

## KOLSTER-BRANDES

860

Four valves, plus rectifier, three waveband superhet with 9 push-buttons for wavelength and stations. For 110-250 volt A.C. supplies. Made by Kolster-Brandes, Ltd., Cray Works, Sidway, 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 h. 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 484 kc. through .1 mfd. condenser to V1 grid, set tuned to 530 m. Adjust cores of L21-24.

**M.W. BAND.**—Tune to 500 m., inject 500 kc., adjust L18. Tune to 214 m., inject 1,400 kc. and adjust T5, T2.

**Headset at 500 m.,** rocking gang slightly. Readjust T5, T2 at 23 m.

**L.W. BAND.**—Tune to 1,714 m., inject 175 kc., adjust L14. Tune to 837 m., inject 350 kc., adjust T4, 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 fine the oscillator, then the aerial cores.

## VALVE VOLTAGES

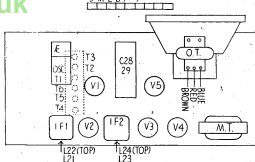
V	Type	Electrode	Volts
1	50D2	Anode	255
		Screen	57
		Oct. anode	50
2	9D2	Cathode	3.4
		Anode	255
		Screen	57
3	11D5	Cathode	1.3
		Anode	98
		Screen	2.1
4	7D5	Anode	243
		Screen	228
		Cathode	1.7
5	R2	Anodes (A.C.)	310
		Cathode (D.C.)	336 (57 ma.)

## CONDENSERS

C	Mfd.	C	Mfd.
10	.400 mmfd.	21	.005
11	.1	22	.25
12	.150 mmfd.	23	.02
13	.150 mmfd.	24	.2
14	.50 mmfd.	25	.25
15	.1	26	.25
16	.02	27	.05
17	.150 mmfd.	28	.16
18	.250 mmfd.	29	.16
19	.25 mmfd.	30	.001
20	.0006		

For Resistance and Windings Tables see page vi

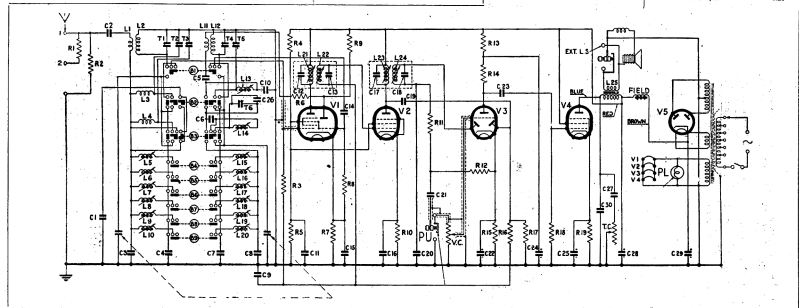
S.M.L.B.4-9



## PUSH-BUTTONS

Button	Wavelength Range (m)	Aerial Trimmer	Oct. Trimmer
4	193-266	L5	L15
5	250-943	L6	L16
6	300-410	L7	L17
7	400-552	L8	L18
8	1,100-1,505	L9	L19
9	1,340-2,000	L10	L20

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.



**KOLSTER-BRANDES**

**MODEL 860**

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**RESISTANCES**

<i>R</i>	<i>Ohms.</i>	<i>R</i>	<i>Ohms.</i>
1	.. 10,000	11	.. 50,000
2	.. 2,000	12	.. .5 meg.
3	.. .5 meg.	13	.. 50,000
4	.. 20,000	14	.. 150,000
5	.. 25,000	15	.. 7,000
6	.. 150	16	.. .5 meg.
7	.. 300	17	.. .5 meg.
8	.. 50,000	18	.. .5 meg.
9	.. 50,000	19	.. 400
10	.. 300	VC	.. .5 meg.
		TC	.. 50,000

**WINDINGS**

<i>L</i>	<i>Ohms.</i>	<i>L</i>	<i>Ohms.</i>
3	.. 2.5	15	.. 1.5
4	.. 37	16	.. 1.8
5	.. 2.5	17	.. 2.1
6	.. 3.6	18	.. 2.5
7	.. 4.8	19	.. 4.3
8	.. 6.5	20	.. 4.3
9	.. 18	21	.. 3.7
10	.. 22	22	.. 3.7
13	.. 5.2	23	.. 3.8
14	.. 11.5	24	.. 2.7
		26	.. 1.300