

KOLSTER-BRANDES

875

Four-valve, plus rectifier, three waveband, superhet for operation from DC or AC mains 200-250 volts. Marketed in 1940 by Kolster-Brandes, Ltd, Cray Works, Sidcup, Kent.

THE aerial and earth sockets are both isolated from the chassis components by blocking condensers, C1, C2. Signals are developed across the load resistance R1 which is replaced in some models by an aerial choke coil having a DC resistance of 27 ohms. This modification is to overcome slight modulation hum which may be experienced on certain DC mains when a low impedance anti-static type of aerial is employed.

On SW, signals are passed through the coupling components C3, L1 and C4, but on the two other wavebands C4 is the coupling component. The tuning coils L2, L3 and L4 cover the SW, MW and LW bands respectively, and may be

switched across the VC1 section of the gang condenser as required.

Signals are passed direct to the grid of the pentode frequency changer valve V1, which is permanently biased by R5 decoupled by C8. AVC is applied to the valve on MW and LW only via decoupling components R2, C7. The screen of the valve is fed from the HT line via R3, R4, decoupled by C6. V2 screen is also fed from this point.

The oscillator section of V1 employs tuned grid circuits for the various wavebands R6 and C11 being the grid leak and condenser. The second grid of V1, which acts as an anode for the oscillator section, is fed from the HT line by R7 which is decoupled by C9 while HF feedback is obtained from R8 and C10 and the coupling coil L7 on SW. On MW and LW the tracker condenser T6 acts as the coupling component between the grid and anode circuits.

The IF signal from V1 is transferred by the IF transformer L5, L6, to the grid of the IF amplifying pentode valve V2. This valve has AVC applied to it, and is permanently biased by R9 decoupled by C14.

A second IF transformer L11, L12, passes on the signal to the signal diode of the double-diode-triode, V3. This valve is biased by R12, decoupled by C18, while the signal load resistance is R11 with R10 and C15 the IF filter components. The LF signal developed across R11 is coupled by C16 to the volume control

VRI which feeds the signal to the triode section of V3.

The AVC diode is fed via C17 from the anode circuit of V2; the AVC load resistance being R14 with R15 the AVC line filter.

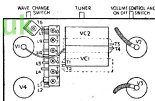
The LF output from V3 is resistance capacity coupled by R13, C19 and R16 to the grid of the pentode output valve V4. The screen of this valve is fed from R17 and decoupled by C20 while permanent bias is derived from R18 decoupled by C21. A permanent degree of tone correction is effected by the anode to chassis condenser C22 while a variable tone control network in parallel with C22 comprises C23, R19 and R20. The output transformer L13, L14 couples V4 to the low impedance energised moving coil loudspeaker.

The LT and HT circuits follow conventional lines with V5 operating as a half-wave rectifier with limiter resistances R21 and R22 in the anode leads. Smoothing is effected by the loudspeaker field winding L16, while C25 is the reservoir condenser and C24 the smoothing condenser.

The heater circuits are in series with the voltage dropping resistance R23, R24, R25 across the mains input. The latter is HF filtered by L17, L18 and C26.

Switch Connections.—The order of switching is as follows for the three bands:

Short waves: aerial coil, X1 to X2, X3 to X4 to X5; oscillator coil, X7 to X8, X9 to X10 to X11.



Underside view of the chassis identifying the trimmers, valves and coils. Some of the trimmers are actually above deck.

Medium waves: aerial coil, X1 to X3 and X4 to X5; oscillator, X7 to X9 and X10 to X11.
Long waves: aerial, X1 to X4 and oscillator, X7 to X10.

GANGING

IF Circuits.—Switch the receiver to MW and set tuning pointer to 580 m. Adjust volume control to maximum and inject a 464 kc signal via a 1 mfd condenser to the grid of V1. Adjust T1, T2, T3 and T4 in that order for maximum output, keeping the input low to avoid AVC action.

MW Band.—Connect the service oscillator via a suitable dummy aerial to the aerial and earth sockets. The manu-

facturers recommend that T5 be roughly adjusted on a signal of 250 kc with the set switched to LW and the set pointer at 1,200 m. T6 should then be adjusted on a signal of 175 kc with the set still switched to LW and the pointer on the spot on the scale at 1,714 m.

Next switch receiver to MW, set the pointer on the spot at 214 m and inject a signal of 1,400 kc. Adjust T7 and T8 for maximum output. Set the pointer to 500 m, inject a signal of 600 kc and adjust T6 for maximum output while rocking gang condenser. Go over adjustments to T7 and T8 for best results.

LW Band.—Switch receiver to LW and set tuning pointer to 1,200 m. Inject a signal of 250 kc, and adjust T5 and T9 for maximum output.

SW Band.—Switch receiver to SW and set tuning pointer to 20 m. Inject a signal of 15 mc via a 400-ohm resistance into the aerial socket and adjust T10 and T11 for maximum output. Be sure to adjust T10 to the minimum capacity peak.

VALVE READINGS

Measured with 1000 ohms per volt meter on 230-volts mains; volume control at maximum, no signal, set switched to MW.

V	Type	Electrode	Volts	Ma
1	6AS6 (Brimar)	Anode	190	3.5
		Osc. Anode	125	3.0
		Screen	80	—
2	6U7G	Cathode	2.7	—
		Screen	89	5.0
		Cathode	2.2	—
3	607G	Anode	55	2.5
		Oscillator	115	35.0
		Screen	15.0	6.3
5	25Z6G	Cathode	17.5	—
		Cathode	250	—

CONDENSERS

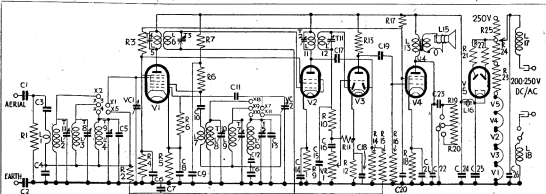
C	Mfd
1	.01
2	.01
3	10,000
4	50,000
5	.005
6	.25 mfd
7	.1
8	.2
9	.2
10	.01
11	.0001
12	.0023
13	.50 mfd
14	.1
15	.0005
16	.01
17	.25 mfd
18	.25
19	.25
20	.2
21	.25
22	.005
23	.03
24	.8
25	.16
26	.01

RESISTANCES

R	Ohms	R	Ohms
1	1,000	14	.5 meg
2	.5 meg	15	.5 meg
3	10,000	16	.25 meg
4	50,000	17	3,000
5	300	18	400
6	50,000	19	5,000
7	5,000	20	50,000
8	15,000	21	100
9	300	22	100
10	50,000	23	436
11	.5 meg	24	84
12	5,000	25	84
13	.25 meg	VR1	.5 meg

WINDINGS

L	Ohms	L	Ohms
1	.4	10	.16
2	.75	11	.75
3	2.6	12	.75
4	30	13	500
5	7.5	14	.25
6	7.5	15	2.5
7	.5	16	800
8	Very low	17	2.8
9	5.0	18	2.8



A three waveband superhet, the model 875 has four valves plus the half-wave rectifier used in AC-DC receivers. On medium and long waves, aerial coupling is provided by C4, the bias decoupling condenser.