ALBA MODEL 870 ALL-WAVE A.C SUPERHET FOUR

CIRCUIT.—A four-valve plus rectifier three waveband receiver for A.C. mains.

The input to V1, a frequency changer, is *via* an inductively coupled band-pass filter using iron-cored coils on medium and long, and through two inductively coupled coils on short waves.

Coupling to V2 is by means of an iron-cored I.F. transformer tuned to 117.5 kcs.

An H.F. pentode, V2, is in turn coupled *via* a second I.F. transformer to V3, a double diode, the diodes of which are strapped and used both for demodulation and to supply A.V.C. bias to the preceding valves in the orthodox manner.

Low-frequency signals from V3 are passed *via* the volume control to V4, which is a pentode, and after amplification to the moving coil loudspeaker *via* a matching transformer.

Mains equipment consists of transformer, full wave rectifier, electrolytic condenser, and the loudspeaker field.

Special Notes.—The dial lamps are rated at 6.2 volts .3 amp., and the holders are clipped one on either side of the dial assembly. A vertical lift will release them.

A. J. Balcombe's Model 870 is a three-waveband superhet using four valves plus a rectifier. It is for A.C. operation.

RESISTANCES

R.	Purpose.	Ohms.
1	V1 cathode bias	200
2	V1 screen potentiometer ...	10,000
3	V1 screen potentiometer ...	25,000
4	V1 osc. grid leak	25,000
5	V1 A.V.C. decoupling ...	1 meg.
6	V1 osc. anode decoupling ...	13,000
7	V1 osc. anode series resistance	100
8	V2 cathode bias	150
9	V2 anode decoupling... ...	5,000
10	A.V.C. part of diode load ...	.5 meg.
11	A.V.C. part of diode load ...	.5 meg.
12	A.F. filter	50,000
13	Demodulator load	.5 meg.
14	Volume control	.5 meg.
15	V4 cathode bias	100

CONDENSERS

C.	Purpose.	Mfds.
1	V1 A.V.C. decoupling ...	.1
2	V1 cathode bias shunt ...	.1
3	V1 screen decoupling... ...	.1
4	V1 osc. grid	.0001
6	Medium wave padding ...	.002
7	V1 osc. anode decoupling ...	.1
8	V2 cathode bias shunt ...	.1
9	V2 anode decoupling... ...	.002
10	A.V.C. decoupling	.1
11	H.F. by-pass	.00025
12	Diode coupling	.00025
13	L.F. coupling	.005
14	Gramophone coupling ...	.005
15	Pentode compensating ...	.005
16	H.T. smoothing	12
17	H.T. smoothing	8
18	Mains aerial	.00025
19	H.F. by-pass	.00025
20	V4 cathode bias shunt ...	25

The external speaker terminals will be found on the output transformer fixed to the speaker. They are connected on the primary so that any additional speaker must possess its own matching transformer.

Removing Chassis.—Remove the knobs from the front of the cabinet (grub screws) and four bolts from underneath. The chassis may then be removed from the cabinet far enough for most repairs without disconnecting the speaker leads.

Should it be found necessary to remove these, reconnection is as follows: F top, blue; 1, black; 3, F, red; and a white lead from the speaker chassis to earth.

ALIGNMENT NOTES

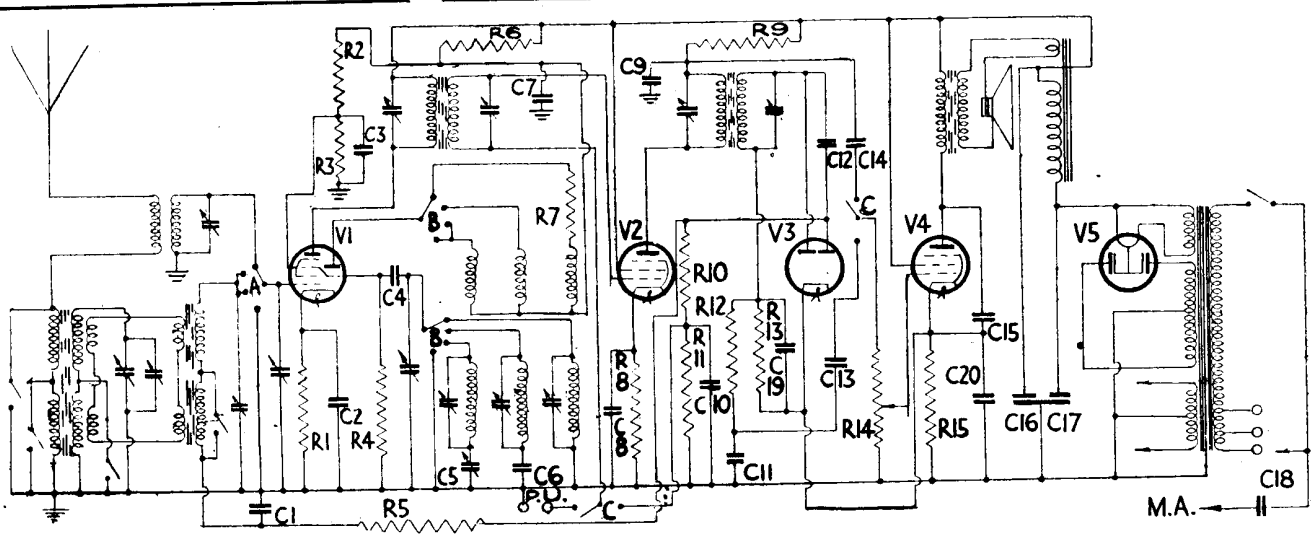
I.F. Circuits.—The I.F. transformers of this receiver, as in all Alba sets, are accurately adjusted by means of an oscilloscope before leaving the works, so that should they require readjustment, the set should be returned to the factory. Good results cannot be obtained by using an oscillator.

Medium Waves.—Connect a modulated oscillator to the aerial and earth terminals and an output meter across the speaker terminals.

VALVE READINGS

No signal. Volume maximum. 200 volt A.C. mains.

V.	Type.	Electrode.	Volts.	M/a.
	(All Mullard)			
1	TH4 (7) ...	anode ...	265	2.2
	Met	screen ...	65	4.0
		osc.anode	125	4.2
2	VP4B (7) ...	anode ...	195	13
	Met	screen ...	265	4.2
3	2DA4 (5) ... Met	diode ...	—	—
4	Pen A4 (7) ...	anode ...	250	33
		screen ...	265	3.5
5	IW4 (4) ...	filament...	420	—



Iron-cored coils are used in the band-pass input and I.F. stages of the Alba 870 A.C. The anodes of V3, a double diode, are strapped together and used both for demodulation and as a source of A.V.C. voltage.

ALBA MODEL 870 ALL-WAVE SUPERHET ALIGNMENT NOTES

Inject and tune in a signal of 500 metres and adjust T1 and T2 for maximum reading on output meter.

Tune the oscillator and the receiver to 200 metres and adjust T5 for maximum reading.

Long Waves.—Inject and tune in a signal of 1,600 metres and trim T7 for maximum reading, and, while rocking the gang condenser, T6.

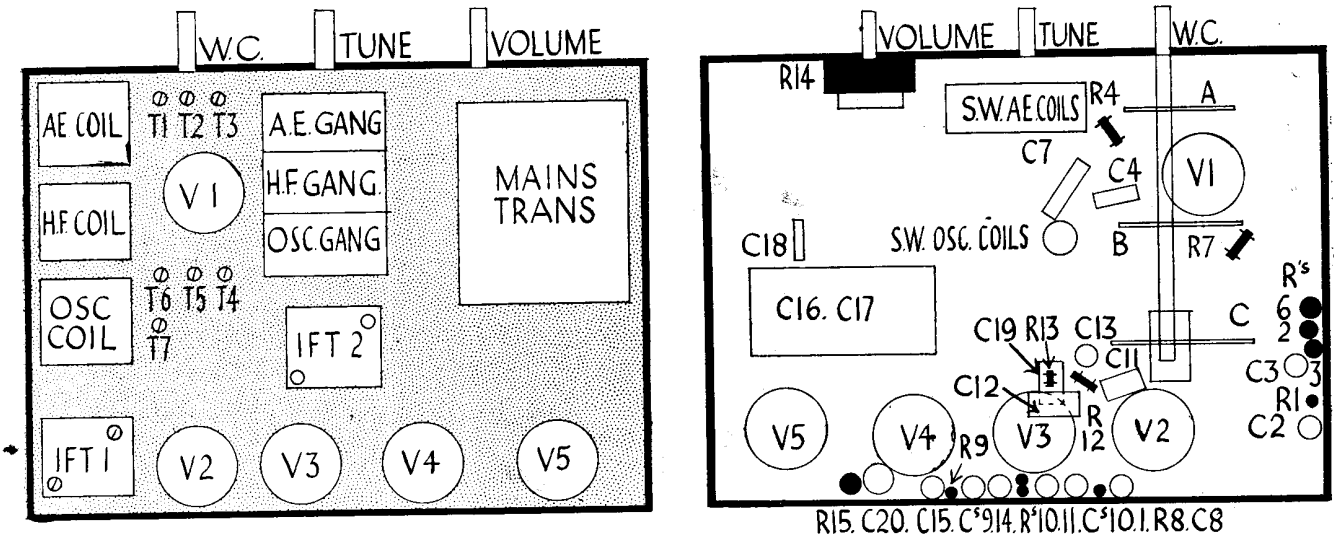
Short Waves.—Inject and tune in a signal of 20 metres and adjust T3 and T4 for maximum reading on output meter.

QUICK TESTS

Quick tests are available on this receiver on the terminals strip on the speaker transformer.

Volts measured between this and the chassis should be :—

Blue lead top, 420 unsmoothed H.T.
Black lead, 265 smoothed H.T.
Red lead, 250 smoothed H.T.



These diagrams show the appearance of the chassis of Alba's 870 all-wave superhet. Left, the "tinted" diagram, is the top view; right is the underside view. All resistances are in solid black for easy reference.