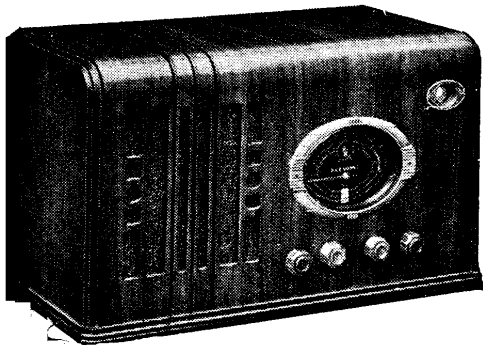


BELMONT MODEL 746 ALL-WAVE SUPERHET FIVE



Five valves and a rectifier are housed in the compact Belmont Model 746 receiver. It is a superhet covering three wavebands.

CIRCUIT.—A five-valve superhet for operation on A.C. mains and working on a short waveband, in addition to the usual medium and long waves.

On the long and short wavebands the aerial is inductively coupled to the grid of V1. On the medium waves an additional inductively coupled coil comes into operation. This coil is tuned by a section of the gang condenser which is inoperative on the other wavebands.

A separate local oscillator valve, V2, is used, and this is a triode.

An I.F. transformer tuned to 465 kc. couples V1 to V3, also an H.F. pentode, while a second I.F. transformer is used between V3 and V4, a double-diode triode.

One diode of V4 is used for demodulation and the other supplies A.V.C. bias to the preceding valves in the orthodox manner.

The tuning indicator is connected in

this part of the circuit, rectified impulses being obtained from the diode section of V4 and applied to the grid of the tuning indicator.

The output of V4 is fed to V5, an output pentode, by means of a resistance and capacity stage, and after amplification to the moving-coil speaker through a matching transformer.

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

General Notes.—The dial lights have the usual 6 volts rating for an A.C. mains set. They are, however, of the M.B.C. type, and should be obtained from the manufacturers. They are secured to the dial assembly by means of rubber bushes, and can be removed by a direct vertical pull.

It should be noted that no mains adjuster is provided on this receiver as sold in this country. The voltage range of the transformer covers the usual 200-250 volts without adjustment.

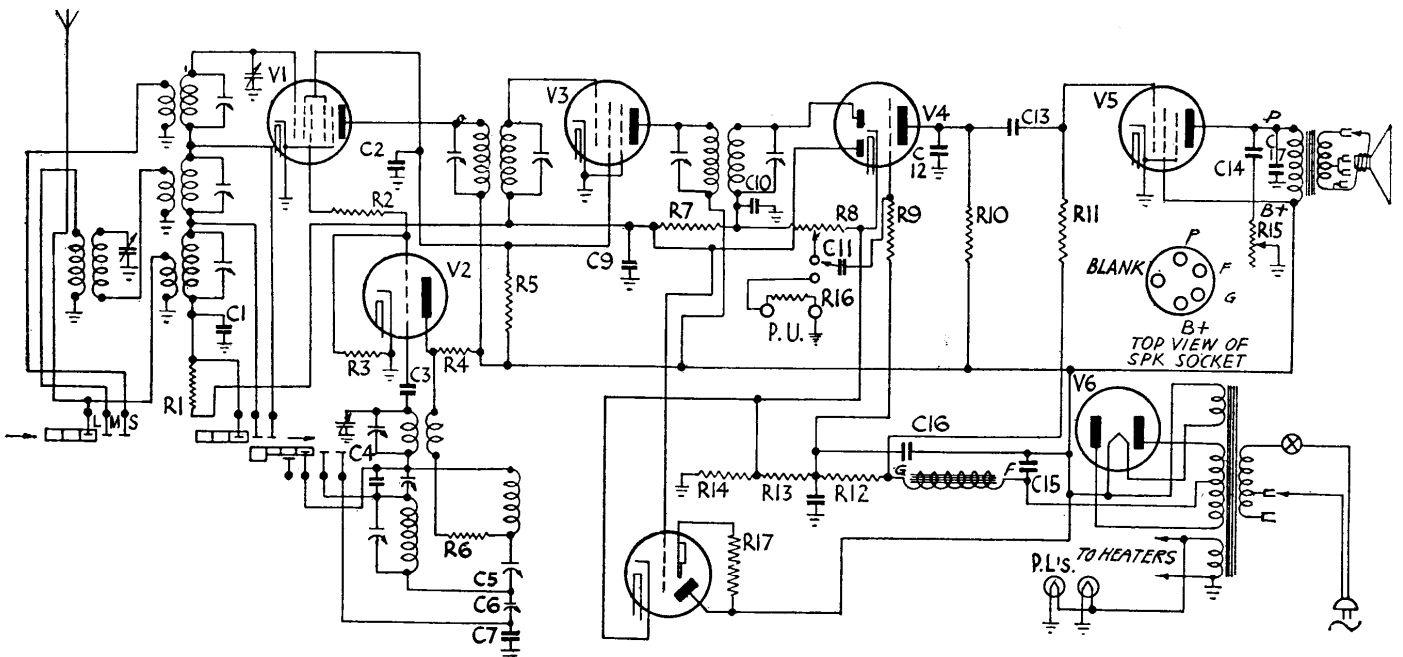
Removing Chassis.—Remove the four knobs from the front of the cabinet, and four bolts from underneath. Slide the chassis out of the cabinet and remove the speaker plug from its socket on the front flange. Remove the valve holder from the tuning indicator, or, if it is preferred, remove it from its bracket. The chassis is then free.

Special Note.—Connections for an external speaker are provided on the rear of the output transformer. Four sockets will be found, the white being already occupied by the internal speaker link. The brown and black are the connections for the extra speaker, which should be of low impedance.

The lead in the white socket can be moved to the yellow socket, if necessary, to correct any matching error caused by the introduction of the extension speaker.

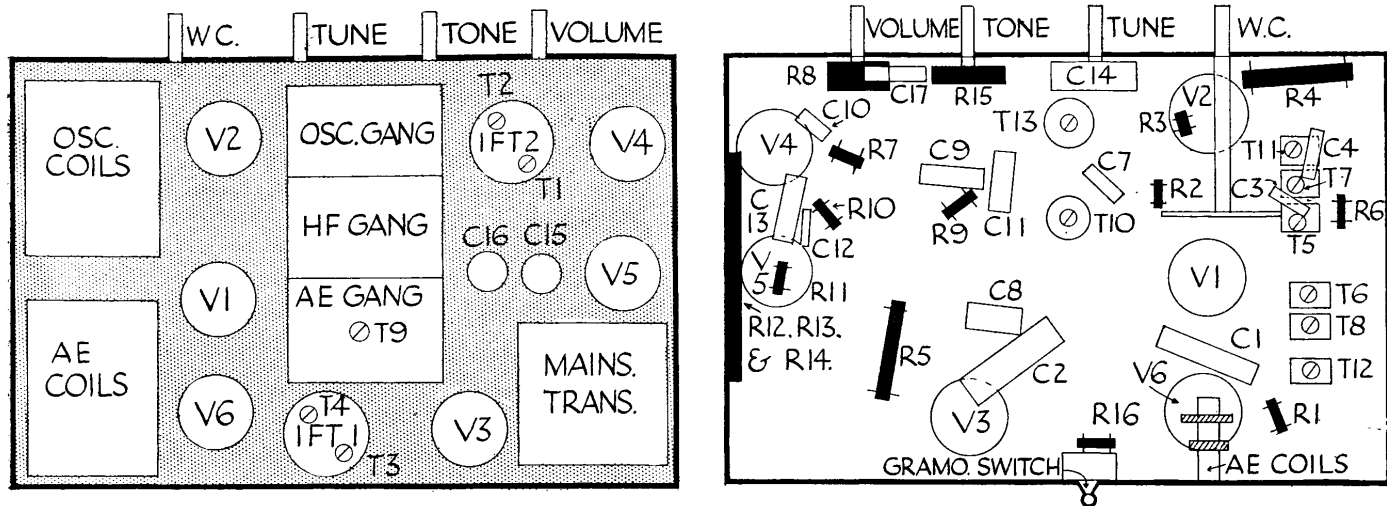
CONDENSERS		
C.	Purpose.	Mfds.
1	V1 A.V.C. decoupling ..	.05
2	V1 and V3 screen decoupling ..	.1
3	V2 grid ..	.00005
4	Osc. padding ..	.00004
7	Padding ..	.003
8	Series bias shunt ..	.1
9	A.V.C. decoupling ..	.05
10	H.F. filter ..	.00025
11	L.F. coupling ..	.01
12	H.F. filter ..	.00025
13	L.F. coupling ..	.01
14	Tone ..	.025
15	H.T. smoothing ..	8
16	H.T. smoothing ..	8
17	Pentode compensating ..	.002

RESISTANCES		
R.	Purpose.	Ohms.
1	V1 A.V.C. decoupling ..	100,000
2	Oscillator coupling ..	150
3	V2 grid leak ..	50,000
4	V2 anode load ..	9,000
5	V1 and V3 screen load ..	19,000
6	Regeneration modifier ..	50
7	A.V.C. decoupling ..	1 meg.
8	Volume control and demod. load ..	1 meg.
9	V4 grid leak ..	3 meg.
10	V4 anode load ..	100,000
11	V5 grid leak ..	500,000
12	Series bias pot. ..	220
13	Series bias pot. ..	33
14	Series bias pot. ..	52
15	Tone control ..	50,000
16	Pick-up shunt ..	100,000
17	Tuning indicator feed ..	1 meg.



While of American origin the circuit of the Belmont set is straightforward. One unusual feature, however, is the use of a special coil and condenser on medium waves only.

BELMONT 746 ALL-WAVE SUPERHET (Cont.)



The tinted diagram (left) enables the components on top of the Belmont chassis to be identified and the diagram on the right shows the arrangement of parts underneath.

CIRCUIT ALIGNMENT NOTES

I.F. Circuits.—Connect a modulated oscillator tuned to 465 kc. to the grid cap of V3 through a .1-mfd. condenser, and place an output meter across the extra speaker sockets on the output transformer. Adjust T1 and T2 for maximum reading.

Transfer the oscillator to the grid cap of V1 and adjust T3 and T4 for maximum.

Short Waves.—Connect the oscillator to the aerial and earth terminals by a .1-mfd. condenser and a 400-ohm resistance in series and inject a signal of 16.5 metres. Adjust the gang condenser and trim T5 for maximum on the output meter.

Inject and tune in a signal of 17.6 metres and adjust T6 for maximum reading.

Check the above adjustments at 50 metres.

Medium Waves.—Substitute a .0002-mfd. condenser and a 20-ohm resistance in series for the dummy aerial. Inject and tune in a signal of 187 metres; adjust T7 for maximum.

Inject and tune in a signal of 214 metres and adjust T8 and T9 for maximum.

Inject and tune in a signal of 500 metres and while rocking the gang condenser adjust T10 for maximum.

Repeat the above adjustments until no further improvement is possible.

Long Waves.—With the condenser plates fully out of mesh inject a signal of 860 metres and trim T11 for maximum.

Inject and tune in a signal of 925 metres and adjust T12 for maximum reading.

Inject and tune in a signal of 2,000 metres, and while rocking the gang condenser adjust T13 for maximum output.

Repeat the above adjustments until the best results are obtained. Then retrim the medium waves and repeat all the adjustments made there, winding up by going through all the long wave adjustments.

VALVE READINGS

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

V.	Type.	Electrode.	Volts.	M.a.
1	All Ken-Rad. 6L7 met. (7)	Anode ..	160	1.9
		Screen ..	110	4.5
2	6C5 met. (6)	Anode ..	120	5
		Screen ..	160	2.2
3	6K7 met. (7)	Anode ..	110	1*
		Screen ..	75	—
4	6Q7 met. (7)	Anode ..	150	16.5
		Screen ..	160	2.8
5	GF6	Anode ..	165	—
		Filament..	165	—
6	5X3 (5)	* Inaccessible.	—	—

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