

ULTRA 55

Two-valve two-waveband TRF receiver for AC or DC mains; 200-250 volts, 25-100 cycles. Provision is made for an extra loud-speaker with a muting plug switch for the internal speaker. Released in 1935 by Ultra Electric, Ltd., Erskine Road, Chalk Farm, London, NW3.

THIS review applies to models with serial numbers above 3,000. Alternative aerial inputs are via C1 for high selectivity and C2 for distant reception. The signals are fed to the coupling coils, L1 and L3, which transfer the input to the grid coils, L2 (MW) and L4 (LW). These coils are tuned by VC1 section of the double gang condenser. V1 is a triode pentode valve, and the pentode

section operates as a variable-mu HF amplifier. The cathode is taken to the chassis via R1, which gives fixed bias, and R2, the volume control, which varies the gain of the pentode section of V1. This is shunted by the resistance, R3.

The output from the pentode section is choke-capacity coupled by L5 and C8 to the tuned grid circuit of the triode section of V1 which operates as an anode bend detector. L6 is the medium wave coil, and L7 the long wave coil, both being tuned by VC2. C4 is the anode to earth bypass condenser, while C7 and L8 provide a fixed amount of reaction from the anode to the grid circuit of the triode section of V1.

The LF output of the triode section is transformer-coupled by the intervalve transformer, L9, L10, to the grid of the output pentode, V2. This valve is biased by R6, which is connected between the cathode and the "earthy" end of L10, but it should be noted that R6 is returned to the chassis through R1, R2 and R3; thus the full amount of anode current in both valves flows through the volume control and provides a greater amount of

control than would otherwise be obtained.

The output from V2 is coupled by the output transformer, L11, L12, to the energised loudspeaker. A permanent amount of tone correction is effected by C12.

R7 is an anode stopper, while the screen of V2 is fed from the HT line direct.

The HT supply circuit comprises the rectifying valve, V3, which operates as a half-wave rectifier with a voltage dropper, R8, between the mains supply and the anodes. HT smoothing is effected by the choke, L13, condenser C14, and the reservoir condenser C13. The loudspeaker field L14 is connected directly across the HT supply.

The heater circuit is supplied from the mains through the barretter, V4, so that no voltage adjustments are provided. C15 effects mains filtering.

GANGING

It is only necessary to adjust the trimmers T1 and T2 in that order on a wavelength of 200 m.

BELMONT 800, 845

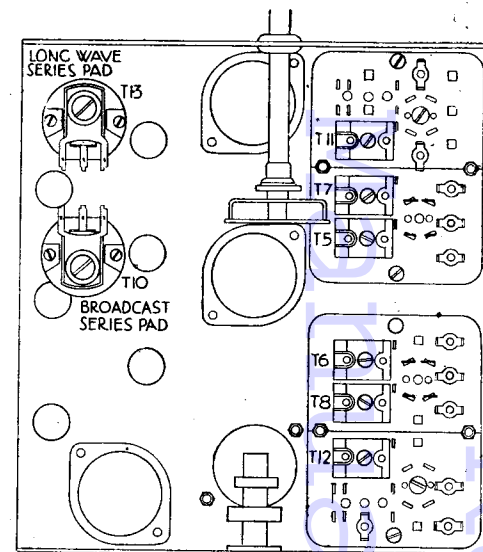
Continued from page vi.

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.

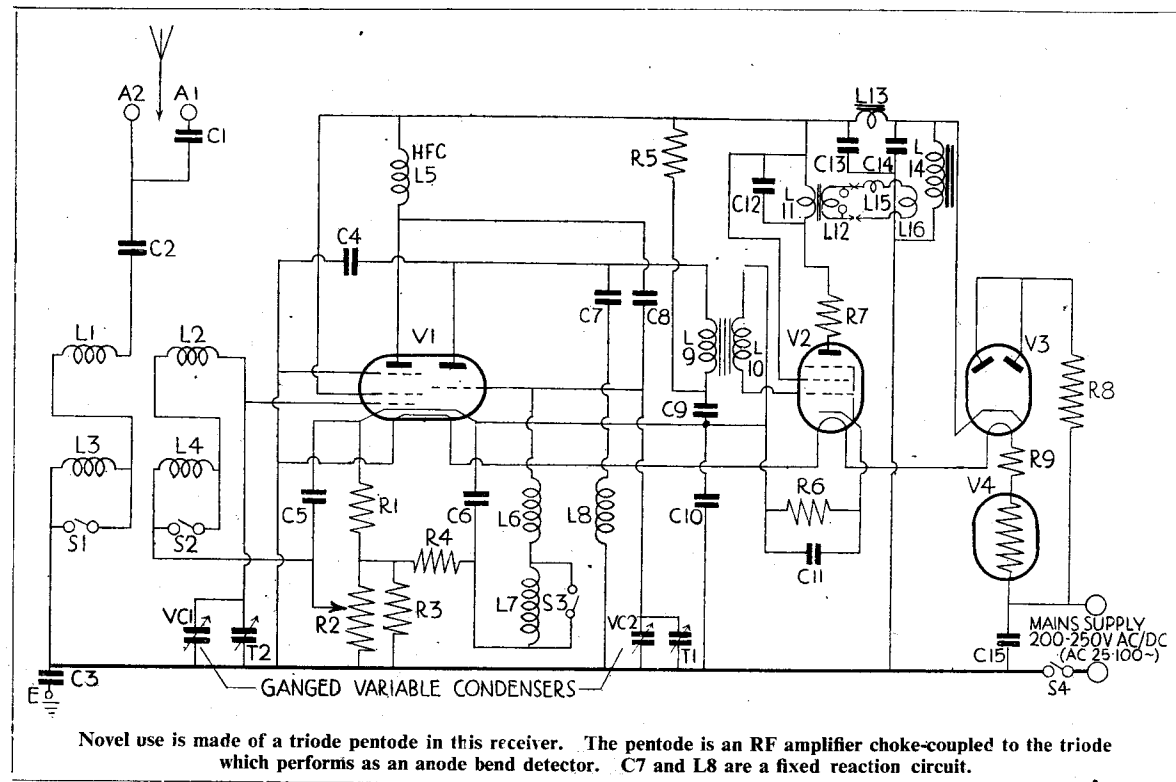
LW Band.—Switch to LW with gang at minimum capacity. Dummy aerial connected as for MW.

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.



Novel use is made of a triode pentode in this receiver. The pentode is an RF amplifier choke-coupled to the triode which performs as an anode bend detector. C7 and L8 are a fixed reaction circuit.

RESISTANCES

R	Ohms	R	Ohms
1	80	6	110
2	10,000	7	60
3	330	8	50
4	150,000	9	150
5	40,000		

CONDENSERS

C	Mfds	C	Mfds
1	20 mmfd	9	2
2	1004	10	20
3	.1	11	50
4	.0003	12	.01
5	.5	13	16
6	.1	14	8
7	.0001	15	.1
8	10 mmfd		

VALVE READINGS

V	Type	Electrode	Volts	Ma
1	TP2620	Anode	190	3.7
		Triode anode	155	4
		Screen	194	2.4
2	PEN3520	Anode	170	42
		Screen	194	8.2
		Cathode	225	—
4	Philips C.1	Barretter.		

WINDINGS

L	Ohms	L	Ohms
1	1.5	9	290
2	4.7	10	2,500
3	48.5	11	400
4	11.3	12	Very low
5	500	13	500
6	4.7	14	9,000
7	11.3	15	4.7
8	1	16	Very low