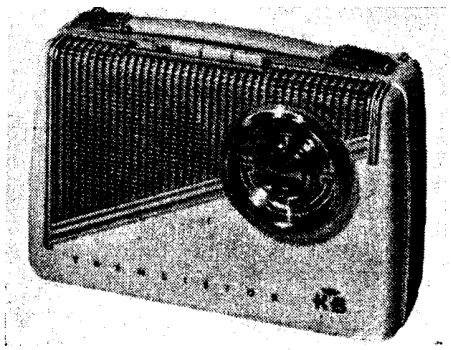
KOLSTER-BRANDES OP21A



Appearance of the Kolster-Brandes OP21A. Model OP21 is housed in a similar cabinet.

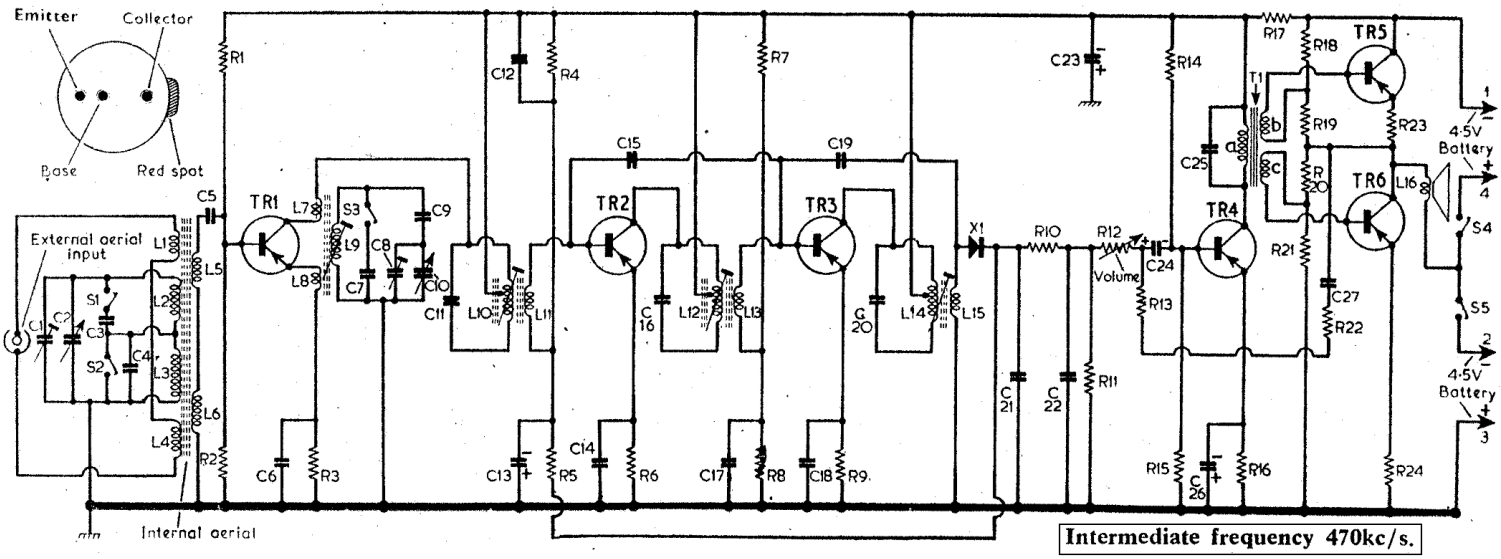
Resistors		
R1	27kΩ	A1
R2	2·2kΩ	A1
R3	1kΩ	A1
R4	82kΩ	A1
R5	12kΩ	B1
R6	330Ω	A2
R7	68kΩ	A2
R8	2·2kΩ	A2
R9	56Ω	A2
R10	220Ω	B1
R11	2·2kΩ	B1
R12	1MΩ	C1
R13	68kΩ	B1
R14	22kΩ	C1
R15	2·7kΩ	C1
R16	470Ω	C1
R17	220Ω	C2
R18	2·2kΩ	C2
R19	100Ω	C2
R20	2·2kΩ	C2
R21	100Ω	C2
R22	68kΩ	C2
R23	5Ω	C2
R24	5Ω	C2

Capacitors		
C1	30pF	A2
C2	376pF	A1
C3	1,250pF	A1
C4	115pF	C1
C5	0·003μF	A1
C6	0·01μF	A1
C7	360pF	A1
C8	30pF	A2
C9	420pF	A1
C10	376pF	B1
C11	250pF	A2
C12	0·1μF	D3
C13	16μF	A2
C14	0·25μF	D3
C15	56pF†	A2
C16	250pF	A2
C17	0·04μF	A2
C18	0·04μF	A2
C19	20pF†	B2
C20	250pF	B2
C21	0·04μF	D3
C22	0·03μF	B1
C23	50μF	A2
C24	32μF	C1
C25	0·01μF	C2
C26	50μF	C1
C27	0·004μF	C2

Coils*		
L1	—	B1
L2	—	B1
L3	3·0	C1
L4	3·0	C1
L5	—	B1
L6	—	C1
L7	—	A1
L8	—	A1
L9	—	A1
L10	—	A2
L11	—	A2
L12	—	A2
L13	—	A2
L14	—	B2
L15	—	B2
L16	30·0	—

Miscellaneous*		
T1 a	325·0	C2
T1 b	60·0	C2
T1 c	45·0	C2
X1	OA70	B1
S1–S3	—	A1
S4, S5	—	D3

**Approximate D.C. resistance, in ohms. Read "Warning" under "General Notes" before making measurements.*
†Plus or minus 2 per cent.



CIRCUIT ALIGNMENT

Equipment Required.—An accurately calibrated signal generator, modulated 30 per cent at 400 c/s; an A.C. voltmeter for use as output meter; a coupling coil, which may be constructed by winding 12 turns of insulated wire on a 2-inch former; a non-metallic trimming tool.

Check that with the gang at maximum capacitance the pointer coincides with the horizontal lines at the ends of the M.W. and L.W. tuning scales.

Maintain the signal generator output as low as possible at all times during the alignment procedure.

1.—Switch receiver to M.W., turn gang and volume control to maximum. Connect output meter across the speaker speech coil **L16,** and connect signal generator output, via a 0.1μF capacitor, across **R2** (A1).

2.—Feed in a 470 kc/s signal and adjust the cores of **L14** (B2), **L12** (A2) and **L10** (A2), in that order, for maximum output. Repeat these adjustments until no further improvement can be obtained.

3.—Connect signal generator via coupling coil, then position the coil near to the ferrite rod aerial coils **L1-L6** (location references B1, C1).

4.—Switch receiver to M.W. and tune it to 500m. Feed in a 600 kc/s signal and adjust **L9** (A1) and **L2** (A1) for maximum output. Adjust **L2** by sliding its former along the ferrite rod.

5.—Tune the receiver to the calibration mark at 222m. Feed in a 1,350 kc/s signal and adjust **C8** (A2) and **C1** (A2) for maximum output.

6.—Switch receiver to L.W. and tune it to the calibration mark at 1,335m. Feed in a 225 kc/s signal and slide the former of **L3** (C1) along the ferrite rod for maximum output.

7.—Tune receiver to 1,700m. Feed in a 176 kc/s signal and check that the output is not more than 3db down on that obtained at 225 kc/s in operation 6. If the output is more than 3db down, readjust **L3** for maximum output at 176 kc/s.

Transistors		Emitter (V)	Base (V)	Collector (V)
TR1	OC44	0·68	0·51	7·5
TR2	OC45	0·44	0·53	7·5
TR3	OC45	0·04	0·18	7·5
TR4	OC71	0·56	0·69	7·1
TR5	OC72	4·3	4·5	8·7
TR6	OC72	0·01	0·18	4·3