

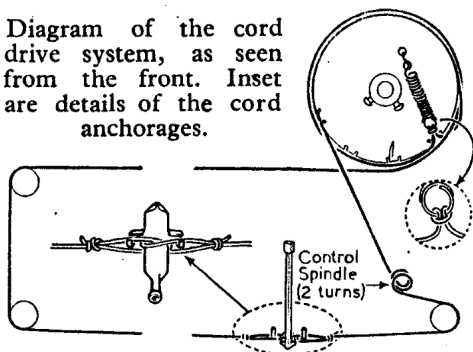
## DRIVE CORD REPLACEMENT

The cord is of special material made up to quite critical dimensions, the tolerance being  $\pm \frac{1}{16}$  inch. It can be obtained made up ready for fitting, from the makers, whose part number for it is 72/153.

It has a loop at each end about 1 in long, with non-slip knots, and the overall length is then  $43\frac{1}{2}$  in. exactly. There should be an indelible mark at  $15\frac{1}{2}$  in. from one end, leaving the remainder at  $28\frac{1}{2}$  in., with  $\frac{1}{2}$  in. to be taken up in looping to the tension spring.

Turn gang to maximum, when drum should be as shown in the sketch. Fold cord at the indelible mark, and loop folded end on to the spring as shown inset in the sketch. Take the longer length through the drum slot, and once clockwise round the drum, then follow the sketch. The shorter length goes through the slot, then anti-clockwise round the drum and the control spindle as shown. Both finish up looped over the cursor carriage as shown inset. Finally, hook spring on to its anchorage.

Diagram of the cord drive system, as seen from the front. Inset are details of the cord anchorages.



## KOLSTER-BRANDES BM20, BM30

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 6A8GT	203 Oscillator	2.6 158	68	3.0
V2 6B8GT	203	4.9	68	1.3
V3 6V6GT	102	31.0	203	2.6
V4 6X5GT	244†	—	—	—

† Each anode, A.C.

OTHER COMPONENTS		Approx. Values (ohms)
L1	Aerial coupling coil ...	1.0
L2	Frame aerial winding ...	6.0
L3	Aerial L.W. loading coil ...	21.3
L4	Osc. L.W. tuning coil ...	7.1
L5	Osc. M.W. tuning coil ...	3.4
L6	1st I.F. trans. { Pri. ...	5.2
L7	Sec. ...	5.2
L8	2nd I.F. trans. { Pri. ...	11.0
L9	Sec. ...	12.1
L10	Speaker speech coil ...	2.6
T1	Output trans. { Pri. ...	600.0
	Sec. ...	0.5
T2	Mains { Pri., total ...	49.7
	Heater sec., total ...	0.4
	H.T. sec., total ...	550.0
S1-S4	Waveband switches ...	—
S5	Mains switch, ganged R8 ...	—

Intermediate frequency 470 kc/s.

## RESISTORS

		Values (ohms)
R1	V1 tetrode C.G. decoupling ...	1,200,000
R2	V1 osc. C.G. resistor ...	47,000
R3	V1 osc. anode H.T. feed ...	10,000
R4	V1 S.G. H.T. feed ...	47,000
R5	I.F. stopper ...	22,000
R6	V2 signal diode load ...	470,000
R7	V2 S.G. load resistor ...	100,000
R8	Manual volume control ...	500,000
R9	V3 C.G. stopper ...	47,000
R10	V3 G.B. resistor ...	330
R11	H.T. smoothing resistor ...	1,000

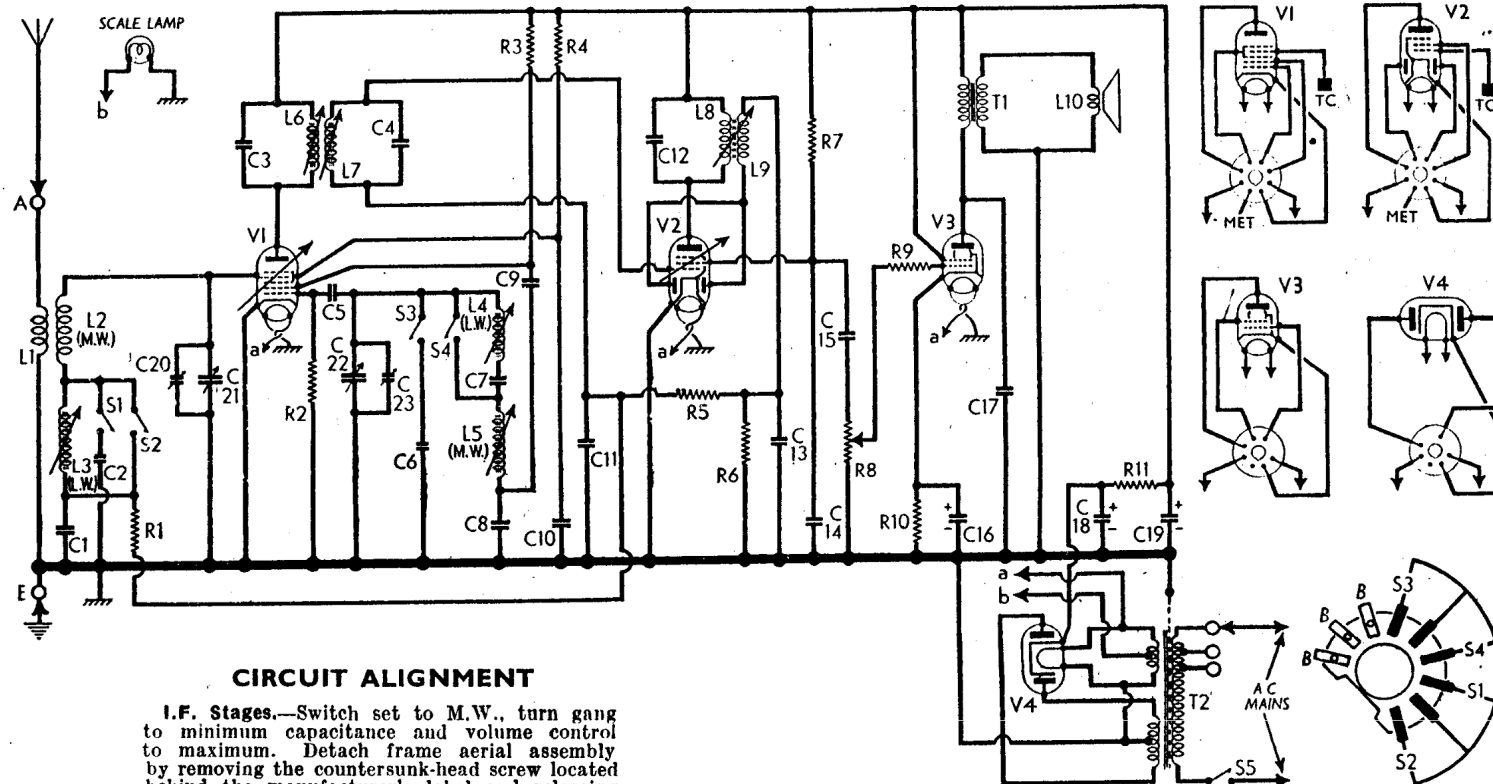
## CAPACITORS

		Values (μF)
C1	V1 tetrode C.G. decoupling ...	0.1
C2	Aerial circ. L.W. trimmer ...	0.000025
C3	1st I.F. transformer tuning capacitors ...	0.00015
C4	...	0.00015
C5	V1 osc. C.G. capacitor ...	0.0001
C6	Osc. circ. L.W. trimmer ...	0.000073
C7	Osc. circ. L.W. tracker ...	0.000263
C8	Osc. circ. M.W. tracker ...	0.00038
C9	V1 osc. anode coupling ...	0.0005
C10	V1 S.G. decoupling ...	0.02
C11	I.F. by-pass capacitor ...	0.0005
C12	2nd I.F. trans. pri. tuning ...	0.0001
C13	I.F. by-pass capacitor ...	0.0005
C14	V2 S.G. I.F. by-pass ...	0.0005
C15	A.F. coupling capacitor ...	0.02
C16*	V3 cathode by-pass ...	25.0
C17	Fixed tone corrector ...	0.005
C18*	H.T. smoothing capacitor ...	16.0
C19*	tors ...	24.0
C20†	Aerial circ. M.W. trimmer ...	—
C21†	Aerial circuit tuning ...	—
C22†	Oscillator circuit tuning ...	—
C23†	Osc. circ. M.W. trimmer ...	—

\* Electrolytic.

† Variable.

‡ Pre-set.



## CIRCUIT ALIGNMENT

**I.F. Stages.**—Switch set to M.W., turn gang to minimum capacitance and volume control to maximum. Detach frame aerial assembly by removing the countersunk-head screw located behind the manufacturer's label and releasing the spring clips at each end of the assembly, taking care not to damage the windings.

Connect signal generator leads, via a 0.1 μF capacitor, to control grid (top cap) of V1 and chassis, feed in a 470 kc/s (638.3 m) signal and adjust the cores of L6, L7 and L8 for maximum output. Disconnect signal generator leads and replace frame aerial assembly.

**R.F. and Oscillator Stages.**—With the gang at maximum capacitance the pointer should coincide with the vertical calibration marks at the right hand ends of the two scales. Connect signal generator leads to A and E sockets via a suitable dummy aerial.

**M.W.**—Switch set to M.W., tune to 500 m on scale, feed in a 500 m (600 kc/s) signal, and adjust the core of L5 for maximum output. Tune to 217 m on scale, feed in a 217 m (1,380 kc/s) signal, and adjust C23, then C20 for maximum output. Repeat the 500 m and 217 m adjustments until no improvement results.

**L.W.**—Switch set to L.W., tune to 1,714 m on scale, feed in a 1,714 m (175 kc/s) signal, and adjust the cores of L4 and L3 for maximum output. Repeat these adjustments.

Finally, disconnect signal generator leads, tune in a weak signal at the low wavelength end of the M.W. band, and adjust C20 for maximum output, while rocking the gang.