

# SERVICE ENGINEER

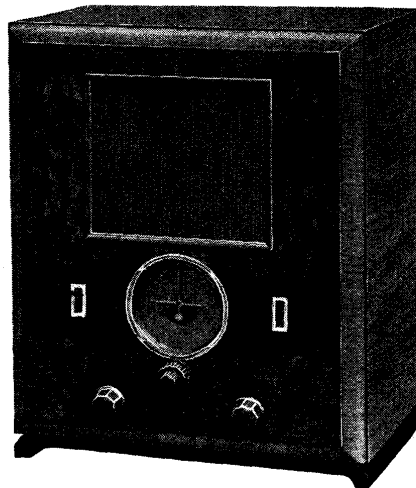
## ALBA MODEL 880 ALL-WAVE A.C. SUPERHET

**CIRCUIT.**—An A.C. mains superhet receiver for operation on three wavebands—short, medium and long.

The coupling between the aerial and V1, the frequency changer, is through a band-pass filter on medium and long waves and tuned grid with aperiodic coupling on short waves.

The signal passes to V2, an H.F. pentode, through an iron-cored I.F. transformer tuned to 117.5 kc., and to V3, an H.F. pentode, and V4, a double diode, through two further I.F. transformers. One diode of V4 supplies A.V.C. bias to the preceding valves in the orthodox manner.

The L.F. output of V4 is fed to the output pentode valve V5 through a resistance and capacity network, and after amplification, to the speaker through a matching transformer.



The Alba 880 receiver is made by A. J. Balcombe, Ltd., and is a five-valve plus rectifier superhet which covers a short-wave range as well as the two normal wavebands.

The layout diagrams giving details of the chassis are given on the next page.

### QUICK TESTS

Quick tests are available on this model on the terminal strip on the speaker transformer. Volts measured between this and the chassis should be:—

- Yellow, earth link to chassis.
- Blue, 400 v., unsmoothed H.T.
- White, 245 v., smoothed H.T.
- Black, 230 v., V5 anode volts.
- Red, 245 v., smoothed H.T.

Mains equipment consists of transformer, full-wave rectifier, electrolytic condensers, and the speaker field.

**Special Notes.**—The external speaker is connected on the high resistance side of the output transformer and should have its own matching transformer.

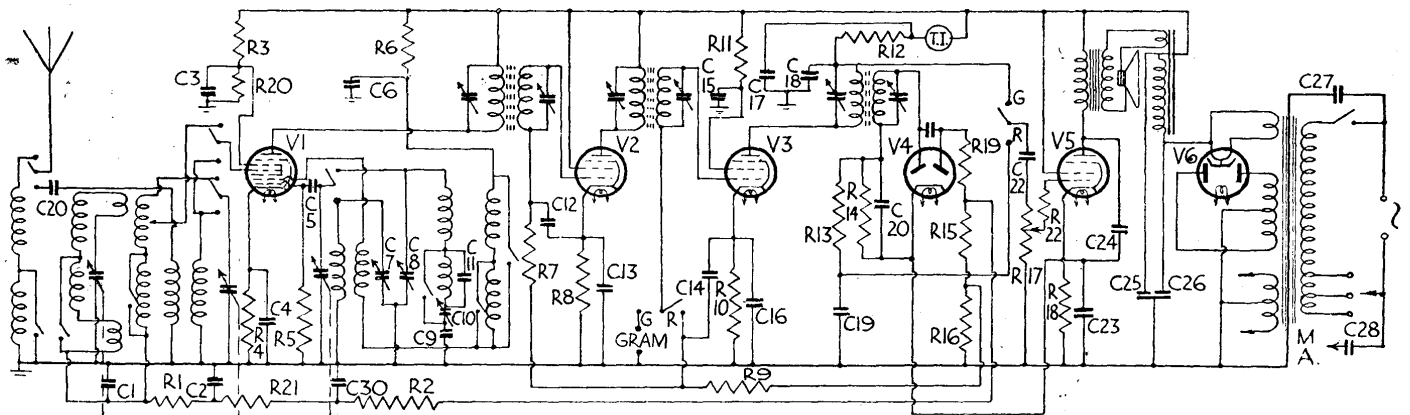
The position of the plug in its socket determines whether the internal speaker is disconnected or not.

The pilot lamps are rated at 6.2 v. .3 amp. The holders of all but the tuning indicator lamp are fixed by spring clips.

**Removing Chassis.**—Remove four knobs (Continued on next page.)

R.	Purpose.	Ohms.
1	V1 A.V.C. decoupling	100,000
2	V1 A.V.C. decoupling	1 meg.
3	V1 screen decoupling potr.	25,000
4	V1 cathode bias	250
5	V1 osc. grid leak	50,000
6	V1 osc. anode decoupling	75,000
7	V2 A.V.C. decoupling	.5 meg.
8	V2 cathode bias	400
9	V3 A.V.C. decoupling	.5 meg.
10	V3 cathode bias	250
11	V3 screen decoupling...	10,000
12	V3 anode load	5,000
13	H.F. filter	50,000
14	V4 demodulator diode load	1 meg.
15	Part V4 A.V.C. diode load potr.	.25 meg.
16	Part V4 A.V.C. diode load potr.	.25 meg.
17	Volume control	.5 meg.
18	V5 cathode bias	150
19	Part V4 A.V.C. diode load potr.	.5 meg.
20	V1 screen decoupling potr.	50,000
21	V1 A.V.C. decoupling	.1 meg.
22	Grid stopper	.1 meg.

C.	Purpose.	Mfd.
1	V1 A.V.C. decoupling	.1
2	V1 A.V.C. decoupling	.1
3	V1 screen decoupling...	.1
4	V1 cathode bias shunt	.1
5	V1 oscillator grid	.000025
6	V1 osc. anode decoupling	.1
9	Long and medium-wave padding	.0032
10	Long and medium-wave trimmer	.0007
11	Medium-wave padding	.000025
12	V2 A.V.C. decoupling	.02
13	V2 cathode bias shunt	.1
14	V3 A.V.C. decoupling	.02
15	V3 screen decoupling...	.1
16	V3 cathode bias shunt	.25
17	Tuning indicator shunt	2
18	H.F. by-pass	.002
19	H.F. by-pass	.0001
20	H.F. by-pass	.0002
21	A.V.C. diode coupling	.0002
22	L.F. coupling	.005
23	V5 cathode bias shunt	.25
24	Pentode compensating	.005
25	H.T. smoothing	12
26	H.T. smoothing	8
27	Suppression condenser	.01
28	Mains aerial	.0001
29	Series aerial	.000075
30	V1 A.V.C. decoupling	.1



The use of two intermediate frequency amplifying stages is an original feature in the Alba 880. As a whole the circuit follows typical modern practice.

# ALBA 880 ALL-WAVE SUPERHET (Continued)

from the front of the cabinet (two tuning knobs), which are secured by grub screws, and four bolts from underneath.

The chassis will then slide out of the cabinet far enough without disconnecting the speaker leads.

## ALIGNMENT NOTES

**I.F. Circuits.**—The intermediate frequency is 117.5 kc., and for correct alignment the transformers should be adjusted with the aid of an oscilloscope. The manufacturers state that should the I.F. transformers need adjustment the receiver should be returned to the factory.

**Medium Wave Band.**—(1) Close the tuning condenser and check that the pointer is on the 550 metres index mark.

(2) Connect a modulated oscillator to the aerial and earth terminals and an output meter across the external speaker terminals, taking care to keep the output from the oscillator below A.V.C. level.

(3) Tune oscillator and receiver to 500 metres and adjust T1 and T2 for maximum reading on output meter.

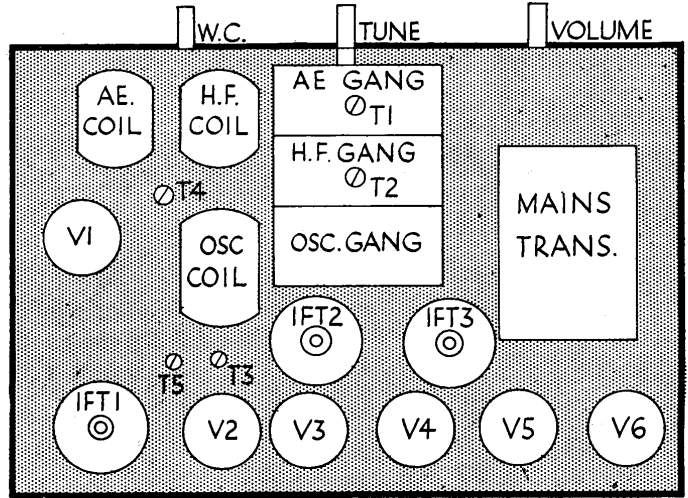
(4) Tune oscillator and receiver to 220 metres and adjust T3 for maximum on output meter.

(5) Repeat 3 and 4 for check.

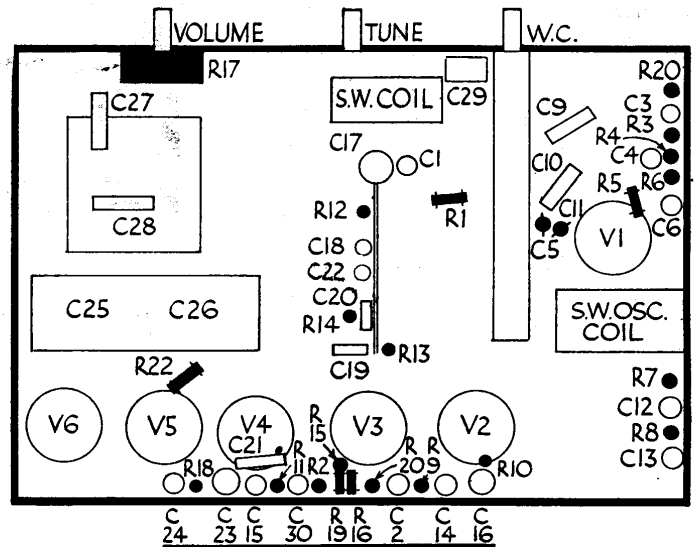
**Long Wave Band.**—Tune oscillator and receiver to 1,600 metres and adjust T4 for maximum reading on output meter.

**Short Wave Band.**—Adjust oscillator to 20 metres and tune in the signal. Check that the pointer is on the correct index mark; if not, adjust until correct. Then trim T5 for maximum reading on output meter.

The diagram on the right gives a plan view of the Alba 880 chassis and indicates the positions of the valves and other components which are visible from above.



This illustration gives the location of the components underneath the Alba chassis. Resistors are shown in solid black and condensers in outline.



VALVE READINGS					
No signal. Volume maximum. 200 v. A.C. mains.					
V.	Type.	Electrode.	Volts.	Ma.	
1	F.C.4 Met.(7)	anode ...	245	1.5	
		aux. grid ...	85	5	
		osc. anode...	75	2	
2	VP4B Met.(7)	anode ...	245	9.2	
		aux. grid ...	245	3	
		anode ...	165	8.1	
3	VP4B Met.(7)	aux. grid ...	175	2.9	
		diode ...	—	—	
4	2D4A Met.(5)	anode ...	230	32	
5	Pen.4VB (7)	anode ...	245	3.4	
		aux. grid ...	245	—	
6	IW3 (4) ... (All Mullard)	filament ...	400	—	

USUALLY an excellent indication as to whether a receiver has developed a complete or partial short circuit can be obtained by measuring its resistance between H.T. + and chassis — when, of course, the set is "off."

First, remembering that all resistance paths between H.T.+ and "earth" are in parallel, the total resistance can be calculated. If the measured resistance is different a little thought will usually suggest the whereabouts of the fault.

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