

# ADVANCE TECHNICAL INFORMATION.

# KB 650

K.R. 650 4-VALVE & RECTIFIER ALL-WAVE SUPERHETERODYME RECEIVER.

FOR A.C. MAINS OPERATION ONLY.

## 1. GENERAL

This receiver is designed to operate on A.C. supplies, voltages 200 to 250, 40-60 cycles per second. The dial lamps are rated at 13v.3 watts, and the total power consumed by the receiver is 72 watts. Details of waveranges covered and the correct method of operation will be found in the instruction booklet supplied with the receiver.

## 3. KEY TO CIRCUIT DIAGRAM.

Resistances.		Condensers.	
Code.	Resistance.	Code.	Capacity.
R1.	10,000 ohms.	C1.	0.0005 microfarad
R2.	100,000 "	C2.	0.005 "
R3.	250 "	C3.	0.1 "
R4.	5,000 "	C4.	0.1 "
R5.	25,000 "	C5.	0.0001 "
R6.	50,000 "(1 watt)	C6.	0.1 "
R7.	20,000 "(2 watt)	C7.	0.00007 "
R8.	20,000 "	C8.	0.1 "
R9.	250 "	C9.	0.1 "
R10.	100,000 "	C10.	0.02 "
R11.	500,000 "	C11.	25 "(electrolytic)
R12.	250,000 "	C12.	0.0005 "
R13.	10,000 "	C13.	0.00005 "
R14.	500,000 "	C14.	0.02 "
R15.	500,000 "	C15.	25 "
R16.	100,000 "	C16.	0.001 "
R17.	400 "(1 watt)	C17.	0.1 "
		C18.	16 "(electrolytic)
		C19.	8 "
		C20.	0.01 microfarad (1500v)
		C11, C15, C18 & C19 are supplied as a single block.	

## INDUCTANCES.

- L 1. Aerial long wave primary coil.
- L 2. Aerial short wave primary coil.
- L 3. Aerial short wave secondary coil.
- L 4. Aerial medium wave secondary coil.
- L 5. Aerial long wave secondary coil.
- L 6. Oscillator short wave primary coil.
- L 7. Oscillator short wave secondary coil.
- L 8. Oscillator medium wave primary coil.
- L 9. Oscillator medium wave secondary coil.
- L 10. Oscillator long wave primary coil.
- L 11. Oscillator long wave secondary coil.
- L 12 and L 14. I.F. primary coils.
- L 13 and L 15. I.F. secondary coils.
- L 16. Speaker output transformer.
- L 17. Field coil, 1,000 ohms.

## 4. APPROVED VALVES.

Valve	Type		Maker
V1	15.D.1	Frequency changer	"Brimar"
V2	9.D.2	I.F. pentode	"
V3	11.D.3	Double-diode-triode	"
V4	7.D.5	Output pentode	"
V5	R.2	Rectifier	"

## 5. VOLTAGES.

Voltages measured with instrument of sensitivity 1,000 ohms per volt. 230 volts were applied to the 225 volts tapping and the aerial and earth sockets were short-circuited.

VALVE	Voltage between chassis and:—			
	Anode	Screening or Priming Grid	Cathode	Oscillator Anode
V1	215v	90v	3.5v	90v
V2	250v	90v	2.5v	—
V3	100v	—	1.0v	—
V4	235v	250v	16.0v	—

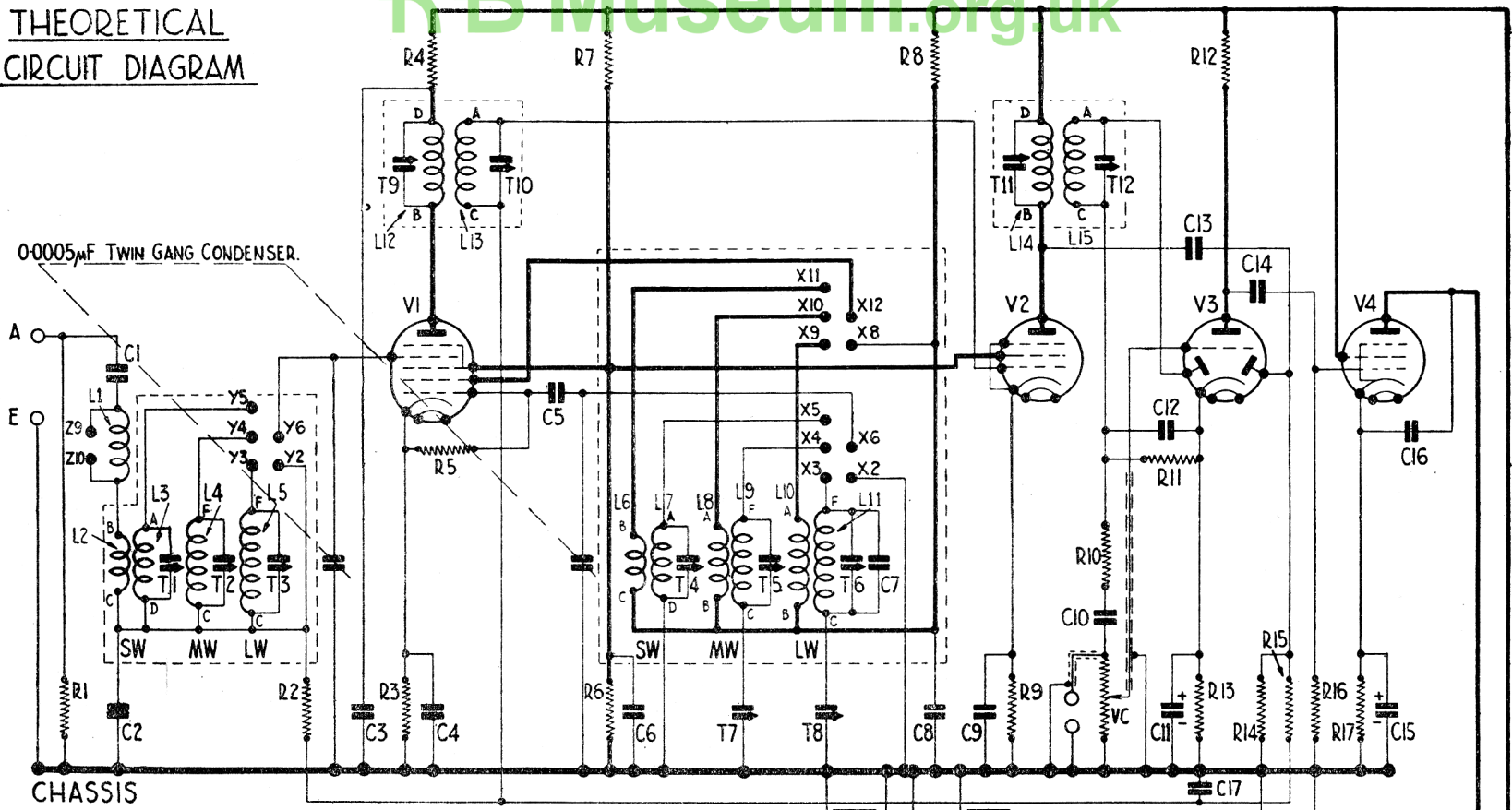
Maximum rectified H.T. voltage — 340v.  
H.T. voltage after smoothing — 250v.

## 6. CIRCUIT ALIGNMENT.

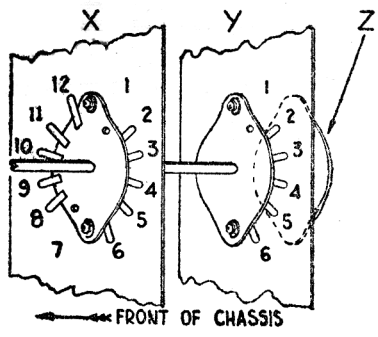
The I.F. transformer trimers T9, T11, T10 and T12 are trimmed at 464 Kc/s. Connect signal generator leads to A and E sockets. Connect output meter. Set the signal generator to 1,400 Kc/s (214 metres) and the receiver gang condenser to this position and trim T2 & T5. Reset the generator and receiver to 600 Kc/s (600 metres) and adjust T7 until the output meter indicates the maximum output. T7 is the NUT of the double padding condenser. Set receiver and generator to 250 Kc/s (1,200 metres, and trim T3 and T6. Next at 175 Kc/s (1714 metres), adjust T8 (this is the SCREW of the double padding condenser), until output meter indicates the maximum output obtainable. Repeat the long wave alignment until the calibration is correct over the complete range. For short waves T1 and T4 must be first adjusted at 17 megacycles (17.6 metres) and checked at 6 megacycles (50 metres). When the above procedure is followed in the order indicated the calibration and general alignment should be correct over all wave ranges.

**KOLSTER-BRANDES, LTD., Cray Works, Sidcup, Kent.**

THEORETICAL  
CIRCUIT DIAGRAM



ARRANGEMENT OF WAVESWITCH CONTACTS.



WAVELENGTH	X	Y	Z
	1 & 7	1	15
	ARE NOT USED	ARE NOT USED	
LONG WAVELENGTH	3 to 6 9 to 12	3 to 6	
MEDIUM WAVELENGTH	2 to 3 4 to 6 10 to 12 8 to 9	2 to 3 4 to 6	9 to 10
SHORT WAVELENGTH	2 to 3 & 4 5 to 6 11 to 12 8 to 9 & 10	2 to 3 & 4 5 to 6	9 to 10

MAINS SWITCH GANGED WITH VOLUME CONTROL

