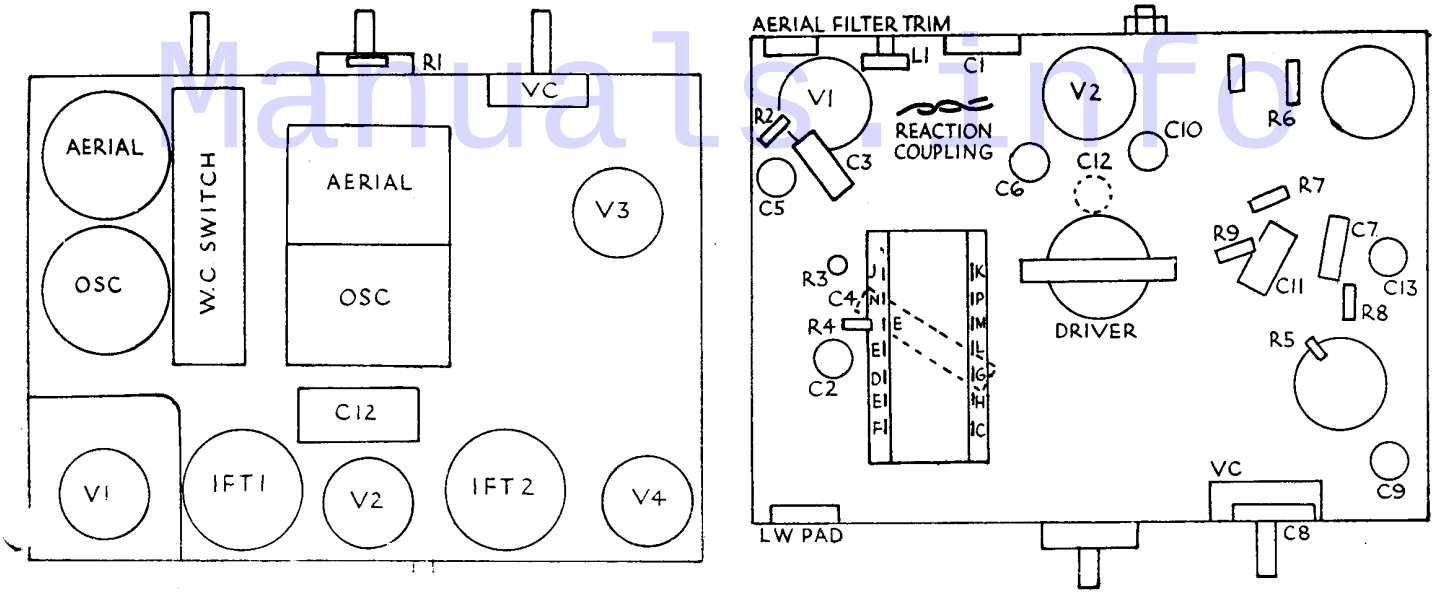


The switch contacts are accessible from above the Marconiphone chassis. When working on the underside care should be taken not to disturb the twisted wire reaction coupling.

ans are fixed by two nuts underneath and by press springs which project at the side.

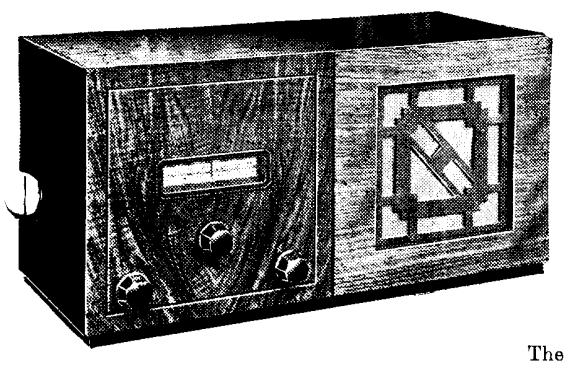
To remove the can, twist the ends projecting underneath the chassis sc that they clear the slots, remove the nuts and lift off while pressing the springs inwards.

Reaction is applied between I.F.T.2 secondary and I.F.T.1 primary. The adjustable condenser TC6 is mounted on the back of the chassis, and the coupling condenser consists of twisted wire, as shown in the lay-out diagram. This should not be disturbed.

The switch is also a new type, and the contacts are easily accessible from above the chassis.

Replacing Chassis.—Lay chassis inside the cabinet, replace holding screws, clip the L.S. leads and replace the knobs—making sure that the W.C. and battery knob corresponds to the small "on-off" plate above the dial.

HALCYON BATTERY 4



The four-valve receiver made by Halcyon Radio Ltd.

Circuit.—The H.F. valve, VS24, met. (V1), is preceded by a band-pass aerial circuit, and is followed by tuned anode coupling to the next valve. Volume is controlled by variable bias potentiometer across the G.B. battery.

The detector valve, HL2 (V2), operates as a leaky grid detector, with reaction. Coupling to the next valve is by straight transformer. The driver valve L21 (V3) has an H.F. stopping resistance in its grid circuit.

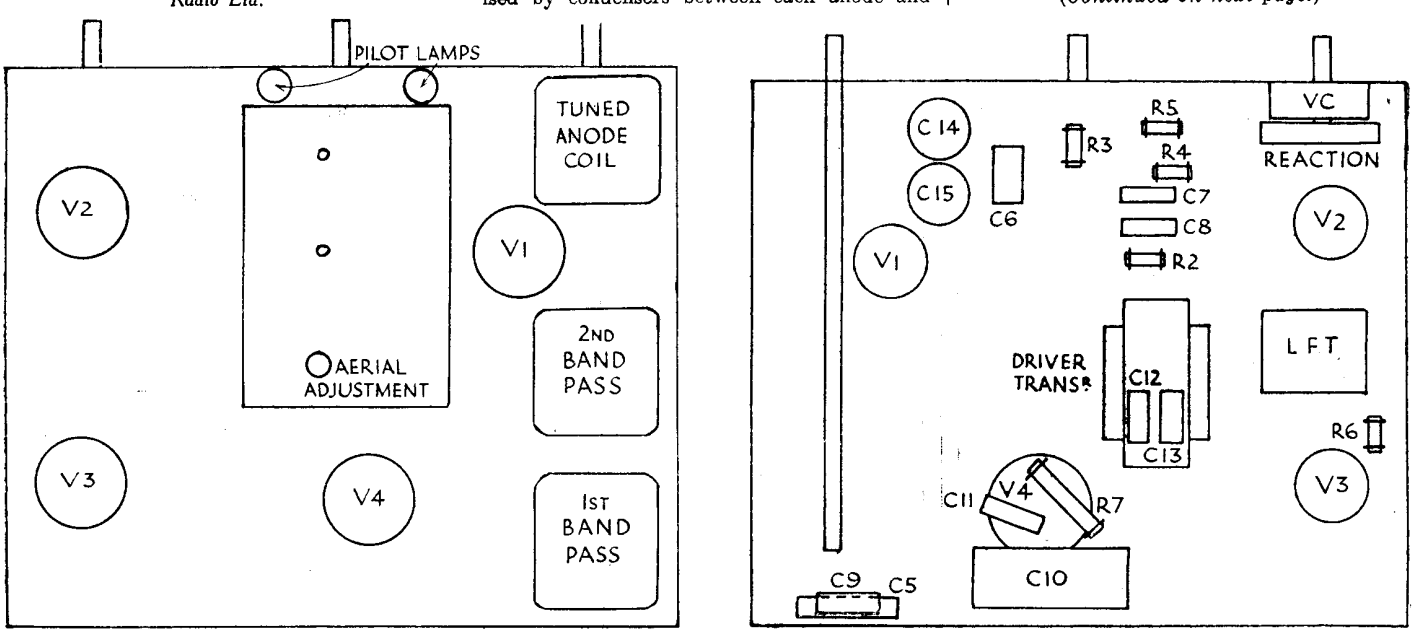
The Class B output valve, B21 (V4), has initial bias applied to the grids, and is stabilised by condensers between each anode and H.T.+ and one between the anodes. The L.S. is a permanent magnet moving-coil type.

Special Notes.—Battery voltages are :—H.T.+ (yellow), 144 volts; H.T.+ (white), 75 volts; G.B.— 1 (blue and red), 1.5 volts; G.B.— 2 (pale grey), 4.5 volts; G.B.— 3 (blue-grey), 6 volts.

Quick Tests.—In this receiver quick tests are best performed while taking the valve readings.

Removing Chassis. — Remove knobs (grub screw). Remove four holding screws from underneath and lift chassis out. The L.S. leads may be unsoldered and reconnected in the speaker side of the strut or the speaker

(Continued on next page.)



How the parts are disposed on the Halcyon chassis.

HALCYON BATTERY FOUR (Cont)

can be removed by undoing the screws from the small baffle.

General Notes.—The switch contacts are opposite their respective coils, the L.T.+ switch being the rearmost of the two front contacts.

The secondary of the driver transformer has five terminal tags, of which the two outers are taken to the grids of the Class B valve (V4), while the centre tag is the centre tapping and is connected to the G.B. 3 or 4.5 volt lead.

Components are conveniently mounted on tagged insulating panels, and no difficulty should be experienced by the novice in tracing out the circuit or in replacing any component.

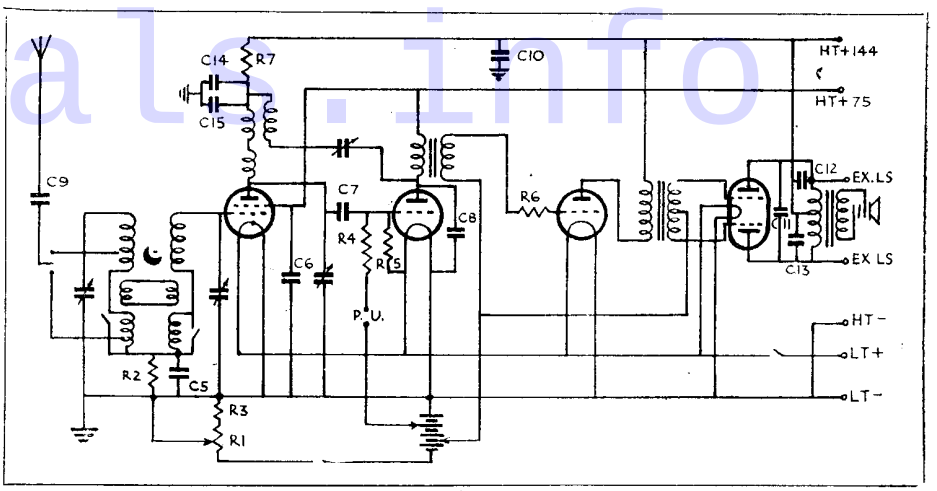
Replacing Chassis.—Catch the holding screws in the rubber washers, and lay chassis inside cabinet, replace holding screws and knobs.

VALVE READINGS

V.C. max. but no reaction.*

Valve.	Type.	Electrode.	Volts.	M.A.
1	VS24 met (4)	anode ..	115	3
		screen ..	as tapping	
2	H12 (4) ..	anode ..	68	4.1
3	L21 (4) ..	anode ..	138	2.1
4	B21 (7) ..	each anode	138	2.25

* In taking V1 and V2 readings oscillation is shown by a sudden decrease in anode current. The higher reading is the correct stable reading.



Screen-grid, detector, driver and class B valves form the basis of the Halcyon circuit.

RESISTANCES

R.	Purpose.	Ohms.
1	Variable bias ptr. (VC)	10,000
2	Bias supply to V1	1,500
3	Limiting minimum bias on V1	500
4	Series with P.U. lead	49,000
5	V2 grid leak	1 meg.
6	HF stopper in V3 grid	260,000
7	Decoupling V1 anode from H.T.	10,000

CONDENSERS

C.	Purpose.	Mfd.
5	Band pass coupling	.02
6	Decoupling V1 screen	.1
7	HF feed to V2 grid	.0001
8	V2 anode by-pass	.0001
9	Series aerial	.0001
10	Across H.T.	1
11	Tone compensating V4 anode ..	.005
12	Tone compensating V4 anode ..	.005
13	Tone compensating V4 anode ..	.005
14	Decoupling V1 anode	1
15	In parallel with C14	1

K.-B. UNIVERSAL TYPE 383

Circuit.—The first detector oscillator valve, 15D1 (V.1) is preceded by a band-pass aerial coupling. Tuning is in the oscillator grid circuit, and bias is partly fixed and partly derived from the A.V.C. Coupling to the next valve is by band-pass I.F. transformer (frequency 130 kc.).

The I.F. valve, 9D2 (V.2), is also biassed by A.V.C. and cathode resistance, and is linked by a second band-pass I.F. transformer to the second detector and L.F. valve. This, an 11D3 (V.3), has the A.V.C. diode fed from the primary of I.F.T.2 and the L.F. diode from the secondary.

In the coupling to the triode R.2 is the load, R.3 the H.F. stopper, and C.9 the coupling condenser. The triode anode is linked to that of V.4 (8D2), an additional valve to give inter-station muting and suppression control. (See special notes.)

The triode of V.3 is resistance capacity coupled to the output stage.

Two 7D3s (Vs. 5 and 6) are used. These are pentodes connected in parallel except the heaters. The grid leads contain separate stabilising resistances.

Mains equipment consists of safety switches operated by the back of the cabinet and H.F. chokes in each lead. A small resistance R.24 is used to provide the voltage for the pilot lamps, and the rectifier on A.C. is a 1D5 (indirectly heated).

Both a choke, L.8, and the speaker field are used for H.T. smoothing. The anodes of V.1 and V.2 only are fed through the choke.

Special Notes.—The pilot lamp is a 6.2-v. .3-amp. type.

V.4, the muting valve, being supplied from the same anode resistance as V.3 and from the A.V.C. line, draws sufficient current

(*Continued on opposite page.*)

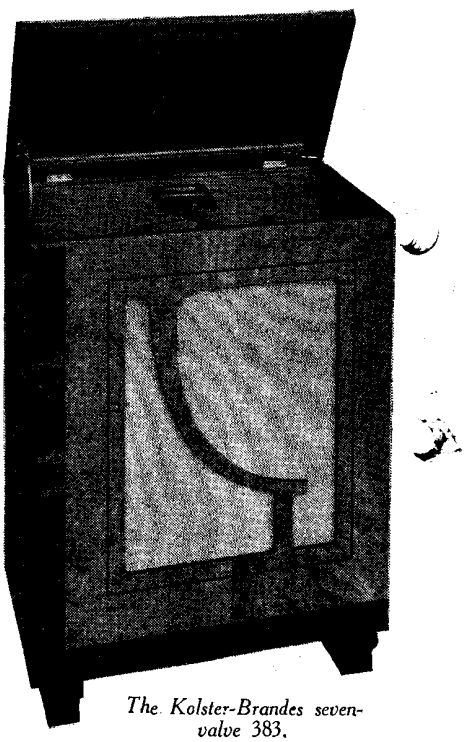
RESISTANCES

R.	Purpose.	Ohms.
1	Mains adjustment 150+100+100	350
2	Diode load	.5 meg.
3	H.F. stopper from diode ..	.1 meg.
4	V3 cathode bias	10,000
5	A.V.C. diode load	.5 meg.
6	Decoupling A.V.C. line ..	.5 meg.
7	Decoupling V4 grid	1 meg.
8	Decoupling V3 anode ..	.1 meg.
9	V3 anode L. F. coupling ..	.25 meg.
10	V5, V6 grid leak	.25 meg.
11	V5 and V6 cathode bias ..	250
12	Part of ftr. for V4 aux. grid ..	25,000
13	Series with suppressor control	1,000
14	V3 cathode bias	5,000
15	Decoupling V1 aux. grid ..	15,000
16	Series with neon tube ..	15,000
17	V6 grid stabiliser	1,000
18	V5 grid stabiliser	1,000
19	V2 cathode bias	300
20	V1 cathode bias	150
21	V1 osc. grid leak	25,000
22	Harmonic stabiliser V1 ..	2,500
23	Decoupling A.V.C. to V1 ..	100,000
24	Voltage dropping for pilot lamps	8
25	Priming voltage supply for neon tube	1 meg.

CONDENSERS

C.	Purpose.	Mfd.
1	H.F. by-pass from diode ..	.0001
2	H.F. by-pass from diode ..	.0001
3	V3 cathode	25 el.
4	L.F. coupling V3 to V5 and V6	.02
5	Tone control circuit V5 and V6	.0005
6	Tone compensating V5 and V6	.006
7	Decoupling V1 osc. anode ..	2 el.
8	V1 aux. grid by-pass	.5
9	L.F. coupling to triode grid ..	.02
10	Decoupling V1 and V2 anodes from H.T.	2 el.
11	V5 and V6 cathodes by-pass	25 el.
12	By-pass from V4 grid ..	.05
13	Decoupling neon tube ..	.001
14	Separating aerial input from chassis	.01
15	H.F. by-pass across rectifier	.01
16	V1 cathode by-pass	.01
17	Decoupling V2 grid	.1
18	Series with P.U. lead	.1
19	V2 cathode by-pass	.1
20	Decoupling V3 anode ..	.1
21	H.T. smoothing	12
22	H.T. smoothing	12
23	H.T. smoothing	8
24	V1 osc. grid	.0001
25	L.W. pad on oscillator ..	*14 mmf.
26	I.F. feed to A.V.C. diode ..	*20 mmf.
27	Band-pass coupling	.02

* Twisted wire.



The Kolster-Brandes seven-valve 383.

VALVE READINGS

No signal.

Valve.	Type.	Electrode	Volts.	ma.
1	15D1	.. anode	140–190*	3–4
		aux.grid	100	3–5
		osc. anode	50	3
2	9D2	.. anode	140–190*	8
		aux.grid	115	2
3	11D3	.. anode	0–60**	0–.1
4	8D2	.. anode	0–60**	0–.5
		aux.grid	0–50	0–2
5 }	7D3	.. anode	135	34
6 }		aux.grid	145	7

* Varies with neon control.
** Varies with suppressor control.