Kolster-Brandes All-Wave "Rejectostat" Receiver

Model K-B 620

For Battery Operation

1. SPECIFICATION

This is a three valve battery operated T.R.F. receiver. The approximate current consumption is from 5.5 ma to 8 ma, depending upon the position of the volume control.

On the medium and long wave ranges the aerial is coupled to the first valve, an H.F. amplifier, by means of a capacitatively coupled bandpass filter. The two inductances L1 and L2 of this filter are enclosed in separate screens, and the aerial coupling coil is concentric with the filter input coil. The bandpass feature is omitted on the short wave range, and the aerial is directly coupled to the primary winding of L3. The output from the H.F. pentode valve is coupled to the leaky grid detector stage by a normal tuned anode circuit. The output valve is coupled to the detector stage by a parafeed transformer and condenser. The output valve is a high efficiency pentode, and the undistorted output is approximately 350 milliwatts.

Other features include a local-distance switch to prevent premature overloading of the H.F. and detector valves when powerful local transmissions are being received, a four point battery switch isolating all batteries when the receiver is switched off, and a separate H.T. lead for the detector stage which allows for increase of the applied H.T. battery voltage as the battery wears, and the consequent improvement in the quality of reproduction.

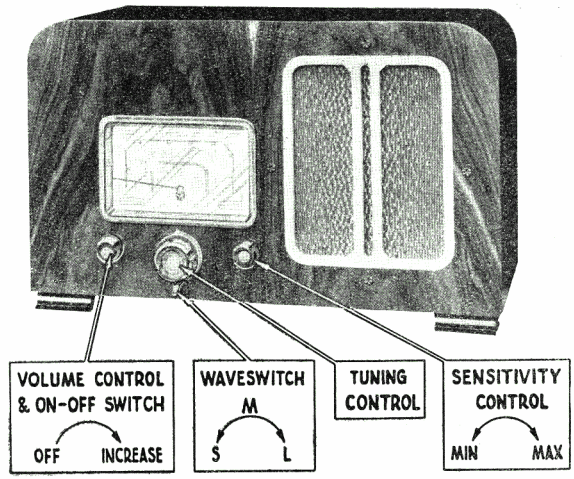


FIG. 1.

2. VALVES SPECIFIED

No.	Make	Type	Function
V 1	Mullard	VP.2 (met)	H.F. Amplifier
V 2	,,	PM.2 HL (met)	Detector
V 3	,,	PM.22.A	Output Pentode

3. GENERAL NOTES

3.1. OPERATING THE RECEIVER

Full details for operating the receiver are given in the instruction booklet supplied with each receiver.

3.2. BATTERY CONNECTIONS

The L.T. and H.T. battery leads should be connected thus :-

L.T.— (black lead)
L.T.+ (red lead

H.T.—	(black lead)	to H.T. battery	H.T.— and G.B.+ socket
H.T.+1	(red lead)	,, ,,	+90v to +108v socket *
H.T.+2	(brown lead)	,, ,,	+120v socket.
Grid—1	(green lead)	,, ,,	—4.5v socket
Grid—2	(yellow lead)	,, ,,	—6, —7.5 or —9v socket

*Depending on the condition of the battery.

3.3. COILS

The tags on the coil bases are lettered in accordance with details given on page A.3 of the General Section.

3.4. REMOVING CHASSIS FROM CABINET

A detachable inspection cover held by four wood screws, is fitted on the underside of the cabinet, and most of the service work can be executed without removing the chassis. The chassis can be removed by taking off the back, unscrewing the knobs, which are held in place by recessed set screws, and undoing the four screws passing upwards through the cabinet bottom.

The chassis can then be taken out of the cabinet, after unsoldering the wires to the loudspeaker or taking out the loudspeaker and baffle complete.

4. VOLTAGES AND CURRENTS

The following figures were taken with a 120 volt H.T. battery connected in the specified manner. The aerial and earth sockets of the reveiver were short-circuited together throughout the measurements of voltages and currents.
In the appended table the valve electrodes are numbered in accordance with the Western method of selective analysis, and such details will be found in the General Section of this manual. The voltages were measured with a 1,000 ohms per volt meter.

Valve	Voltage between Chassis and—			Current in ma.	
	Anode [CAP]	Priming Grid [7]	Control Grid * [2]	Anode [CAP] *	Priming Grid * [7]
V1	100v.	120v	0—8.5v.	1.8—Zero	2.2—Zero
	Anode [1]		Control Grid [2]	Anode [1]	
V2	65v.		Zero	1.3	
	Anode [1]	Priming Grid [3]	Control Grid [2]	Anode [1]	Priming Grid [3]
V3	115v.	120v.	0.15v.	3.2	0.75

*Depending upon the position of the volume control.

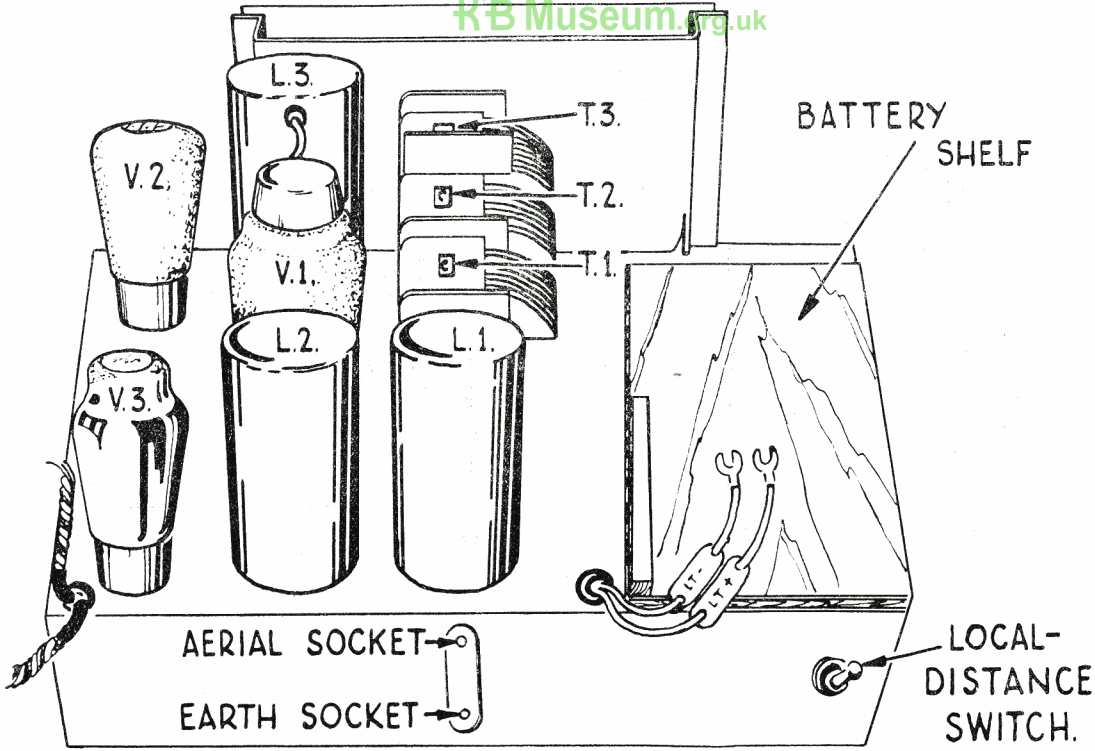


FIG. 2.

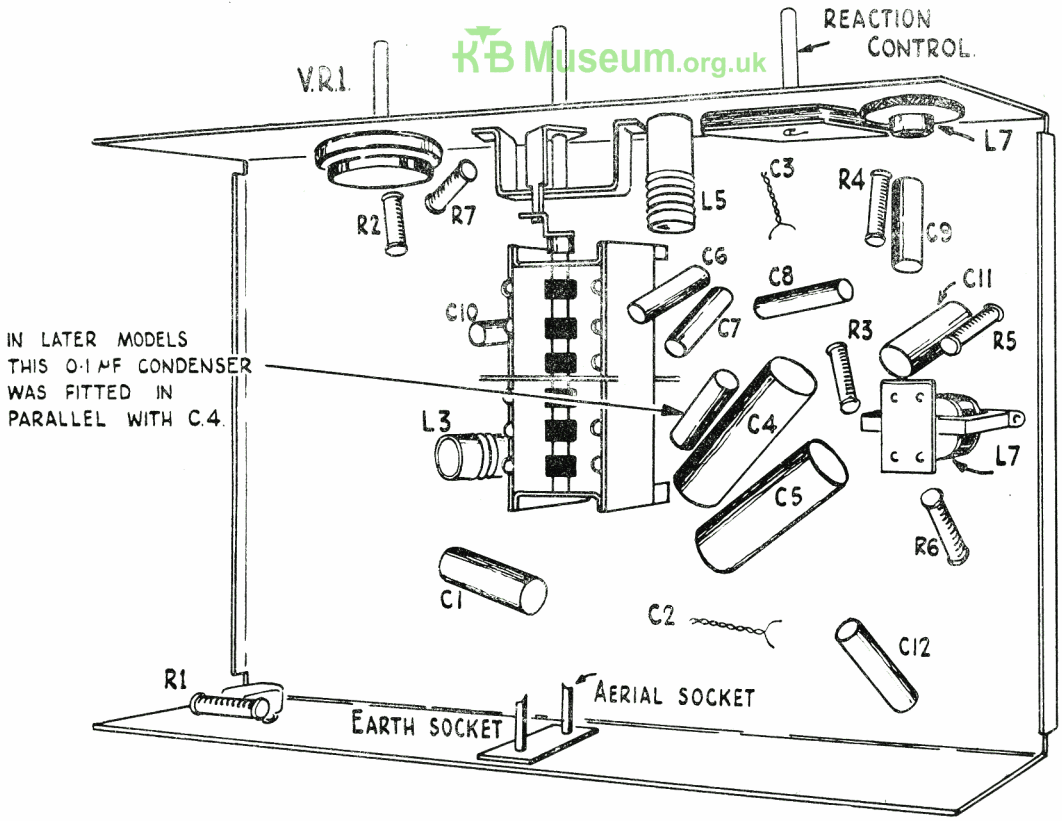


FIG. 3.

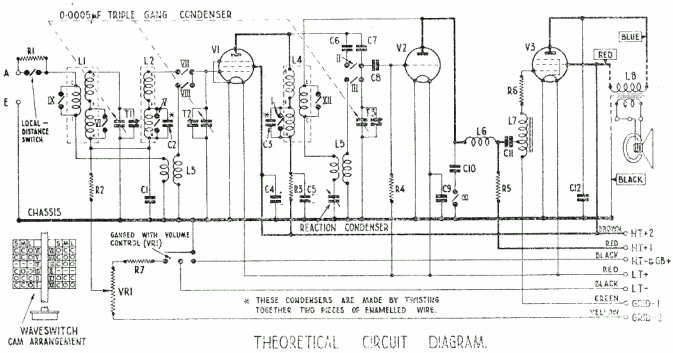
5. KEY TO CIRCUIT DIAGAM

CONDENSERS

Code	Condenser
C 1	0.02 microfarad
C 2	18 micromicrofarads
C 3	10 „
C 4	2 microfarads (electrolytic)
C 5	2 „ „
C 6	0.01 microfarad
C 7	0.00005 „
C 8	0.0001 „
C 9	0.1 „
C10	0.0005 „
C11	0.02 „
C12	0.003 „
VC	Reaction condenser 0.0005 microfarad (solid dielectric)

RESISTANCES

Code	Resistance
R 1	100,000 ohms.
R 2	250,000 ohms.
R 3	5,000 ohms.
R 4	2 megohms.
R 5	25,000 ohms.
R 6	250,000 „
R 7	1,000 „
VR1	10,000 „ volume control



THEORETICAL CIRCUIT DIAGRAM.

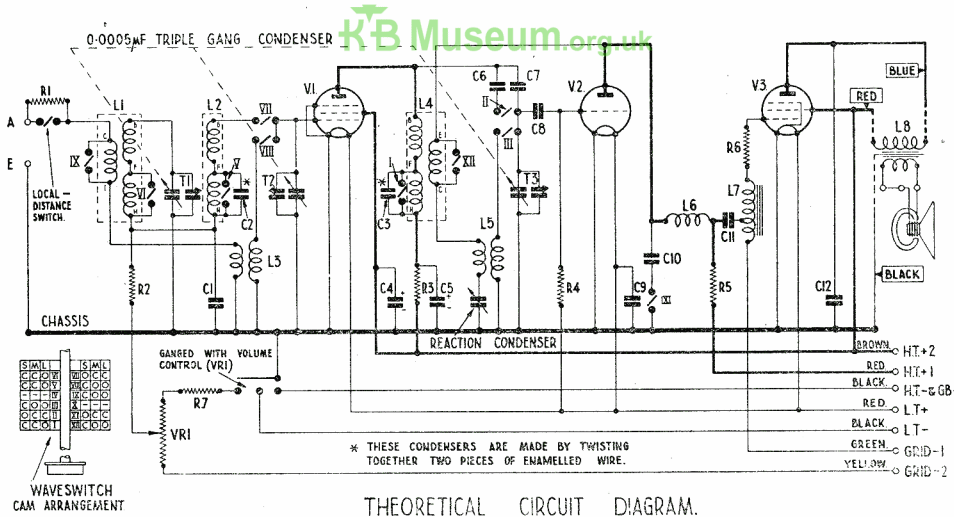
Fig. 4

6. ALIGNMENT OF CIRCUITS

If necessary, adjust the pointer on the gang condenser spindle to line up with the datum mark (horizontally) when the condenser is fully closed.

Then turn the condenser until the pointer indicates 214 metres (1,400 Kc/s). With the aid of a signal generator adjusted to the above frequency, and an output meter, trim T1 and T2 trimmers until maximum output is indicated.

When trimmed in the above manner the calibration is correct for all wavebands.



THEORETICAL CIRCUIT DIAGRAM.

Fig. 4

7. ADDITIONAL LOUDSPEAKER

7.1. EXTERNAL LOUDSPEAKER

A low impedance extension loudspeaker having an impedance of from 2 to 5 ohms, can be used in conjunction with this receiver.

Its speech coil leads are connected to the second and third from the top soldering tags, which can easily be located on the loudspeaker assembly. If a switch is connected in place of the wire link joining the top and second tags, the internal loudspeaker can be disconnected at will.