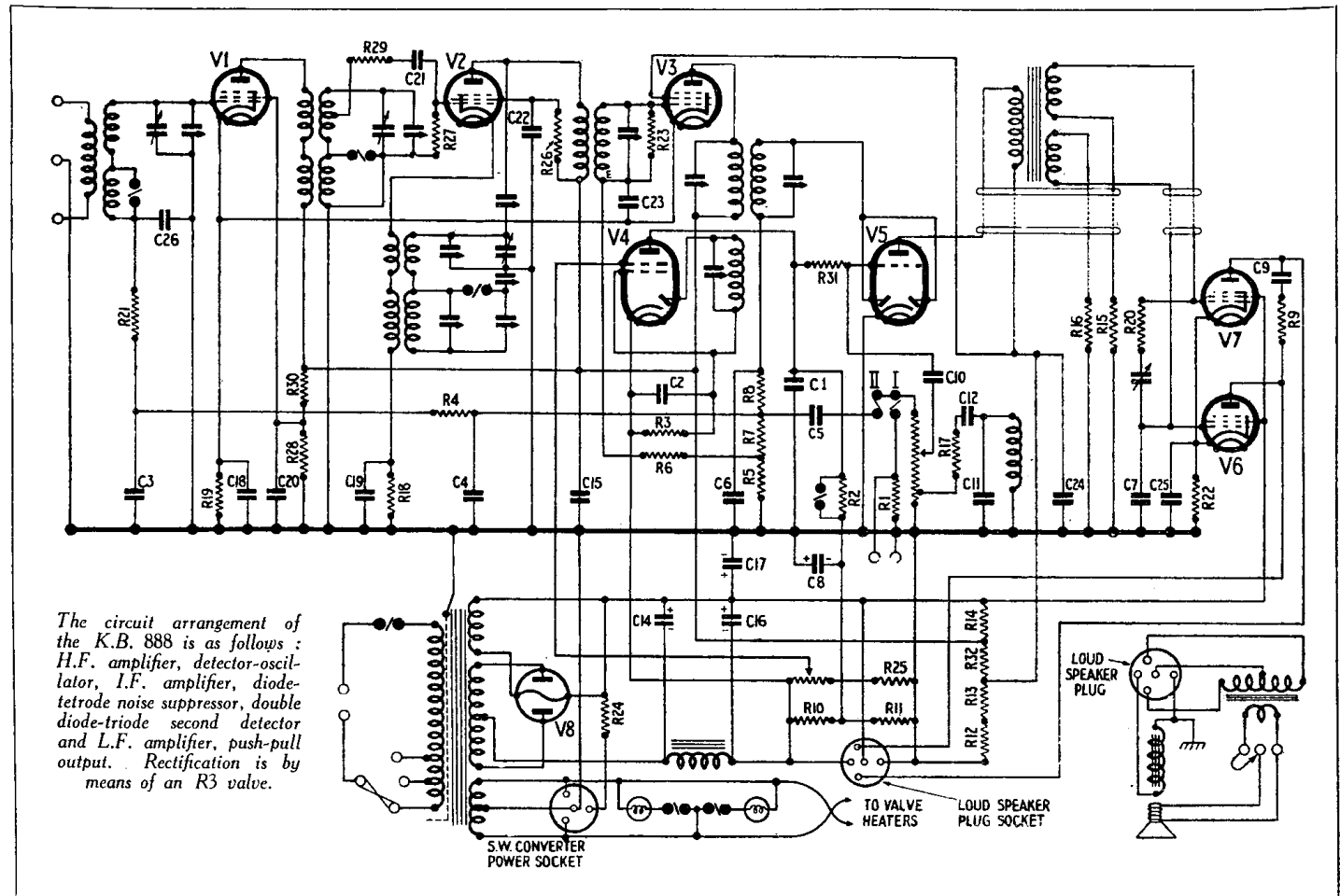
**Replacing Chassis.**—Lay screen underneath chassis. Place chassis on shelf and thread the green leads through the hole.

Resolder the leads, and replace the cable cleat.

Replace holding screws and knobs.  
(For lay-outs see opposite page.)

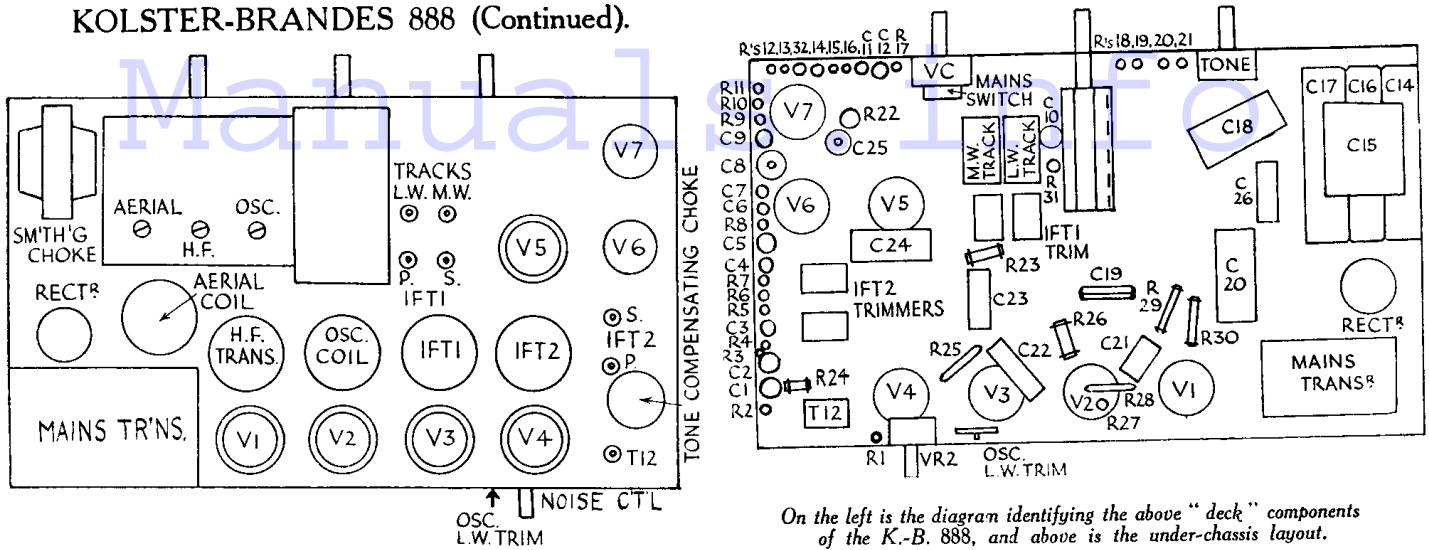
## RESISTANCES

R.	Purpose.	Ohms.
1	Across P.U.	.25 meg.
2	Biasing resistance for V5	70,000
3	V4 grid leak	4 meg.
4	Decoupling A.V.C.	.25 meg.
5	Part of A.V.C. ptr.	.1 meg.
6	Decoupling A.V.C. to V3	.25 meg.
7	Part of A.V.C. ptr.	.5 meg.
8	H.F. stopper	.1 meg.
9	Tone compensating circuit, V6, V7 anodes	50,000
10	Ptr. providing potential for V4 anode	150,000
11	Ptr. providing potential for V4 anode	4,000
12	Part of H.T. ptr.	5,000
13	Part of H.T. ptr.	10,000
14	Part of H.T. ptr.	3,000
15	Stabiliser in V7 grid return lead	50,000
16	Stabiliser in V6 grid return lead	50,000
17	Part of tone correction circuit	10,000
18	V2 cathode bias	3,000
19	V1 cathode bias	400
20	Part of tone control circuit	150,000
21	Decoupling A.V.C. to V1	.25 meg.
22	V6 and V7 cathode bias	250
23	V3 grid leak	.5 meg.
24	In H.T. lead to S.W. converter	5,000
25	Part of V4 screen ptr.	.1 meg.
26	Voltage dropping to V2 aux. grid	.5 meg.
27	V2 grid leak	2 meg.
28	Lower part of V1 screen ptr.	15,000
29	Stabiliser in V2 grid circuit	500
30	Top part of V1 screen ptr.	50,000
31	H.F. and L.F. stopper in V5 grid	.25 meg.
32	Part of H.T. ptr.	10,000
—	L.S. field	1,350
VR1	Volume control	.5 meg.
VR2	Suppressor control	20,000

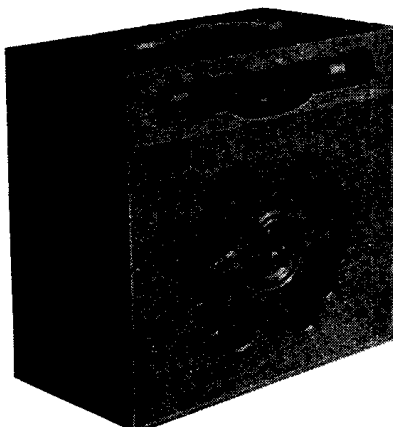


The circuit arrangement of the K.B. 888 is as follows: H.F. amplifier, detector-oscillator, I.F. amplifier, diode-tetrode noise suppressor, double diode-triode second detector and L.F. amplifier, push-pull output. Rectification is by means of an R3 valve.

KOLSTER-BRANDES 888 (Continued).



On the left is the diagram identifying the above "deck" components of the K.-B. 888, and above is the under-chassis layout.



The Marconiphone "55" straight-five portable is typical of a very large number of receivers which are still in use.

# MARCONIPHONE "55"

and in many cases it has been found that a little acid spill on the bottom of the case has crept on to every component in the chassis.

In such cases the only sensible repair is to rebuild the set and replace all the components likely to be affected. The advisability of this must be left entirely to the discretion of the dealer, as the cost involved is heavy.

**Battery Connections.** — H.T. 108V.; G.B. 9.V.

H.T.+ 1, 96 volts; H.T.+ 2, 108 volts; G.B.— 1, —1.5 volts; G.B.— 2, —3 volts; G.B.— 3, —7.5 volts.

**Quick Tests.**—These consist of taking the valve emissions and noting the relative strengths of the pops produced in the speaker.

**Removing Chassis.**—To remove the chassis itself it is necessary to unscrew the four screws on the front panel whose positions are shown in the diagram as A, B, C and D. Remove also the screw on the bracket underneath the chassis and the cleat holding the leads to the M.W. frame inside the back. Unsolder the three leads to the panel on the L.W. frame aerial and the two speaker leads. The chassis should then slide out.

To remove the frame aerials under the wood screws round the edges and lift out.

**General Notes.**—The component most frequently attacked by acid fumes is C4, which is suspended immediately above the accumulator. Replace by a .005 mfd. tubular condenser.

In the event of the remaining condensers and resistances requiring replacement, tubular condensers and resistances with soldering wires can easily be suspended in the wiring.

Should either of the transformers be defective, L.F.T.1 should be replaced by a 2.5:1 or 3:1 transformer, and L.F.T.2 by a 4:1 or 5:1.

**Switching.**—The switch connections are given in the circuit diagram exactly as they are wired.

As the leads are not coded they should be traced to their respective components. It has frequently been found that the fulcrum pin has worn through. To replace this a thin wire nail should be riveted into position.

The effect of acid on the copper of the L.W. winding, though not severing the wire, has

**Circuit.**—The first H.F. valve, HL210 (V1), has the tuned frame aerial in its grid circuit. The aerial is in two different sections, of which only the tappings are connected and one section of the L.W. winding is short-circuited for use on the M.W. aerial.

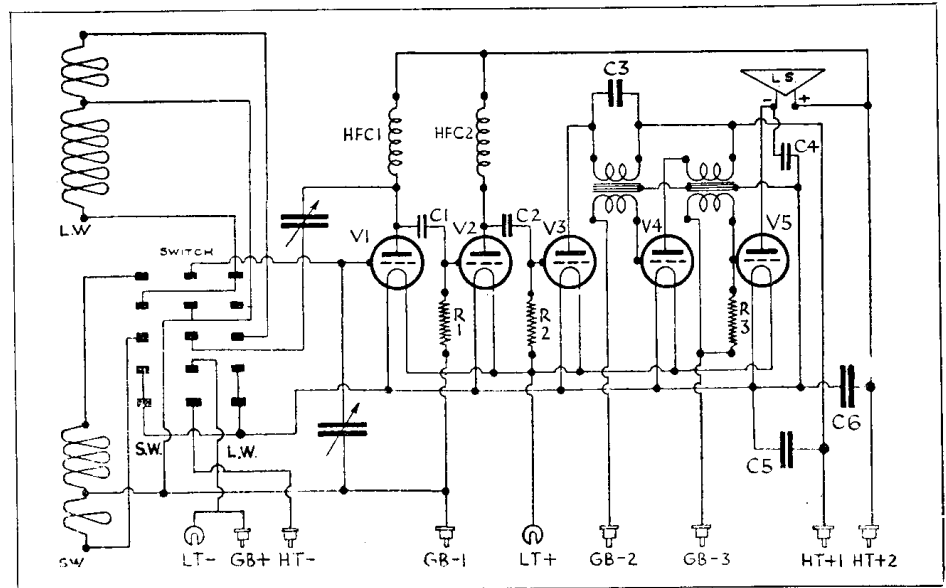
Reaction is applied by feed back from the anode of the first valve to a part of the frame aerial winding of each section. Bias is applied to the grid through the frame aerial.

H.F. choke-capacity filter coupling is used to the second H.F. valve, HL210 (V2), which also is biased and is coupled to the detector by another H.F. choke-capacity filter.

An H210 (V3) leaky grid detector is coupled to the first L.F. valve, L210 (V4), by straight transformer coupling. Similar coupling links V4 to the output valve.

The H.T. to the output valve, P215 (V5) is fed through the moving-iron speaker, and compensation is afforded by a .001 condenser between the anode and H.T.—

**Special Notes.**—This set was popular as long ago as 1929, and may now be considered obsolete. The chief troubles encountered are due to corrosion through fumes from the acid,



Two triode H.F. amplifiers and a single tuned stage—provided by the frame aerial—are the prominent circuit characteristics of the Marconiphone "55."

VALVE READINGS				
No Signal.				
Valve.	Type.	Electrode.	Volts.	M.a
1	HL210	.. anode ..	106 ..	.8
2	HL210	.. anode ..	106 ..	.8
3	H210	.. anode ..	92 ..	1
4	L210 ..	.. anode ..	91 ..	1.3
5	P215 ..	.. anode ..	103 ..	3.4