BELMONT 800, 845

Six-valve, plus rectifier, three-waveband superhet for use on AC or DC mains 110-220-260 volts. Visual tuner of the cathode-ray tube type and provision for a pick-up. Marketed by British Belmont Radio, Ltd. Present service agents: Price & Co. (Manchester), Ltd., 78, Tib Street, Manchester, 4, and Shannons & Bishop, Ltd., 182, Wardour Street, London, W1.

SIGNALS from the aerial are fed via C1 to a switch which directs the signals either to the coupling coils, L3 (SW) and L5 (LW), or to the MW preselector circuit L1 and L2. This gives additional selectivity on the MW band, as L2 is tuned by VC1 section of the triple-gang condenser. A winding L4 couples the MW signal from L2 to the grid circuit coil L7. The other grid coils are L6 (SW) and L8 (LW). They have individual trimmers and are tuned by VC2 section of the gang condenser. The grid coils feed directly into the grid of the mixer valve, V1, which is AVC controlled.

A separate oscillator valve, V2, has tuned grid circuits L9, L11 and L12, with inductive coupling on SW to L10 reaction coil and direct coupling on MW and LW.

Parallel trimmers are T5 (SW), T7 (MW), T11 and C3 (LW). Series tracking is by C4 (SW), T10 (MW), T13 (LW).

The anode of V2 is fed via an HF choke from the main HT positive line. The grid condenser for V2 is C2, and the grid-leak R2. The grid is also connected via R23 to the third grid of the mixer valve, V1, so that mixing takes place and the IF signal is developed across the primary, L14, of the first IF transformer. The secondary, L15, of the IFT is connected direct to the grid of the IF amplifier valve, V3, and the "earthy" end of L15 is taken to the AVC line.

The second intermediate frequency transformer, L16, L17, transfers the signal from V3 to the diode of V4, the double diode triode second detector and LF valve, the signal load being the volume control, R9.

AVC is supplied by the DC potential across R9 and passed via the decoupling components, R8 and C5, to the grids of V1 and V3 and to the visual tuner. The second diode of V4 is not used, the diode being earthed through C5. The triode portion of V4 is biased by connecting the grid through a grid stopper, R10, to a tapping on the bias potentiometer network comprising L20, R13 and R14.

The cathode of V4 is connected to the junction of R13 and R14, where it gets approximately 2v negative biasing for the AVC delay load. The grid potential is about 3.2v negative, and the signal is applied to the grid from the volume control via C7.

On gram the resistance, R11, which is connected across the pickup sockets, is put across the grid and cathode of V4 so that a separate volume control is necessary to vary the output from the pickup on gram.

The LF output of V4 is resistance capacity coupled by R18 and C9 to the grid of V5, which is one of the push-pull pentode output valves.

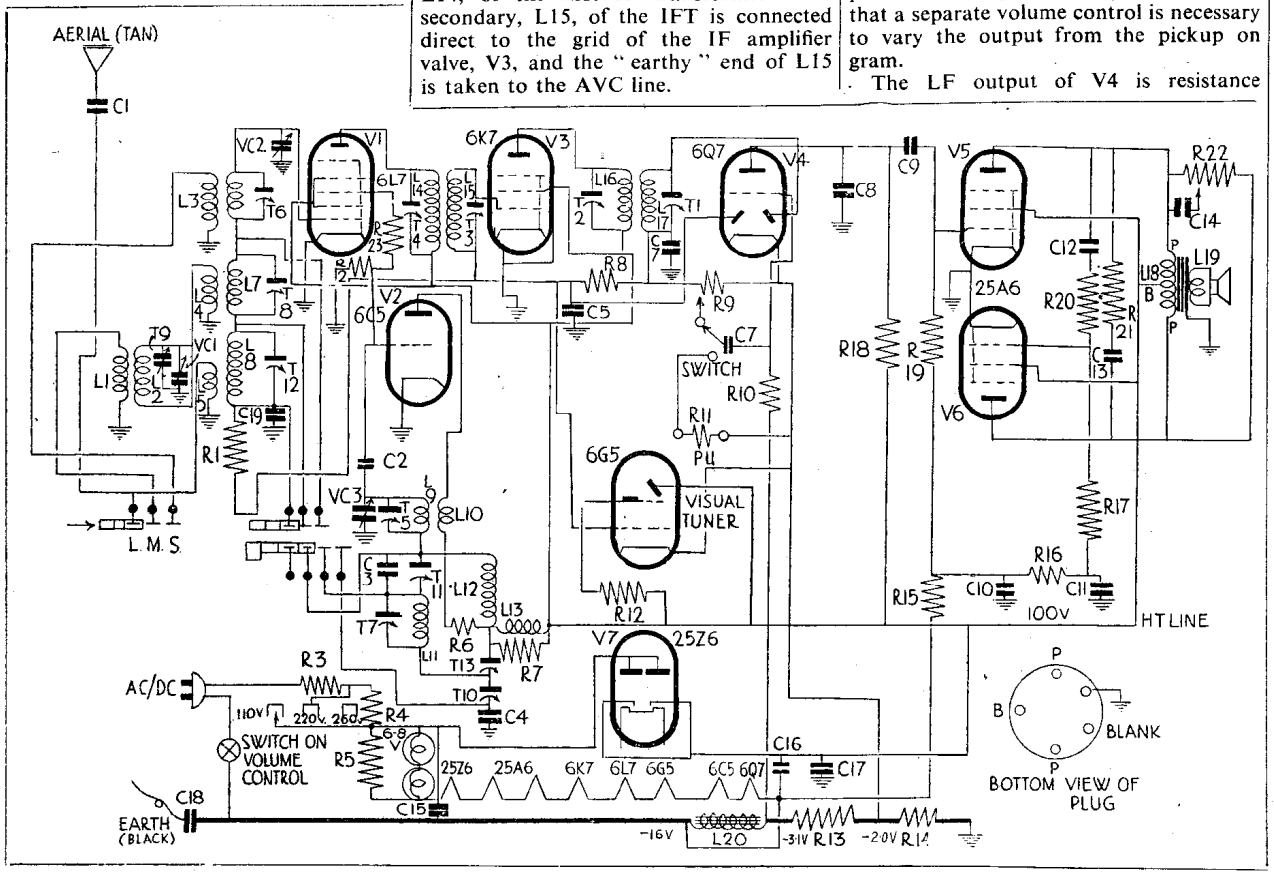
C8 is the anode to chassis HF bypass for V4. As no inter-valve transformer is employed, a phase reversal circuit is used to couple the output of V4 to the grid of V6, the second pentode push-pull output valve.

This phase reversal network comprises C12 and R20 and the input circuit, comprising R16 and R17, decoupled by C10 and C11. The grid circuits of both valves are taken via R15 to the full negative end of the bias potentiometer network, where they are given a negative potential of about 16 volts.

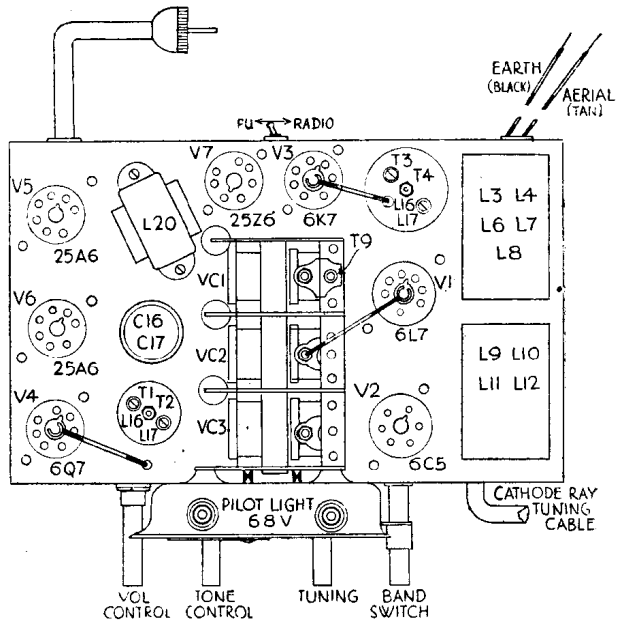
A permanent tone correction circuit, C13 and R21, is connected across the anodes of V5 and V6, which are coupled to the primary, L18, of the output transformer. The centre tapping of the winding is connected to the HT line direct, as are the screening grids of V5 and V6.

A variable tone control is provided by C14 and R22, also across the primary winding, while the permanent magnet speaker is connected to the secondary, L19, of the output transformer. The supply circuit for HT and LT is quite standard, comprising the voltage dropping resistance, R3 and R4, with a shunt resistance, R5, for the two pilot lamps. The valve heaters are in series with these resistances across the mains, with a by-pass condenser, C15, in shunt with the valve heaters. The HT supply circuit is connected on one side to the strapped anodes of the rectifier valve, V7, the cathode of which goes to the main HT feeder line.

Smoothing is in the negative HT line, and comprises the choke, L20, the reservoir condenser, C16, and smoothing condenser, C17. R13 and R14 complete the



Top view of the chassis showing the positions of the valves and other main components. Some trimmers are indicated here and others are shown on the underside layout on page viii.



WINDINGS

L	Ohms	L	Ohms
1	37	11	12
2	4	12	22
3	1	13	—
4	1	14	9
5	60	15	70
6	1	16	9
7	4	17	70
8	16	18	—
9	1	19	—
10	—	20	250

CONDENSERS

C	Mfds	C	Mfds
1	.01	11	.1
2	.00005	12	.01
3	.00004	13	.003
4	.003	14	.01
5	.02	15	.1
6	.00025	16	26
7	.01	17	26
8	.00025	18	.01
9	.01	19	.05
10	.25		

RESISTANCES

R	Ohms	R	Ohms
1	100,000	13	20
2	50,000	14	50
3	250	15	250,000
4	100	16	250,000
5	40	17	75,000
6	50	18	150,000
7	50,000	19	500,000
8	3 meg	20	500,000
9	1 meg	21	10,000
10	3 meg	22	300,000
11	100,000	23	100
12	1 meg		

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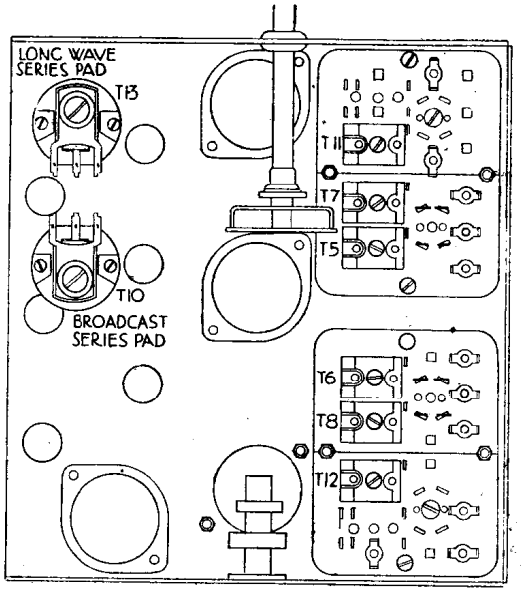
Continued from page vi.

Simplified under-chassis diagram indicating the positions of most of the trimmers. Other trimmers, accessible from above, are shown in the diagram on page vi.



HT negative circuit to chassis, these resistances being the bias potentiometer already referred to. C18 is the chassis to earth isolating condenser.

GANGING

IF Circuits.—Switch to MW with volume control at max. and set tuned to 1,400 kc. Inject a 465 kc signal via a .1 mfd condenser to the control grid cap of V3 and adjust T1 and T2.

Change service oscillator lead to control grid of V1 and adjust T3 and T4 to resonance as indicated on an output meter.

Check T1 and T2 adjustments with signal still injected into V1.

SW Band.—Switch to SW and move gang to minimum capacity. Inject a 16.5 m signal via a dummy aerial (.1mfd cond. in series with a 20-ohm resistance) into the aerial and earth leads. Adjust T5 for maximum output.

Inject and tune-in a 17.6 m signal and adjust T6 for maximum output.

Check sensitivity at 50 m.

MW Band.—Switch to MW with gang at minimum capacity. Connect service oscillator to aerial and earth leads via dummy aerial (200 mmfd cond. and 20 ohm resistance in series).

Inject a 187 m signal and adjust T7 for maximum output.

Inject and tune in a 214 m signal and adjust T8 and then T9 to resonance.

Inject and tune in 500 m signal and adjust T10 while rocking gang.

Recheck all adjustments after LW ganging.

LW Band.—Switch to LW with gang at minimum capacity. Dummy aerial connected as for MW.

Inject a 860 m signal and adjust T11 to resonance.

Inject and tune in 925 m and adjust T12 for maximum output.

Inject and tune in a 2,000 m signal and adjust T13 while rocking gang.

Recheck these adjustments after checking MW trimmers.