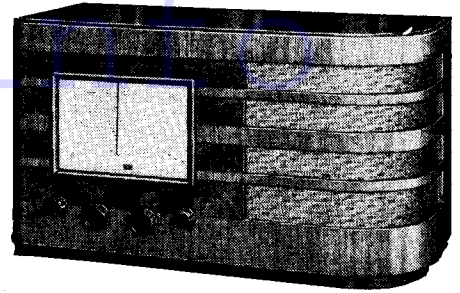


KOLSTER-BRANDES 720 BATTERY 3-BAND



The Kolster-Brandes model 720 is a four-valve battery superhet covering three wavebands. Tone, wavechange and volume controls have indicators on the dial.

Next remove the two wood screws securing the wavelength dial assembly to the front (inside the cabinet) and detach the dial light from its fixing bracket. The chassis may then be withdrawn from the cabinet free to the extent of the speaker cable.

To remove the speaker, the wooden

CIRCUIT.—Aerial input circuit on the medium and long wave bands consists of a set of band-pass coils with separate band pass adjustment trimmers. On the short wave band the coupling is effected by means of an H.F. aerial transformer. The screen of V1 has a higher potential applied on the short wave band. V1 is an octode frequency changer, while the oscillator section follows standard practice and includes a regeneration modifier on the medium wave band.

An I.F. transformer tuned to 130 kc. provides the coupling between V1 and the H.F. pentode I.F. amplifier, V2, while V2 is in its turn coupled to V3 by means of another I.F. transformer.

The secondary of the second I.F. transformer is centre tapped and the centre tap connected to the strapped diodes of V3—a double diode triode. The potential obtained from the load resistance is utilised to feed the A.V.C. circuit to V1 and V2, and also to feed the grid of the triode section of V3. A manual volume control is also included in the coupling arrangements, and this operates so as to vary the input applied to the triode grid.

V3 is resistance capacity coupled to the output valve V4, an L.F. pentode. A pentode compensator condenser C12 effects a fixed tone modification. Grid bias for V3 and V4 is obtained from a potentiometer connected between H.T. negative and L.T. negative, whilst the potentiometer is shunted by a high capacity condenser.

Battery equipment consists of a 135 volt H.T. battery and a 2-volt accumulator.

Chassis Inspection.—The cabinet has a false bottom that is secured by two wood screws, removal of which enables access to be obtained to the underside of the chassis.

Chassis Removal.—Detach the back of the cabinet, secured by sliding clips, remove all batteries and then remove the four grub-screw fixed control knobs from the front of the cabinet.

Turn the cabinet on its flat end and remove the four chassis securing bolts and washers from the base, afterwards returning the cabinet to its original position.

CONDENSERS

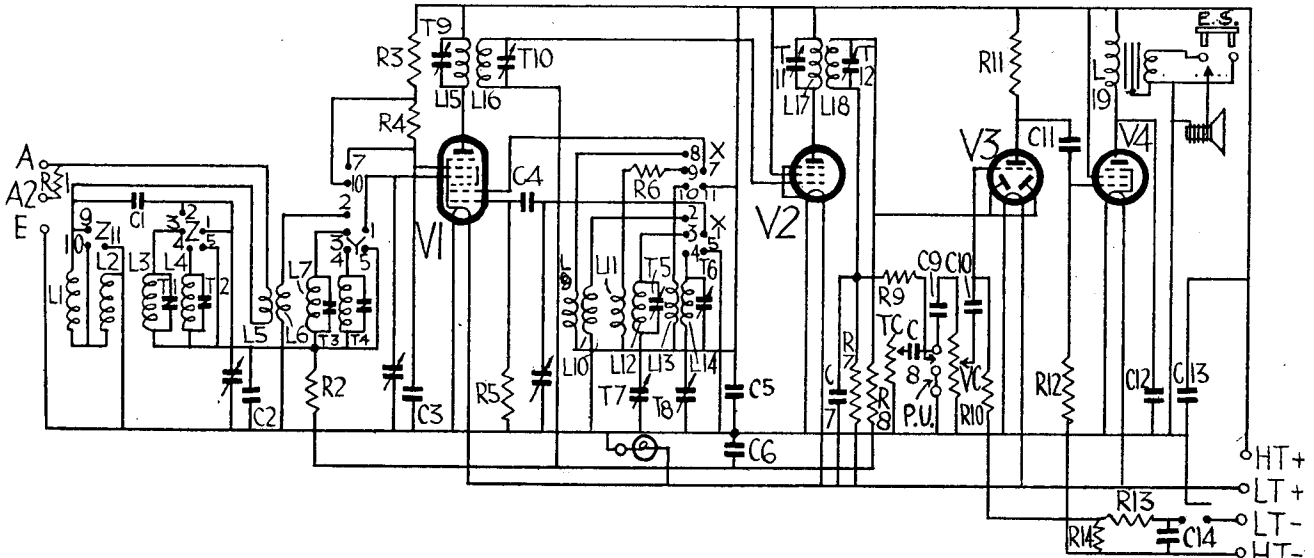
C.	Purpose.	Mfda.
1	M.W. top aerial coupling ..	.000018
2	Bottom band pass coupling ..	.01
3	V1 screen decoupling ..	.1
4	Osc. grid ..	.0001
5	Osc. anode decoupling ..	.1
6	V2 A.V.C. decoupling ..	.1
7	H.F. bypass ..	.0005
8	Tone control ..	.005
9	L.F. coupling ..	.02
10	L.F. coupling ..	.02
11	L.F. coupling ..	.02
12	Pentode compensator ..	.002
13	H.T. reservoir ..	2
14	Bias pot. shunt ..	50

RESISTANCES

R.	Purpose.	Ohms.
1	Series aerial ..	100,000
2	V1 A.V.C. decoupling ..	100,000
3	V1 screen decoupling (part) ..	50,000
4	V1 screen decoupling (part) ..	50,000
5	Osc. grid leak ..	20,000
6	M.W. regeneration modifier ..	2,000
7	V3 diodes load ..	500,000
8	V2 A.V.C. decoupling ..	500,000
9	H.F. stopper ..	100,000
10	V3 grid resistance ..	1 megohm
11	V3 anode load ..	50,000
12	V4 grid resistance ..	500,000
13	Bias pot. (part) ..	200
14	Bias pot. (part) ..	300
T.C.	Tone control ..	—
V.C.	Volume control ..	—

WINDINGS (D.C. Resistances)

L.	Ohms.	Range.	Where Measured.
1+2	50.4	L.W.	Aerial socket and chassis.
+5	3	M.W.	Aerial gang and C2.
3	21.2	L.W.	Aerial gang and C2.
4	Very low.	S.W.	Top grid V1 and chassis.
6	3.1	M.W.	Top grid V1 and R2.
7	21	L.W.	Top grid V1 and R2.
8	.1	S.W.	Osc. anode and C5.
9	.1	S.W.	C4 and chassis.
10	4.1	M.W.	R6 and C5.
11	4.7	M.W.	C4 and P1.
12	8.3	L.W.	Osc. anode and C5.
13	15	L.W.	C4 and P2.
14	81	Any	Anode V1 and H.T. line.
15	80	Any	Grid pin V2 and C6.
16	77	Any	Top anode V2 and H.T. line.
17	77	Any	R9 and diode V3.
18	940	Any	Anode V4 and H.T. line.
O.T. prim.			



Band-pass input on M. and L.W., increased H.T. for V1 screen on short waves and auto bias for V3 and V4 are among the features of the K.B. 720 circuit.

For more information remember
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shield, secured by two wood screws, must be removed, when access can be obtained to the four speaker-securing nuts. For all practical purposes this should not be necessary, however.

Special Notes.—Sockets at the rear of the chassis are for operating a low impedance (2 to 5 ohms) extension speaker. If the wander plug near the sockets is withdrawn the internal speaker will be disconnected. An alternative aerial socket is provided for local station reception.

The tuning control, when pressed, operates a dial lamp mounted in a screw in holder above the wavelength dial. The bulb is rated at 2.5 volts and is only intended for intermittent use when tuning.

Sockets at the rear of the chassis enable a pick-up to be connected. The wander plug from the lowest socket should be withdrawn for gram. work and replaced for radio reception.

The condenser C1 is made by twisting together two pieces of enamelled wire.

Circuit Alignment Notes

I.F. Circuits.—Connect an output meter across the primary of the speaker transformer. Switch receiver to M.W. band, turn both gang and volume to maximum. Connect a service oscillator between the top grid cap of V1 and chassis.

Tune service oscillator to 130 kc. and adjust first the trimmers of I.F.T. 2 and then I.F.T. 1 for maximum response, re-

ducing the input as the circuits come into line to render the A.V.C. inoperative.

Signal Circuits.—Verify that the pointer coincides with the right hand vertical line on the wavelength scale when the gang condenser is at maximum.

Connect a service oscillator to the aerial and earth sockets, only feeding sufficient input to obtain reliable peaks in the output meter and progressively reducing the input as the circuits come into line.

Medium Waves.—Tune set and oscillator to 214 metres (1,400 kc.) and adjust T1, T2 and T3 in that order for maximum.

Tune set and oscillator to 500 metres (600 kc.) and adjust P1 for maximum, simultaneously rocking the gang.

Repeat both operations until no further improvement results.

Long Waves.—Tune set and oscillator to 1,000 metres (300 kc.) and adjust T4, T5 and T6 in that order for maximum.

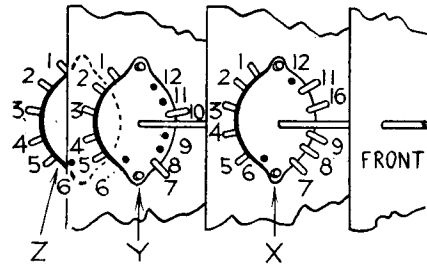
Tune set and oscillator to 1,714 metres (175 kc.) and adjust P2 for maximum, simultaneously rocking the gang.

Repeat both operations until no further improvement results.

Short Waves.—There are no trimming adjustments on this band.

Replacement Condensers

EXACT replacement condensers for the 720 are available from A. H. Hunt, Ltd. For C13 there is unit 3479 at 1s. 9d., and for C14 unit, list number 3531, 1s. 10d.



The switch banks of the 720 drawn as seen looking from the front of the chassis.

Kolster-Brandes 720 on Test

MODEL 720.—Standard model for battery operation, requiring a 135-volt H.T. battery Drydex type 1131, Ever Ready type Portable 53, G.E.C. Blue Label BB371, Siemens Full O' Power 1314, or Fuller S854, and a 2-volt accumulator Exide type GFG4C, Fuller MYG or Oldham ZLG3. PRICE.—9 gns., less batteries.

DESCRIPTION.—Four-valve, three-band superhet table receiver.

FEATURES.—Full-vision scale traversed by vertical pointer. Metre and very full station name calibration owing to "staggered" scale list. Controls for combined concentric tuning and dial light switch, tone, wave selection and combined volume and master switch. Tone, wave selection and volume controls operate indicators on scale. Sockets for P.U. and L.S., with control of internal speaker. Alternative aerial socket.

LOADING.—H.T., 10.5 ma.; L.T., .5 amp.

Sensitivity and Selectivity

SHORT WAVES (16.5-52 metres).—Excellent sensitivity and selectivity, easy control and no drift. Performance above average.

MEDIUM WAVES (195-580 metres).—Very good gain and selectivity, well maintained, but slight fall at top of band. Local stations spread on adjacent channels only.

LONG WAVES (725-2,000 metres).—Excellent gain and selectivity. Deutschlandsender received without interference at good volume.

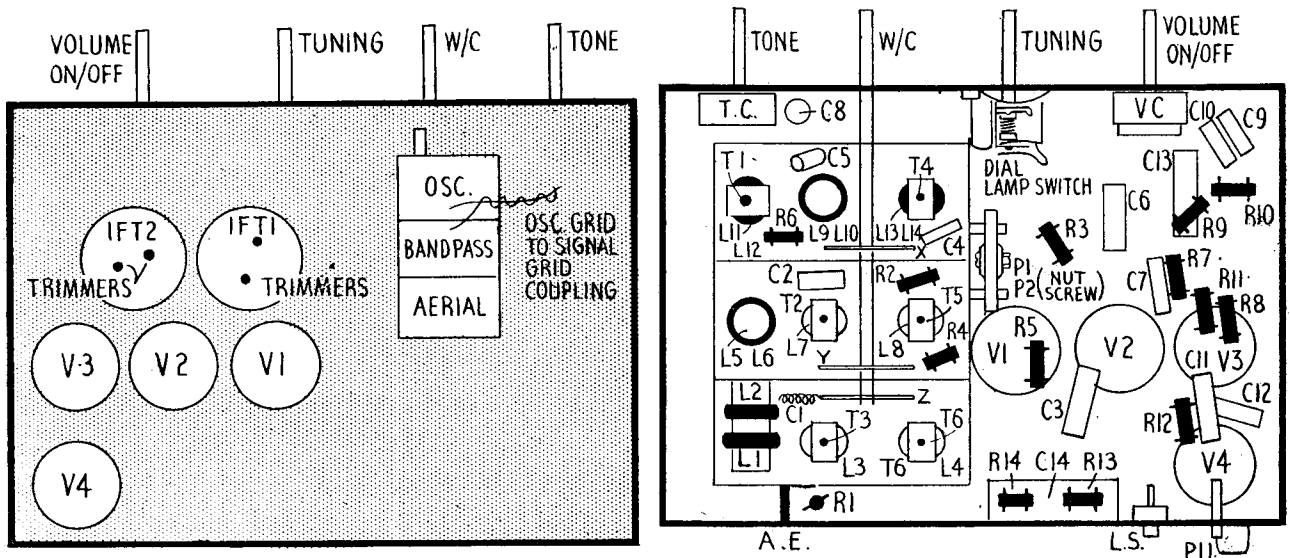
Acoustic Output

Ample volume for an ordinary room without overloading. Well balanced tone with good upper- and low-note radiation. Very little colouration on speech and a generally pleasing performance.

VALVE READINGS

No signal. Volume maximum. M.W. band. New batteries.

V.	Type.	Electrode.	Volts.	Ma.
1	Mullard. FC2A (7 met.).	Anode ..	130	0.5
		Screen ..	40	0.8
		Osc. anode ..	126	2.4
2	VP2 (7 met.).	Anode ..	130	2.0
		Screen ..	130	0.6
3	TDD2A (5 met.).	Anode ..	100	0.5
4	PM22A (5).	Anode ..	126	3.0
		Screen ..	130	0.5



All the components on the K.B. chassis can be identified with the aid of these two drawings. The top-of-chassis diagram (left) is "tinted" to distinguish it at a glance from the underside layout (right).