

# KOLSTER-BRANDES

## 860

Four-valve, plus rectifier, three waveband superhet with 9 push-buttons for wavechanging and stations. For 110-250 volt A.C. supplies. Made by Kolster-Brandes, Ltd., Cray Works, Sidcup, Kent.

**Circuit.**—This receiver has a single tuned input circuit. The circuit is largely conventional, although the diagram is rather unusual, as the oscillator circuits are drawn in front of the frequency-changer instead of after it.

L1 and L2 are the S.W. aerial primary and secondary, and L3, L4 are M. and L.W. secondaries. L5-L10 are permeability tuned coils for push-button stations. The oscillator circuits are very similar; the tuned sections are in the grid path. M. and L.W. coils are permeability adjusted.

Both I.F. transformers are permeability trimmed. V2 is the I.F. amplifier, and V3 a straightforward double-diode-triode, resistance capacity coupled to V4, an output pentode. V5 is a full-wave rectifier with field coil for smoothing. The valves have 12.5v. heaters. Provision is made for a P.U. and low-impedance extension speaker. Consumption, 65 watts.

### GANGING

**I.F. CIRCUITS.**—Inject 464 kc. through .1 mfd. condenser to V1 grid, set tuned to 580 m. Adjust cores of L21-24.

**M.W. BAND.**—Tune to 500 m., inject 600 kc., adjust L13. Tune to 214 m., inject 1,400 kc. and adjust T5, T2.

Readjust at 500 m., rocking gang slightly. Readjust T5, T2 at 214 m.

**L.W. BAND.**—Tune to 1,714 m., inject 175 kc., adjust L14. Tune to 857 m., inject 350 kc., adjust T6, T3. Repeat both operations.

**S.W. BAND.**—Tune to 20 m., inject 15mc. through 400 ohms, adjust T4, T1.

### KEY ADJUSTMENT

The adjustable cores of the special aerial and oscillator coils for the push-button tuning are accessible when the keys and key plate are removed. The oscillator coils are above, and the aerial coils below, their respective keys.

Inject a signal of the frequency of the required station, push in a key with suitable wavelength coverage, and then adjust first the oscillator, then the aerial cores.

### VALVE VOLTAGES

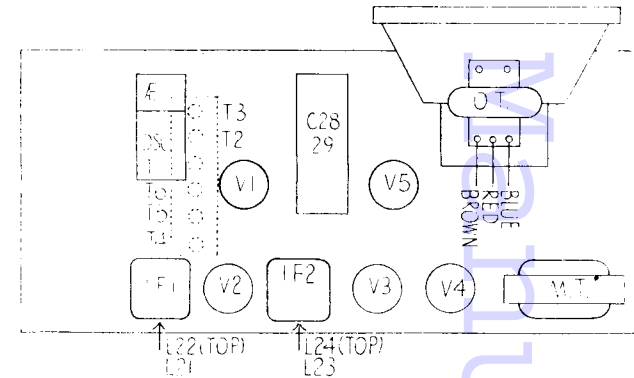
V	Type	Electrode	Volts
1	20D2	Anode	255
		Screen	57
		Osc. anode	50
		Cathode	3.4
2	9D2	Anode	255
		Screen	57
		Cathode	1.3
3	11D5	Anode	93
		Cathode	2.1
4	7D5	Anode	243
		Screen	258
		Cathode	17
5	R2	Anodes (A.C.)	300
		Cathode (D.C.)	336 (57 ma.)

### CONDENSERS

C	Mfds.	C	Mfds.
10	.. 400 mmfds.	21	.. .005
11	.. .1	22	.. .25
12	.. 150 mmfds.	23	.. .02
13	.. 150 mmfds.	24	.. .2
14	.. 50 mmfds.	25	.. .25
15	.. .1	26	.. .25
16	.. .02	27	.. .03
17	.. 150 mmfds.	28	.. .16
18	.. 280 mmfds.	29	.. .16
19	.. 25 mmfds.	30	.. .001
20	.. .0005		

For Resistance and Windings Tables see page vi

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### PUSH-BUTTONS

Button	Wavelength-Range (m)	Aerial Trimmer	Osc. Trimmer
4	193-286	1.5	1.15
5	250-363	1.6	1.16
6	300-416	1.7	1.17
7	400-532	1.8	1.18
8	1,100-1,565	1.9	1.19
9	1,340-2,000	1.19	1.20

Permeability coils are used for both aerial and oscillator circuits on push-key tuning, and also for M. and L.W. padding. The trimmers are near their respective keys.

