

K.B. CAVALCADE A.C. SUPERHET (Contd.)

Mains equipment consists of an H.F. choke in each mains lead, a half-wave rectifying valve, 1D5 or 40SUA, and both a choke and the speaker field in the positive H.T. lead for smoothing.

The heaters are wired in this order from chassis:—V3, V1, V2, V4 and rectifier.

Special Notes.—Dial lamps are 6.2 volts .3 amp. type.

As on all A.C.-D.C. sets the chassis may be live with relation to earth both on A.C. and D.C. mains.

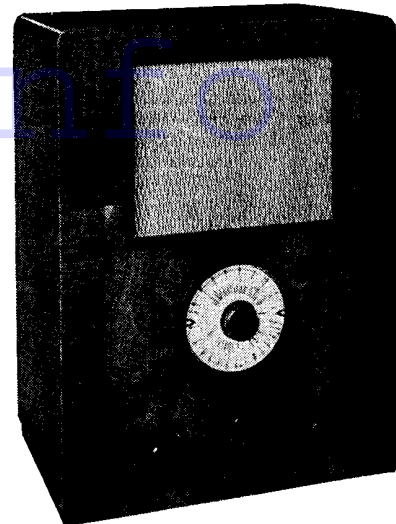
Quick Tests.—Between the following ter-

minals and chassis (looking from the rear):—
Smoothing choke: Right (red and black), H.T. unsmoothed, 230 v.; left (black) 215 v.;
Output transformer: Left, top 1, black, 215 v.; 2, blue, V4 anode, 140 v.; 3 and 4, red, HT smoothed, 150 v.

Revealing Chassis.—There is no need to remove the chassis for examination, simply remove the wood screws round the board on the bottom of the cabinet.

General Notes.—The mains connector at the back of the chassis is a safety device. To allow tests to be carried out a special key can be supplied by the makers.

Extra Speaker Connections.—Use a speaker with a speech coil of between 2 and 4 ohms with leads soldered to tags B and G on the transformer.



The K.B. Cavalcade.

CONDENSERS

C.	Purpose.	Mfd.
1	Series earth	.01
2	Band pass coupling	.02
3	L.W. osc. pad (twisted wire)	9mmf.
4	V1 cathode by-pass	.5
5	V1 aux. grid by-pass	el. 4 (250 v.)
6	V2 aux. grid by-pass	.1
7	V1 anode decoupling	.01
8	V2 grid decoupling	.1
9	I.F. feed to A.V.C. diode	9 mmf.
10	I.F. coupling to triode grid	.02
11	H.F. by-pass	.0001
12	H.F. by-pass	.0001
13	V3 cathode by-pass	el. 25 (25 v.)
14	V1 osc. grid	.0001
15	L.F. coupling to V4	.02
16	V4 cathode by-pass	el. 25 (25 v.)
17	Tone compensating V4 anode	.02
18	By-pass from rectr. anode	.01
19	H.T. smoothing	el. 4 (250 v.)
20	H.T. smoothing	el. 8 (250 v.)
21	H.T. smoothing	el. 8 (250 v.)
22	V2 cathode by-pass	.1

Bracketed figures are working voltages.

RESISTANCES

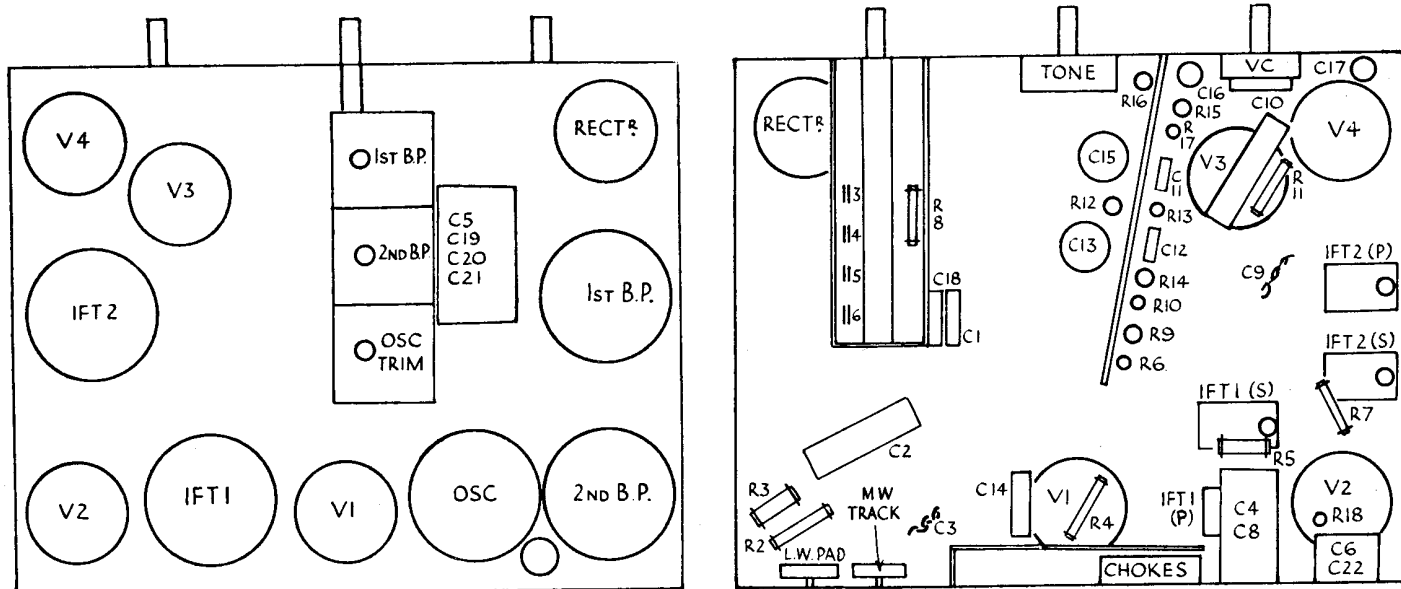
R.	Purpose.	Ohms.
1	Mains adjustment to heaters	635
2	V1 grid stabiliser	400
3	Decoupling V1 grid	100,000
4	V1 osc. grid leak	25,000
5	V1 cathode bias	150
6	Decoupling V1 aux. grid	15,000
7	Decoupling V2 aux. grid	5,000
8	Decoupling V1 anode	1,000
9	Decoupling A.V.C. line	100,000
10	A.V.C. diode load	500,000
11	H.F. stopper	1 meg.
12	H.F. stopper	100,000
13	Diode load	500,000
14	V3 cathode bias	10,000
15	V3 anode coupling	250,000
16	V4 grid leak	250,000
17	V4 cathode bias	500
18	V2 cathode bias	300
—	Speaker field	1,000

All resistances except R1 are .5 watt.

VALVE READINGS

Valve.	Type.	Electrode.	Volts.	M.A.
1	15D1 or 13PGA (7)	anode	125	5
		aux.grid	55	7.5
		osc.anode	120	5
2	9D2 or 13VPA (7)	anode	140	8
		aux.grid	100	2
		anode	80	.1
3	11D3 or 13DHA	anode	128	35
		aux.grid	140	8

First valves named are Brimar, alternatives are Cossor.
V1, V2 and V3 have 13 volt heaters.
V4 and the rectifier have 40 volt heaters.



The underside of the Kolster Brandes chassis is made accessible simply by removing the wood board in the bottom of the cabinet.

AERODYNE NIGHTINGALE "THREE"

Circuit.—An H.F. valve, V.P.2 met. (V1), has a band-pass aerial coupling (iron-cored coils) and is coupled to the next valve by an H.F. transformer with tuned secondary. The variable-mu characteristic of this valve is used for volume control by means of a potentiometer across the G.B. battery.

The detector valve, P.M.1H.L. (V2) is operated as a leaky grid detector with reaction and is coupled to the output valve by parallel-fed transformer.

The output pentode, P.M.22A (V2) is

stabilised by grid resistance, and is tone-compensated by a condenser across the

primary of the output transformer of the permanent-magnet speaker.

Special Notes.—The pilot lamp is an Osram 3.5-volt .15-amp. type.

Battery voltages are: H.T.+, purple lead, 120 volts.; G.B.—1, blue, —4.5 volts.; G.B.—2, green, —9 volts.

Switching is in the L.T.—, G.B.+ lead.

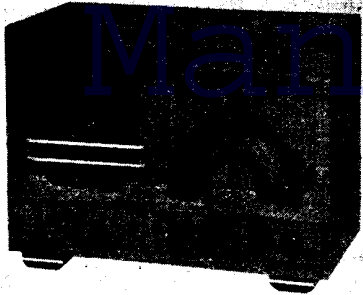
Removing Chassis.—Pull off the knobs, undo two wood screws at top of dial (inside),

(Continued on opposite page.)

VALVE READINGS

Use high resistance voltmeter. V.C. max.

Valves.	Type.	Electrode.	Volts.	M.A.
1	VP 2 met. (7)	anode	112	1.6
		aux.grid	112	.4
2	PM1HL met. (5)	anode	70	1.25
		anode	115	5.8
3	PM22A	aux. grid	120	1.2



The Aerodyne "Nightingale."

CONDENSERS

C.	Purpose.	Mfd.
4	Band pass coupling ..	.05
5	Decoupling V1 anode ..	1
7	V2 grid reservoir ..	.00005
8	V2 anode H.F. by-pass ..	.0003
9	L.F. coupling to transformer ..	.1
10	Tone compensating V3 anode ..	.002
11	Decoupling V2 anode ..	1
12	Band pass coupling (twisted wire)	3 mmf.

RESISTANCES

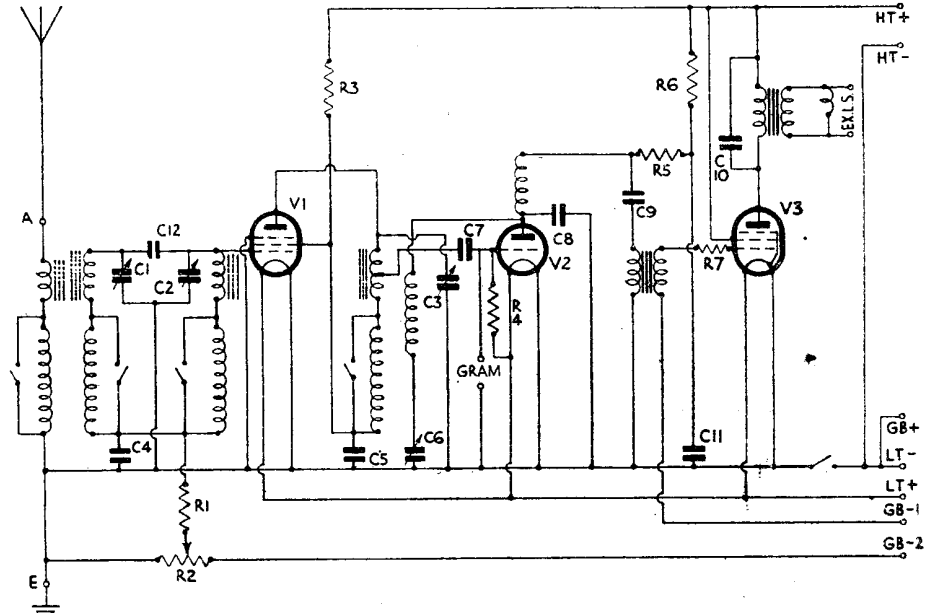
R.	Purpose.	Ohms.
1	Decoupling V1 grid ..	20,000
2	Volume control ptr. (var.) ..	8,000
3	V1 anode decoupling ..	3,000
4	V2 grid leak ..	2 meg.
5	V2 anode L.F. coupling ..	30,000
6	V2 anode decoupling ..	20,000
7	V3 grid stabiliser ..	.25 meg.

AERODYNE NIGHTINGALE "THREE" (Cont.)

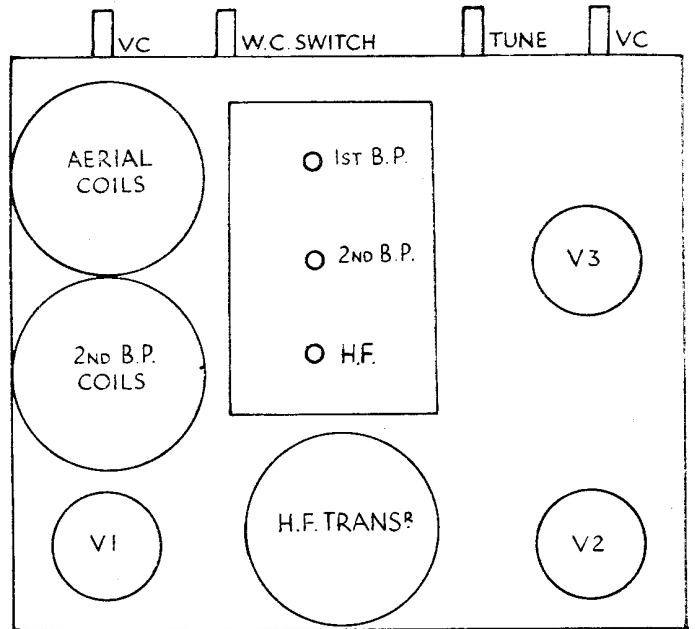
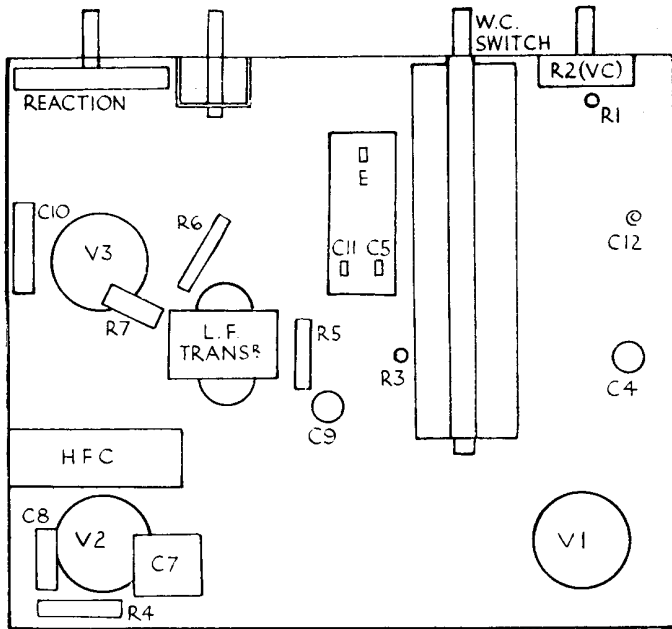
and remove three holding screws from underneath the cabinet.

General Notes.—This is a straightforward three-valve set with no complications. The small components are suspended in the wiring and are readily accessible.

Replacing Chassis.—Lay the chassis inside the cabinet, replace holding screws, two wood screws on dial, and press the knobs on to the spindles (see the top of chassis lay-out for the correct order).



The circuit of the Aerodyne is straightforward and the chassis construction correspondingly simple.



Circuit.—The combined first detector, FC4 met. (V1) is preceded by a band-pass aerial coupling with a special filter in the long-wave aerial lead. Oscillator tuning is in the grid circuit, and bias is obtained from the A.V.C. line and by limiting cathode resistance. Coupling to the next valve is by band-pass L.F. transformer (frequency 110 k.c.).

The I.F. valve, VP4 met. (V2), is also biased by cathode resistance and A.V.C., and is followed by a second band-pass I.F. transformer. The neon tube indicator is connected across part of the auxiliary-grid feed with the priming anode taken to H.T.+ through a separate resistance, R12.

The second detector and L.F. amplifier, MHD4 met. (V3), utilises one diode anode for

L.F. purposes, and the other for A.V.C. The grid leak of the triode section forms the volume control, and tone control is provided by a variable condenser between grid and chassis. The triode coupling to the next valve is by resistance capacity filter.

The output valve, Pen. 4VA (V4), has a grid stabilising resistance and the V3 cathode by-pass condenser, C21, is connected to a tapping on V4 cathode resistance.

Mains equipment consists of: Transformer, full-wave IW3 indirectly heated rectifier, with the speaker field in the positive H.T. lead with electrolytic condensers.

The speaker field is tuned by a .05 condenser to act as a hum filter.

Pilot lamp is a 4.5 v. .3 amp. type.

Special Notes.—The degree of induction provided by the neon tube can be adjusted by the variable resistance R27 at the back of the chassis, i.e., the projecting screw alongside the P.U. sockets.

Quick Tests.—Between the four terminals on the speaker transformer and chassis:—

Top: (1) Yellow and green, 0 volts; (2)

(Continued on next page.)

HALCYON MODEL A.C./7