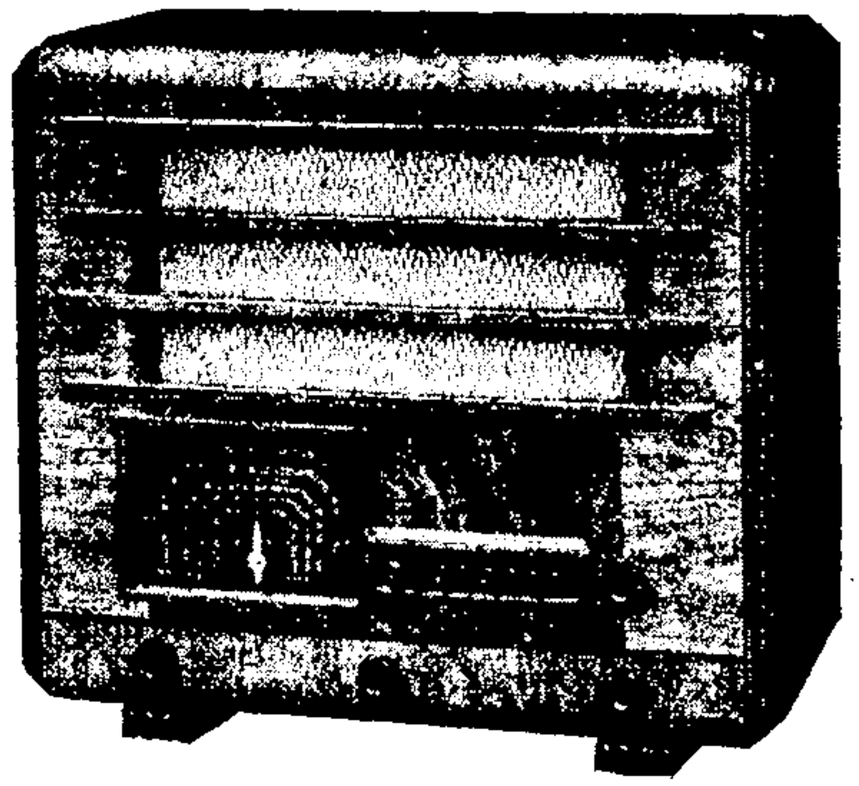
Alba 98 Four-band Presto-tune



Seven valve, plus rectifier, four waveband mechanical push-button and manually tuned table superhet for 200-250 volt, 50-60 cycle AC supplies, price 15 gns. Similar chassis in models 698 and 798.

CIRCUIT OUTLINE

A LOW noise pentode is used for V1, an RF amplifier, the input being obtained from coupled aerial circuits selected by a switch. There is AVC on all bands. Further similar coupled circuits are used between V1 and V2. In this case, however, the two short-wave coils are returned to earth and not the AVC line.

V2 is a triode-hexode with conventional oscillator circuits and a trimmer-tuned IF transformer in the anode circuit. This transformer works into the grid circuit of V3, a "sliding screen" pentode controlled by AVC.

A further trimmer-tuned IF transformer couples V3 to V4, a double diode with **separate** cathodes. The diode load is tapped down the coil, one diode being used for signal demodulation and the other for AVC. The delay voltage is obtained from the cathodes of the output stage.

For audio frequency amplification there is a triode V5, which derives its input from a volume control fed from the top of the diode load through a filter. Coupling between V5 and the output stage is by a resistance-fed transformer. The secondaries are shunted and work into the grid circuits of V6 and V7, two output pentodes connected in push pull.

The speaker field is used for smoothing in conjunction with two electrolytic condensers and the H.T. is derived from a full-wave rectifier, V8.

CONSTRUCTIONAL FEATURES

THE chassis which we examined was found to differ considerably from the circuit supplied by the manufacturers. It appears that considerable modifications have been made. Among these the following points should be particularly observed.

The audio frequency amplifier, V5, is now decoupled by a 5,000 ohms resistor and a 2 mfd. condenser. Similarly, decoupling is now used on the first valve, the components in this case being a 1,000 ohms resistor and a .1 mfd. condenser.

The circuit shows a small shunt condenser, C26, across the HT line. It should be observed that this may not be found in all chassis.

In our particular chassis C20 was found to be .000025.

The diode load and filter resistances R10 and R11 are inside the IFT can. Certain others may be a little difficult to locate as free use is made of sleeving over the resistances.

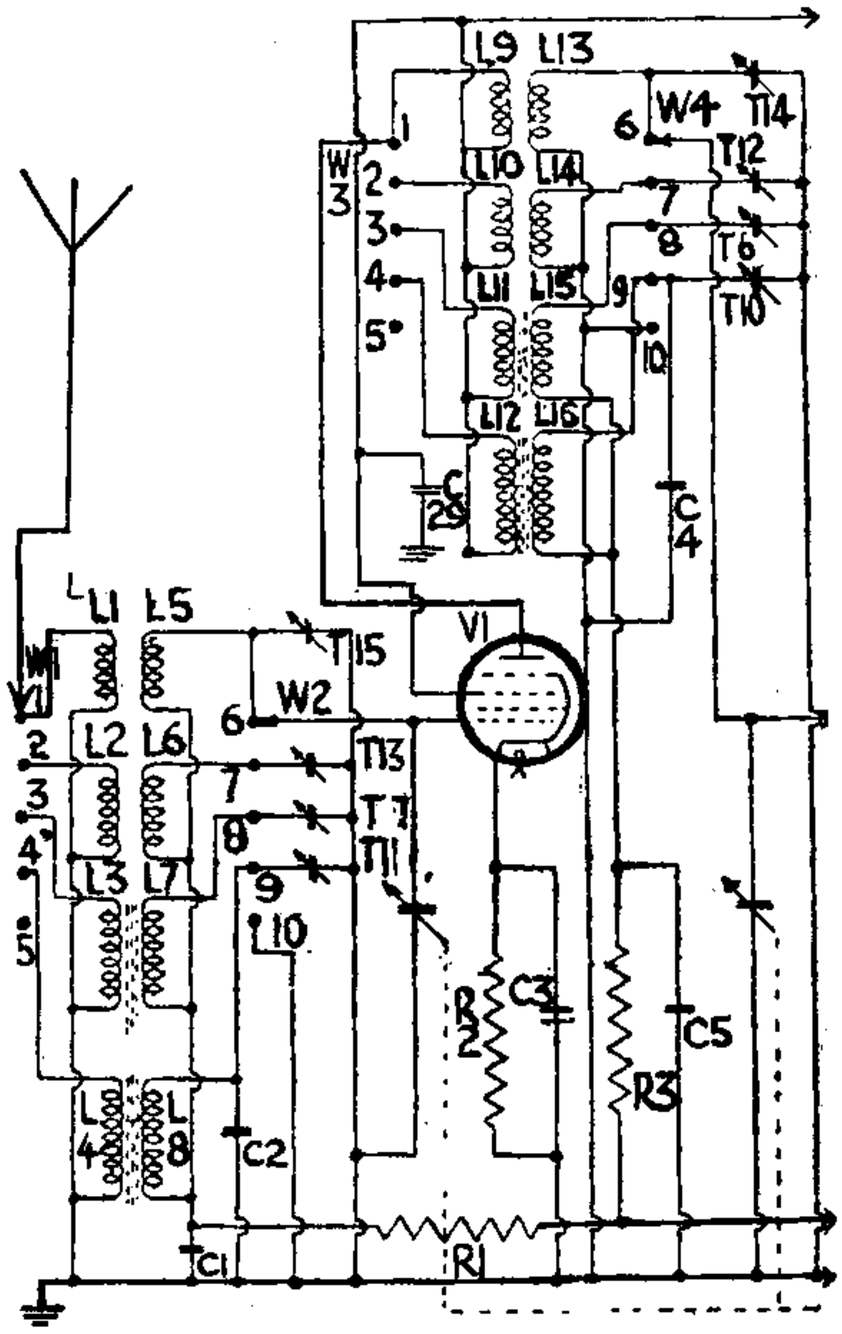
The circuit as published shows the return lead of L14 connected to earth. Actually, in the chassis examined, the AVC is applied to the second short-wave range and accordingly the return of L14 goes to C5.

The screen of V2 may be fed either from a series resistance, R4, of 20,000 ohms, or from a potentiometer consisting of two such resistances.

Wavechange Switches

The entire switching of the four wavebands and the pick-up is carried out by three wafers. The first one nearest the

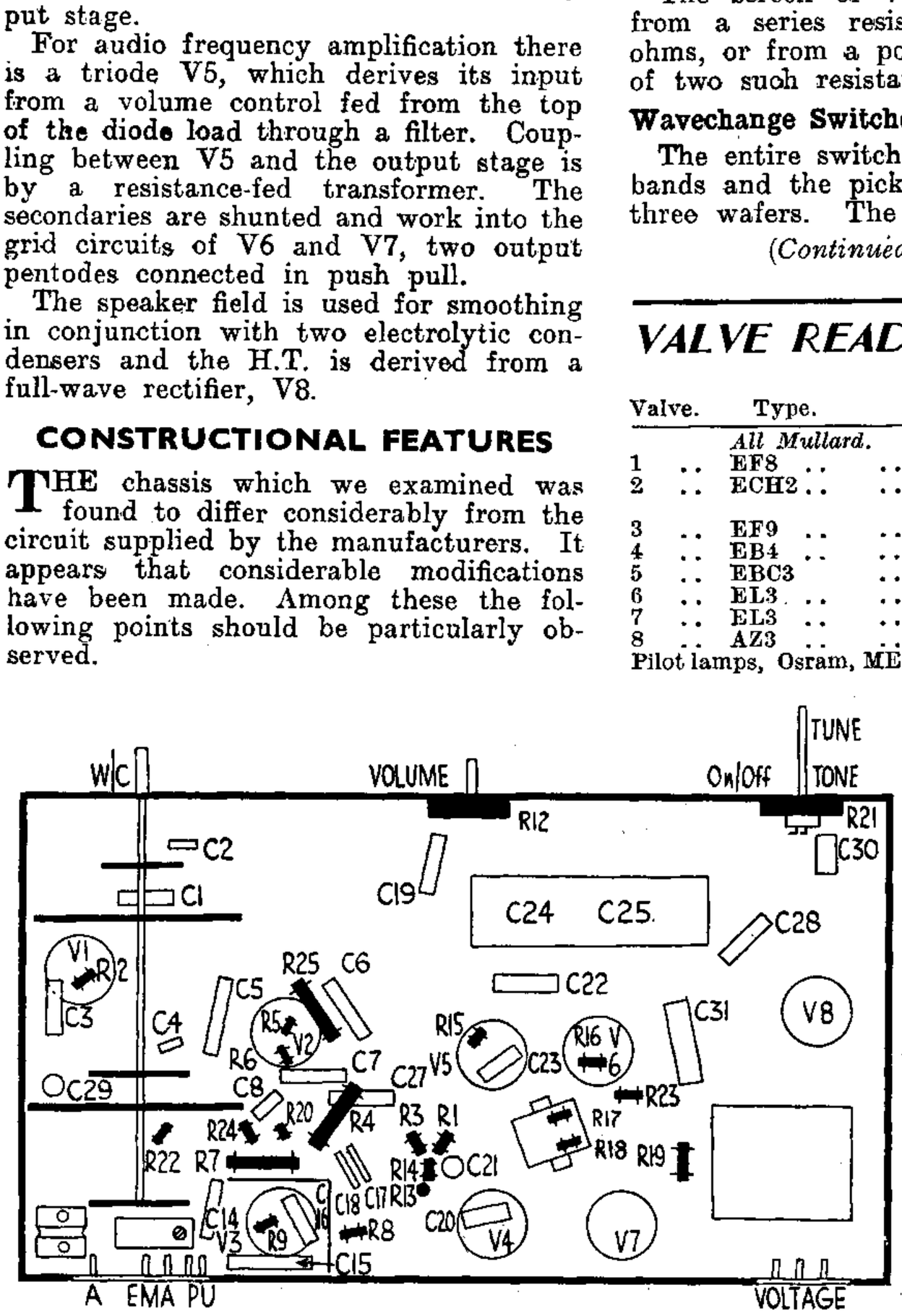
(*Continued on page* 23.)



VALVE READINGS

Valve.	Type.	Voltages Anode.	Screen.	Cathode.
	All Mullard.			
1 ..	EF8	240 ..	240 ..	3
2 ..	ECH2	240 ..	90 ..	3.5
		115(osc.)		
3 ..	EF9	240 ..	87 ..	2.5
4 ..	EB4	Diodes only.		
5 ..	EBC3 ..	143 ..	..	3.2
6 ..	EL3	232 ..	240 ..	5.8
7 ..	EL3	232 ..	240 ..	5.8
8 ..	AZ3	..	..	330

Pilot lamps, Osram, MES round, 6.2 volts, .3 amp.



Left, underside layout of the chassis. Surface view, showing trimmers, is with alignment notes on page 23.

Replacement electrolytics available from A. H. Hunt, Ltd., are: for C24+25, unit 3846A, 10s. 6d.; C22, 2915, 1s. 9d., and C31, 2964, 1s. 10d.

CONDENSERS

		Mfds.
1 ..	V1 AVC decouple	.1
2 ..	LW input shunt	.00006
3 ..	V1 cathode bias shunt	.1
4 ..	LW HF shunt	.00006
5 ..	V2 AVC decouple	.1
6 ..	V2 screen decouple	.1
7 ..	V2 cathode shunt	.1
8 ..	Osc. grid	.00005
10 ..	SW1 fixed padder	.00475
11 ..	SW2 fixed padder	.002
14 ..	Osc. anode decouple	.1
15 ..	V3 screen decouple	.1
16 ..	V3 cathode shunt	.1
17 ..	IF filter	.0003
18 ..	IF filter	.0003
19 ..	AF coupling	.1
20 ..	AVC coupling	.00002
21 ..	V3 AVC decouple	.1
22 ..	V5 cathode shunt	50
23 ..	V5 anode coupling	.1
24 ..	HT smoothing	24
25 ..	HT smoothing	8
26 ..	HT line bypass	.1
27 ..	V2 anode decouple	.1
28 ..	Tone control	.05
29 ..	V1 screen decouple	.1
30 ..	Mains aerial	.0001
31 ..	V5 anode decouple	2

10-MINUTE FAULT-FINDER

ALBA 98

Power Test.

Voltages : V5 cathode (white lead), 330; HT line (red lead), 240.

Resistance : L32, 900 ohms.

Feed current = 330 − 240 ÷ 900 = 100 ma.

Output stage, V6 and V7.

Inject 2 volts AF V6 grid and then V7 grid. If defective, check :—

Voltages : Anodes, 232; screens, 240; cathodes, 5.8. Resistances : Anodes-HT, 290; grids-chassis, 1,650 ohms.

AF Stage, V5.

Inject .5 volt AF V5 grid. If defective, check :—

Voltages : Anode, 143; cathode, 3.2. Resistances : Anode-HT, 30,000; grid-chassis, 500,000 ohms.

Demodulation.

Inject modulated 365 kc. signal V4 anode. If defective, check :—

Resistances : L27, 7.7; L28, 7.7 ohms; diode-chassis, 1.05 megohms.

IF Stage, V3.

Inject modulated 365 kc. signal V3 grid. If defective, check :—

Voltages : Anode, 240; screen, 87. Resistances : Screen-HT, 90,000 ohms; grid-chassis, 2 megohms.

Mixer Stage, V2.

Inject modulated 365 kc. V2 grid.

Voltages : Anode, 240; screen, 90. Resistances : Anode-HT, 500; screen-HT, 20,000 ohms; grid-chassis, 2.25 megohms.

Oscillator Test.

Tune set to local station and connect aerial through 10 mmfds. to V2 grid and inject local frequency plus 365 kc. at oscillator grid. If defective, check :—

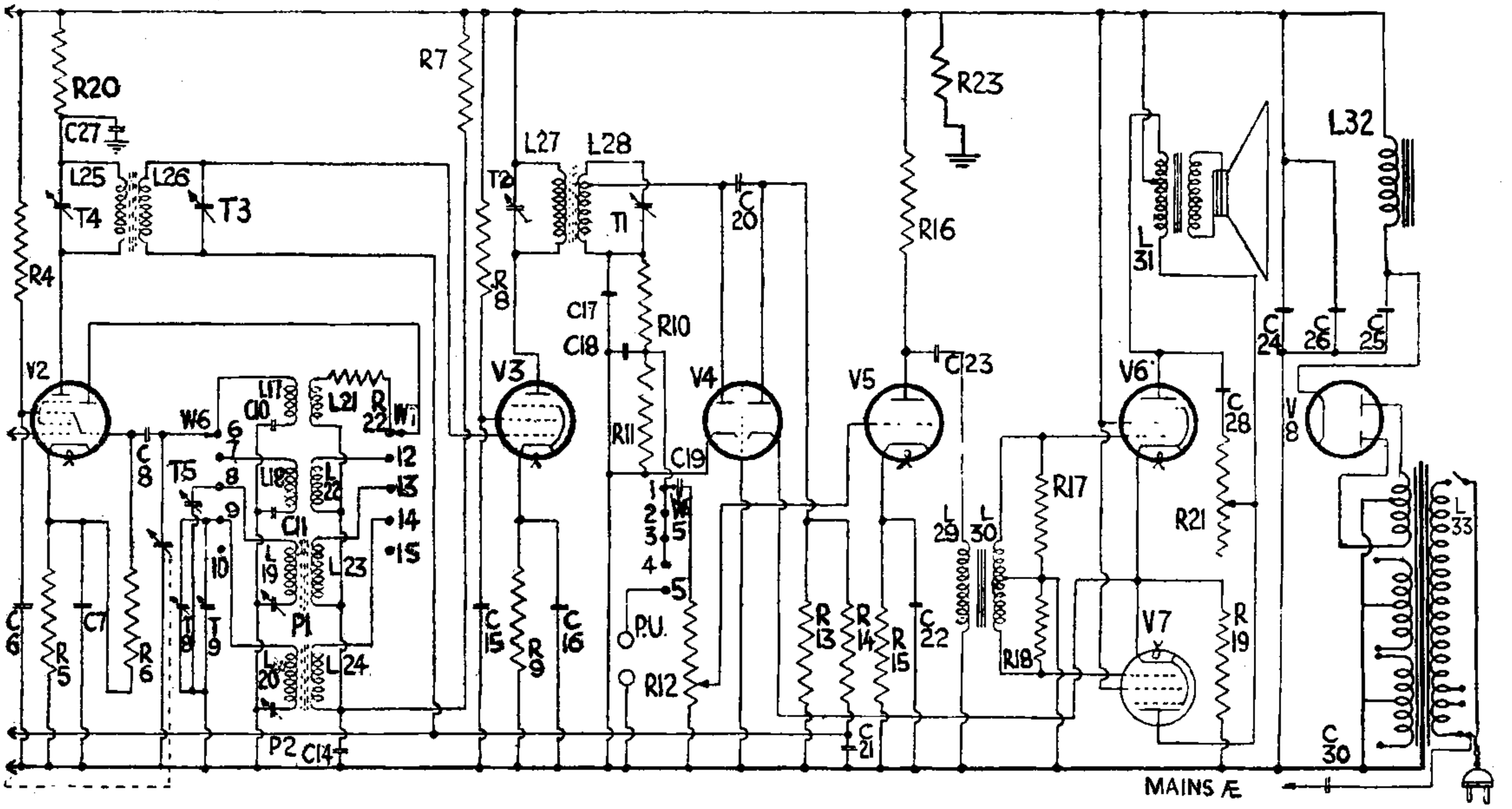
Voltages : Osc. anode, 115; cathode, 3.5. Resistances : Osc. anode-HT, 20.000; osc. grid-chassis, 50,250 ohms.

Signal Stage, V1

Tune receiver to 300 metres and inject that frequency at V1 grid. If defective, check :—

Voltages : Anode, 240; screen, 240. Resistances : Grid-chassis, 2.25 megohms.

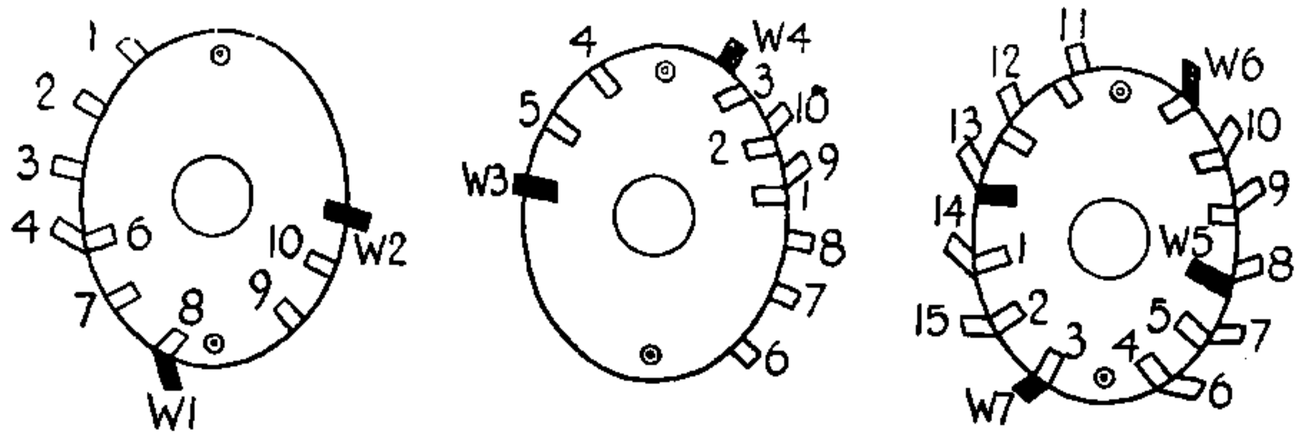
If still no signals, check coils and switching.



RESISTANCES

			Ohms.
1	..	V1 AVC decouple	250,000
2	..	V1 cathode bias..	300
3	..	V2 AVC decouple	250,000
4	..	V2 screen potr. (part)	20,000
5	..	V2 cathode bias..	250
6	..	Osc. grid leak	50,000
7	..	Osc. anode decouple	20,000
8	..	V3 screen feed	90,000
9	..	V3 cathode bias..	325
10	..	HF filter	50,000
11	..	Signal diode load	1 meg.
12	..	Volume control	500,000
13	..	AVC diode load	1 meg.
14	..	V3 AVC decouple	1 meg.
15	..	V5 cathode bias..	1,000
16	..	V5 anode load	30,000
17	..	V6 input shunt	20,000
18	..	V7 input shunt	20,000
19	..	V6 and V7 cathode bias ..	65
20	..	V2 anode decouple	500
21	..	Tone control	50,000
22	..	Het. volt control	75
23	..	V5 anode decouple	5,000
24	..	V1 anode decouple	1,000
25	..	V2 screen pot. (part).	20,000

Above, the circuit, shown divided for presentation reasons. Right, the switches with bank nearest "click" plate on left.



WINDINGS (D.C. Resistances)

L.	Ohms.	Range.	Where measured.
1 ..	V. low	SW1 ..	Aerial and chassis.
2 ..	1.2	SW2 ..	Aerial and chassis.
3 ..	18	MW ..	Aerial and chassis.
4 ..	42	LW ..	Aerial and chassis.
5 ..	V. low	SW1 ..	V1 grid and C1
6 ..	.2	SW2 ..	V1 grid and C1.
7 ..	1.3	MW ..	V1 grid and C1.
8 ..	17	LW ..	V1 grid and C1.
9 ..	.2	SW1 ..	V1 anode and R24.
10 ..	.6	SW2 ..	V1 anode and R24.
11 ..	13.3	MW ..	V1 anode and R24.
12 ..	48	LW ..	V1 anode and R24.
13 ..	.4	SW1 ..	V2 grid and chassis.
14	.6	SW2 ..	V2 grid and C5.

Windings (continued)

15 ..	1.7 ..	MW ..	V2 grid and C5.
16 ..	18 ..	LW ..	V2 grid and C5.
19 ..	.8 ..	MW	Osc. gang and P1.
20 ..	7 ..	LW ..	Osc. gang and P2.
21 ..	75 ..	SW1 ..	Osc. anode and C14.
22 ..	.4 ..	SW2 ..	Osc. anode and C14.
23 ..	2 ..	MW ..	Osc. anode and C14.
24 ..	2.4 ..	LW ..	Osc. anode and C14.
25 ..	7.7 ..	— ..	V2 anode and C 27.
26 ..	7.7 ..	— ..	V3 grid and C21.
27 ..	7.7 ..	— ..	V3 anode and HT positive.
29 ..	550 ..	— ..	C23 and chassis.
30 ..	3,300	— ..	V6 grid and V7 grid.
31 ..	580 ..	— ..	Blue leads on tag strip.
32 ..	900 ..	— ..	White and red leads on tag strip.
33 ..	9 ..	— ..	Mains plug.

Alba 98 Presto-tune

(*Continued from page* 26.)

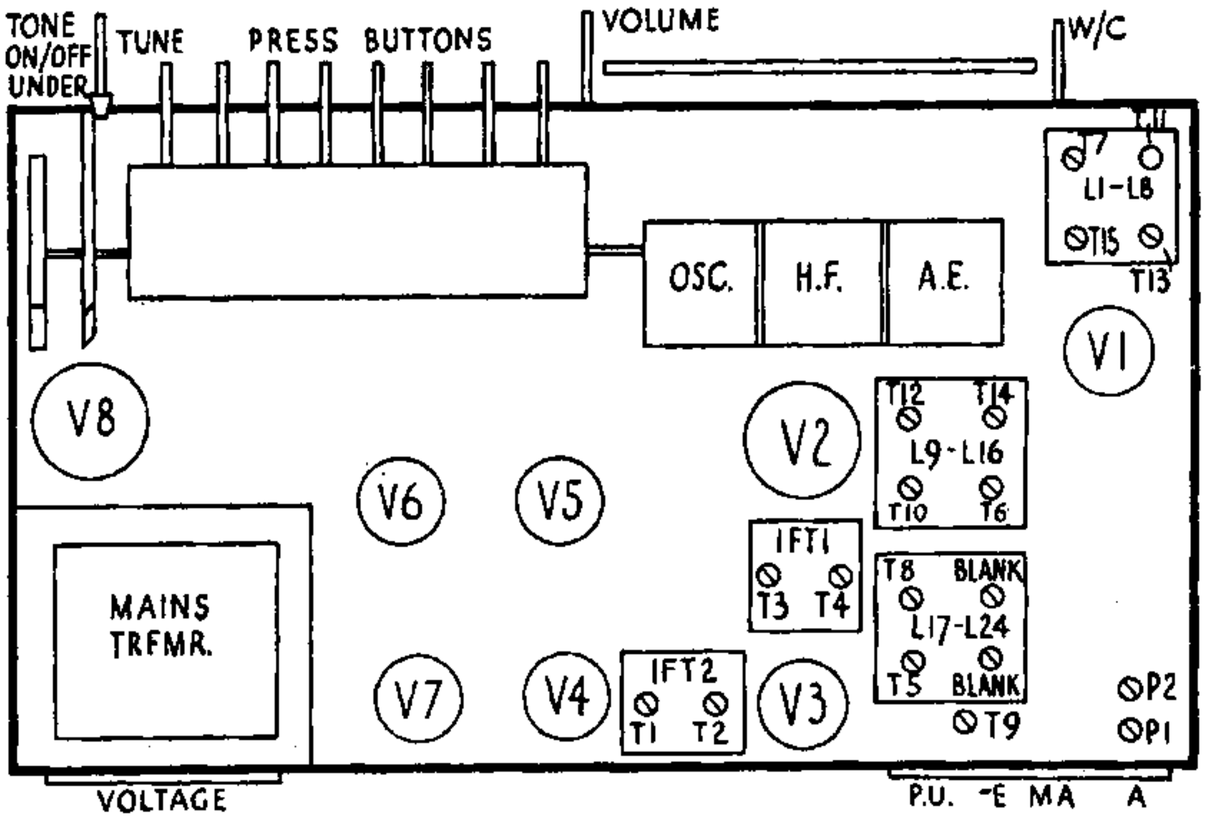
click plate carries W1 and W2 which control the aerial circuits.

The second wafer is similar to the first carrying W3 and W4 which similarly control the HF circuits. The last wafer has three wipes W5, W6 and W7. The last one changes over the AF coupling condenser from the diode load to the pick-up sockets. The remaining wipes W6 and W7 control the two oscillator windings on the four wavebands.

Chassis Removal

There are three knobs on the front of the cabinet which are released by large grub screws and these must be removed before the chassis can be withdrawn. The chassis itself is held by four bolts with rubber washers on each side.

Before the chassis can be pulled back, however, the eight push button knobs must be pulled off. These are simply held by the usual spring clip inside a slot in the bakelite moulding.



Surface layout diagram of the Alba 98. Trimmers are all accessible from above and adjustment notes are given on this page. Push-button tuning is mechanical.

Alignment

IF Circuits (365 kcs.)

Connect an output meter to the set and a signal generator to the grid of V2, and preferably short out the oscillator section. Adjust the generator to 365 kcs. and adjust T1, T2, T3 and T4 for maximum, using a low input below the AVC value.

Medium Waves (200 to 560 metres)

Connect the generator to the aerial and earth through a dummy aerial and tune set and generator to 200 metres.

Adjust T5, T6 and T7 in that order for maximum.

Tune set and generator to 450 metres and adjust P1 for maximum, checking the scale calibration by slight adjustment of the stator if necessary.

Repeat the operations until no improvement results.

Long Waves (1,000 to 2,000 metres)

Tune set and generator to 1,100 metres and adjust T8, T10 and T11 in that order for maximum output.

If sufficient adjustment cannot be obtained with T8 adjust T9. T8 and T9 are in parallel.

Tune set and generator to 1,875 metres and adjust P2, rocking the gang if necessary. Repeat the operations until no improvement results.

Short Waves 1 (13.5 to 43 metres).

Tune set and generator to 17 metres and adjust T14 and T15 for maximum. There is no padding operation.

Short Waves 2 (43 to 135 metres).

Tune set and generator to 49 metres and adjust T2 and T3 for maximum output. There is no padding operation.

Push-buttons

THE push-button mechanism is of the well-known mechanical type and is adjusted as follows. First slacken the shaft locking screw at the side of the cabinet.

Then tune in manually each desired station and press to the fullest extent the button on which it is to appear. Then lock the shaft.