

"His Master's Voice"

SERVICE MANUAL

for

FOUR - VALVE BROADCAST BAND A.C. RECEIVER

TECHNICAL SPECIFICATION

POWER SUPPLY: 200 to 250 volts. 40 to 50 cycles.

CONSUMPTION: 29 watts.

FREQUENCY RANGE: 1600 to 540 Kc.

I.F. FREQUENCY: 457.5 Kc.

MAX. POWER OUTPUT: 1.5 watts.

VALVES: 6A8G Converter; 6G8G I.F., A.V.C., Demod.; 6V6GT Power: 6X5GT Rect.

DIAL LAMPS (2): 6.3 v 0.15 — 0.30 amp.

LOUDSPEAKER: 5-inch Permagnetic. 3.7 ohm voice coil impedance at 400 cycles.

RECEIVER DIMENSIONS: Length, 13 inches; depth, 7 inches; height, 9 inches.

WEIGHT: Nett, 12 lbs.; gross, 15 lbs.

CIRCUIT DESCRIPTION

This model is a four-valve mains operated broadcast superheterodyne. It normally operates from a self-contained loop aerial which is provided with primary coupling for connection of an aerial/earth system. The primary circuit incorporates a loading inductance and damping resistor in order to reduce signal frequency tracking error to a minimum when an external aerial earth system is connected.

The signal frequency tuned circuit is connected to a Pentagrid Converter; Oscillator voltage on the signal grid of this valve is neutralised by means of a small wire capacitor connected from oscillator plate to signal grid. The oscillator inductance is permeability tuned and has a fixed padder capacitance.

The converter valve is transformer coupled to the pentode section of a duo-diode pentode valve, the output of which is in turn transformer coupled to the demodulator diode, the other diode being capacity coupled to the plate circuit and functions as an A.V.C. rectifier. Both I.F. transformers are permeability tuned and have fixed capacitors. A resistive network across the H.T. filter choke and series resistor provides delay voltage for the A.V.C. diode and standing bias for the converter valve.

A.V.C. voltage is applied to the converter valve whilst the I.F. valve is operated with fixed bias. The demodulator circuit is coupled to the potentiometer volume control, the output of which is taken to the grid of the beam power output valve.

The power output of this valve is limited by operating the screen at a reduced voltage. The output stage is transformer coupled to the voice coil of a permagnetic speaker. A tertiary winding on the output transformer provides inverse feedback voltage which is fed back to the input circuit of the output stage through a tap on the volume control.

High tension voltage is supplied by a full wave rectifier, the output of which is filtered by a choke in the negative side.

DISMANTLING

Removal of Chassis:

- (1) Disconnect power plug from supply mains.
- (2) Remove knobs.
- (3) Remove four coloured fixing screws from back of cabinet.
- (4) Withdraw chassis from cabinet.

MODIFICATION

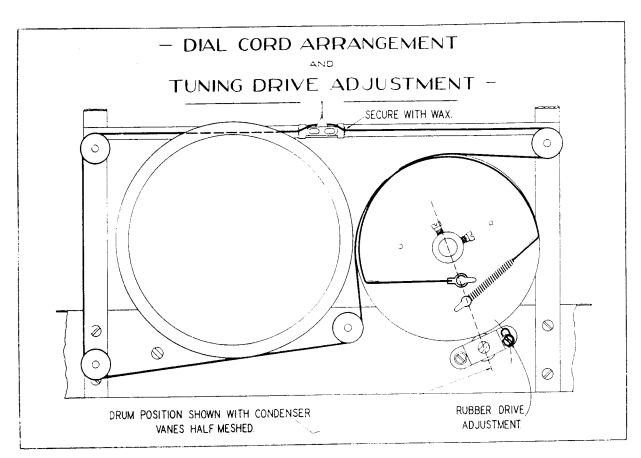
Due to material supply shortages it has been necessary to modify this receiver. Service information is amended as follows:—

- 1. I.F. valve type 6G8G replaced by Type EBF35.
- 2. 1st I.F. transformer replaced by Part No. D1985.
- 3. 25 mmfd. Osc. shunt Condenser (C6) deleted.

4.	Osc.	shunt	trimmer	condenser	(TC2)	replaced
	by P	art No	. D2383.			

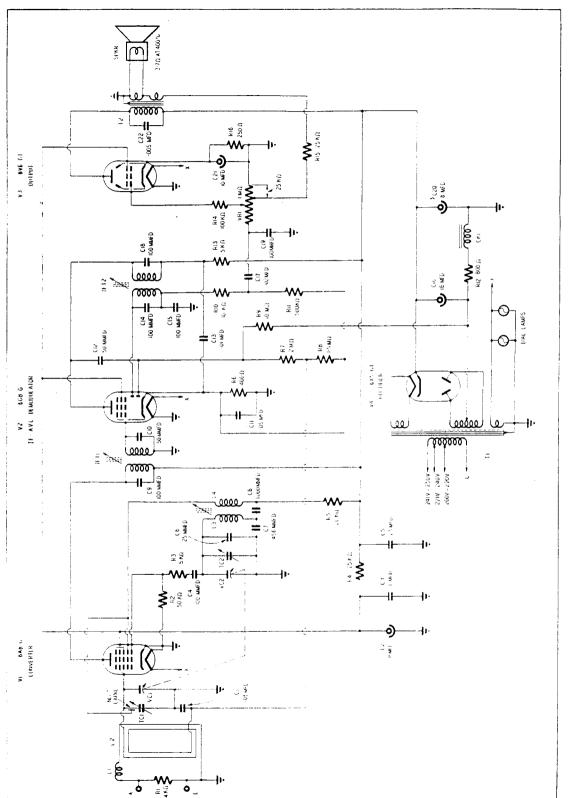
5. Voltage table for I.F. valve (EBF35) as under.

Valve	Elec-	Volts to	Current	Resist. to	Valve	Elec-	Volts to	Current	Resist. to Chassis
Base Pin	trode	Chassis	ma	Chassis	Base Pin	trode	Chassis	ma	Chassis
1	Heater	AC 6.3	0.2 amp.		5	Diode		-	0.51 Megohm.
2	Metal		•		6	Diode			
	Coating			Nil.		(AVC)			2.6 Megohms.
3	Plate	242	4.5	Infin.	7	Cathode	2.3	5.9	400 ohms.
4	Screen				8	Heater	-		Nil
	Grid	96	1.4	Infin.	9	Grid	~		11 ohms.



PARTS LIST

CONDENSERS MISCELLANEC /M 0.05 mfd. 200V wkg. L1 D2225 Aerial /CA 8 mfd. 525 P.V. L2 C0317 Loop A /CA 8 mfd. 525 P.V. L2 C0317 Loop A /CA 8 mfd. 525 P.V. L2 C0317 Loop A /CA 8 mfd. 400V wkg. L3 & L4 D2244 B/C O /CA 0.25 mfd. 400V wkg. TC1 & TC2 D0786A Air Trin /CA 456 pf. ± 5% VR1 D1944A 1 Meg /CA 1000 pf. ± 5% VR1 D2026 Air Trin /CA 1000 pf. ± 5% TT D2226 Mains /A 100 pf. ± 10% CK1 D2226 Mains /A 100 pf. ± 5% CK1 D2226 Mains /A 100 pf. ± 10% CK1 D2228 H.T. Fi /A 100 pf. ± 5% <th>Ref.</th> <th>Part No.</th> <th>DESCRIPTION</th> <th>Ref.</th> <th>Part No.</th> <th>DESCR</th> <th>DESCRIPTION</th> <th>Ref</th> <th>Part</th> <th>DESCRIPTION</th>	Ref.	Part No.	DESCRIPTION	Ref.	Part No.	DESCR	DESCRIPTION	Ref	Part	DESCRIPTION
E1X 4,000 Ohms ½ Watt ± 10% C1 C0013/M 0.05 mid. 2000 vwg. L1 D2224 H1X 5,000 Ohms ½ Watt ± 10% C2 C0014/CA 8 mid. 525 P.Y. L2 C0317 AE4X 2,000 Ohms ½ Watt ± 10% C3 C0013/E 0.1 mid. 400% wkg. L3 & L4 D2224 AE4X 2,5,000 Ohms ½ Watt ± 10% C5 C0013/C 0.25 mid. 400% wkg. TCI & TC D078 UIIX 400 Ohms ½ Watt ± 10% C6 D4405 AB 25 pir. ± 5% VR1 D1944A AA1X 2 Meg. ½ Watt ± 10% C7 D0243 CR 456 pir. ± 5% IFT D1944A AA1X 1.5 Meg. ½ Watt ± 10% C7 D0243 CR 456 pir. ± 5% IFT D1944A AB3X 1 0.0000 Ohms ½ Watt ± 10% C9 D4405 M 100 pir. ± 5% IFT D2029 AB3X 1 0.0000 Ohms ½ Watt ± 10% C1 D0243 CR 50 pir. ± 10% KR1 D2029 AB1X		R	ESISTORS		CON	DENSERS			MISCE	LLANEOUS
H1X 50,000 Ohms } watt ± 10% C2 C0014/CA 8 mId. 525 FV. L2 C0314 AE4X 5,000 Ohms } watt ± 10% C3 C0013/E 0.1 mId. 400V wkg. L13 & L4 D2244 AE4X 25,000 Ohms 2 Watt ± 10% C4 D4405, B 100 pI. ± 10% VCI & VCI & VCZ D1993 V3X 20,000 Ohms 1 Watt ± 10% C6 D4405 AB 25 pI. ± 5% VRI D1944A AA1X 2 Meg. ½ Watt ± 10% C7 D0243 CR 456 pI. ± 5% VRI D1944A AA1X 2 Meg. ½ Watt ± 10% C7 D0243 CR 456 pI. ± 5% FTT D1944A AA1X 1.5 Meg. ½ Watt ± 10% C7 D0243 CR 1000 pI. ± 5% TT D2026 F1X 10,000 Ohms ½ Watt ± 10% C1 D0243 CR 5 pi. ± 10% CRI D2024 LR.C. "BA" 5,000 Ohms ½ Watt ± 10% C1 D0243 CR ± 10% AB D2028 LR.C. "BW" 25,000 Ohms ½ Watt ± 10% <th><u>۳</u></th> <th>E1X</th> <th>4,000 Ohms ½ Watt ± 10%</th> <th></th> <th>C0013/M</th> <th>0.05 mfd.</th> <th>200V wkg.</th> <th>=</th> <th>D2225</th> <th>Aerial Loading Coil</th>	<u>۳</u>	E1X	4,000 Ohms ½ Watt ± 10%		C0013/M	0.05 mfd.	200V wkg.	=	D2225	Aerial Loading Coil
X1X 5,000 Ohms ½ Watt ± 10% G3 C0013/E 0.1 mid. 400V wkg. L3 & L4 D2224 AE4X 25,000 Ohms 2 Watt ± 10% G4 D4405/B 100 pf. ± 10% VC1 & VC2 D1993 V3X 20,000 Ohms 1 Watt ± 10% G5 C0013/C 0.25 mid. 400V wkg. TC1 & TC2 D0786A U11X 400 Ohms ½ Watt ± 10% G6 D4405 A 1000 pf. ± 5/% VR1 D1944A AA1X 1.5 Meg. ½ Watt ± 10% G7 D0243 CR 456 pf. ± 5/% IFT D1944A AA1X 1.5 Meg. ½ Watt ± 10% G7 D4405 A 100 pf. ± 5/% IFT D2226 F1X 10,0000 Ohms ½ Watt ± 10% G1 C0013/M 0.05 mid. 200V wkg. T1 D2226 J1X 100,000 Ohms ½ Watt ± 10% G1 D0243/Q 50 pf. ± 10% GR1 D2228 J1X 100,000 Ohms ½ Watt ± 10% G1 D0243/Q 50 pf. ± 10% GR1 A0035 AE1X <t< th=""><th>R2</th><th>HIX</th><th>50,000 Ohms $\frac{1}{2}$ Watt \pm 10%</th><th></th><th>C0014/CA</th><th>8 mfd.</th><th>525 P.V.</th><th>77</th><th>C0317</th><th>Loop Aerial Coil</th></t<>	R2	HIX	50,000 Ohms $\frac{1}{2}$ Watt \pm 10%		C0014/CA	8 mfd.	525 P.V.	77	C0317	Loop Aerial Coil
AE4X 25,000 Ohms 2 Watt ± 10% C4 D4405, B 100 pf. ± 10% VC1 & VC2 D1993 V3X 20,000 Ohms 1 Watt ± 10% C5 C0013, C 0.25 m/d. ± 5% VR1 D074A AA1X 2 Meg. ½ Watt ± 10% C7 D0243 CR 456 pf. ± 5% VR1 D1944A AA1X 1.5 Meg. ½ Watt ± 10% C7 D0243 CR 456 pf. ± 5% VR1 D1944A AB3X 1.6 Meg. ½ Watt ± 10% C8 D4405 W 100 pf. ± 5% HFT D2019 AB3X 10,000 Ohms ½ Watt ± 10% C10 D4405 W 50 pf. ± 10% CK1 D222 LR.C. "AA" 800 Ohms ½ Watt ± 10% C12 D0243/Q 50 pf. ± 10% CK1 D228 JIX 100,000 Ohms ½ Watt ± 10% C13 C0013 /M 0.01 mfd. 500 V wg. 5000 Ohms ½ Watt ± 10% C14 D4405 W 100 pf. ± 5% CK1 D228 JIX 100,000 Ohms ½ Watt ± 10% C16 C0014 /RZ 10 mfd.	R3	XIX	$5,000 \text{ Ohms } \frac{1}{2} \text{ Watt} \pm 10\%$		C0013/E	0.1 mfd.	400V wkg.	L3 & L4	D2224	B/C Oscillator Coil
V3X 20,000 Ohms 1 Watt ± 10% (c) C 00013 °C 0.25 mid. 400V wkg. TCI & TC2 D0784A AA1X 2 Mo Ohms 2 Watt ± 10° (c) 0 4405 AB 25 pi. ± 5% VR1 D1944A AA1X 2 Meg. 3 Watt ± 10° (c) 7 D0243 CR 456 pi. ± 5% VR1 D1944A Q1X 1.5 Meg. 3 Watt ± 10° (c) 79 D4405 AS 1000 pi. ± 5% IFT1 D2020 AB3X 10 Meg. 1 Watt ± 10° (c) C10 D4405 AS 100 pi. ± 5% IFT2 D2020 F1X 10,0000 Ohms 3 Watt ± 10° (c) C1 C0013 AS 0.05 mid. 200V wkg. T2 D2243 CK1 D2243 X1X 5,0000 Ohms 3 Watt ± 10° (c) C13 C0013 AS 100 pi. ± 5% CK1 D2226 X1X 5,000 Ohms 3 Watt ± 10° (c) C14 D4405 W 100 pi. ± 5% AD003 X1X 5,000 Ohms 3 Watt ± 10° (c) C14 D4405 W 100 pi. ± 5% D200 X1X 25,000 Ohms 3 Watt	R 4	AE4X			D4405, B	100 pf.	± 10%	VC1 & VC2	D1993	2 Gang Condenser
UIIX 400 Ohms Watt ± 10°; C6 D4405 AB 25 pl. ± 5% VRI D1944A AA1X 2 Meg. Watt ± 10°; C7 D0243 CR 456 pl. ± 5 mmld. D2020 Q1X 1.5 Meg. Watt ± 10°; C8 D4405 A 1000 pl. ± 10°% IFT1 D2020 AB3X 10 Meg. 1 Watt ± 10°; C9 D4405 X 50 pl. ± 5% IFT2 D2020 F1X 10,000 Ohms Watt ± 10°; C11 C0013 /M 0.05 mld. 200 wkg. T2 D2226 O1X 5000 Ohms Watt ± 10°; C13 C013 /M 0.01 mld. 600V Speaker C0315 X1X 5,000 Ohms Watt ± 10°; C13 D0243 /P 100 pl. ± 5% A0035 AE1X 25,000 Ohms Watt ± 10°; C15 D0243 /P 100 pl. ± 5% A0035 AE1X 25,000 Ohms Watt ± 10°; C15 C014/BZ 16 mld. 525 P.V. D2008 I.R.C. "BW" 250 Ohms Watt ± 10°; C15 C014/BZ	RS	V3X			C0013/C	0.25 mfd.	400V wkg.	TC1 & TC2	D0786A	Air Trimmer (1.5 — 12.0 pf.)
AA1X 2 Meg. ½ Watt ± 10% C7 D0243 CR 456 pf. ± 5 mmfd. IFT1 D2019 1st long Q1X 1.5 Meg. ½ Watt ± 10% C8 D4405 A 1000 pf. ± 5% IFT2 D2020 2nd AB3X 10 Meg. 1 Watt ± 10% C10 D4405 /X 50 pf. ± 5% IT1 D2226 Main F1X 10,000 Ohms ½ Watt ± 10% C11 C0013/M 0.05 mld. 200V wkg. T2 D2227 Out LR.C. "AA" 800 Ohms ½ Watt ± 10% C12 D0243/Q 50 pf. ± 10% CK1 D2228 H.T. X1X 5,000 Ohms ½ Watt ± 10% C13 C013 M 100 pf. ± 5% A0035 Cab AE1X 25,000 Ohms ½ Watt ± 10% C15 D0243 P 100 pf. ± 10% CR1 B0108 Gml AE1X 25,000 Ohms ½ Watt ± 10% C15 C0014/BZ 16 mld. 525 p.V. B0108 B0108 Gml I.R.C. "BW" 250 Ohms 1 Watt ± 10% C15 C0014/BZ <th>R6</th> <th>XIII</th> <th>400 Ohms } Watt ± 10%</th> <th>9</th> <th>D4405 AB</th> <th>25 pf.</th> <th>∓ 5%</th> <th>VR1</th> <th>D1944A</th> <th>1 Meg. Potentiometer</th>	R6	XIII	400 Ohms } Watt ± 10%	9	D4405 AB	25 pf.	∓ 5%	VR1	D1944A	1 Meg. Potentiometer
Q1X 1.5 Meg. ½ Watt ± 10% Q8 D4405 A 1000 pf. ± 10% IFT1 D2019 AB3X 10 Meg. 1 Watt ± 10% C9 D4405 W 100 pf. ± 5% IT1 D2020 F1X 10,000 Ohms ½ Watt ± 10% C10 D4405 X 50 pf. ± 5% T1 D2226 O1X 500,000 Ohms ½ Watt ± 10% C11 C0013 M 0.01 mfd. 500V wkg. T2 D2227 I.R.C. "AA" 800 Ohms ½ Watt ± 10% C13 C0013 N 0.01 mfd. 600V wkg. T2 D2228 X1X 5,000 Ohms ½ Watt ± 10% C14 D4405 W 100 pf. ± 5% A0035 AE1X 25,000 Ohms ½ Watt ± 10% C15 D0243 P 100 pf. ± 10% D2009 AE1X 25,000 Ohms ½ Watt ± 10% C15 D0243 P 100 pf. ± 5% D2009 AE1X 25,000 Ohms ½ Watt ± 10% C15 D0243 P 100 pf. ± 5% D2009 I.R.C. "BW" 25,000 Ohms ½ Watt ± 10% C16 C0014, BZ 100	R7	AA1X	2 Meg. $\frac{1}{2}$ Watt \pm 10%		D0243, CR	456 pf.	± 5 mmfd.			(Tapped 25,000 ohms)
AB3X 10 Meg. 1 Watt ± 10% (9) D4405 W 100 pf. ± 5% IFT2 D2020 F1X 10,000 Ohms ½ Watt ± 10% (11) C10 D4405 X 50 pf. ± 5% T1 D2226 O1X 500,000 Ohms ½ Watt ± 10% (12) C12 D0243/Q 50 pf. ± 10% CK1 D2228 I.R.C. "AA" 800 Ohms ½ Watt ± 10% (13) C0013 N 0.01 mfd. 600V Speaker C315 X1X 5,000 Ohms ½ Watt ± 10% (14) D4405 W 100 pf. ± 5% A0035 AE1X 25,000 Ohms ½ Watt ± 10% (15) C15 D0243/P 100 pf. ± 10% D2008 I.R.C. "BW" 250 Ohms 1 Watt ± 10% (15) C16 C0014/BZ 16 mfd. 525 P.V. D2008 I.R.C. "BW" 250 Ohms 1 Watt ± 10% (16) C17 C0013 S 0.02 mfd. 600V wkg. D2233 C19 D0243/P 100 pf. ± 5% D2233 C20 C0014/BY 100 pf. ± 10% D2239 C21 C0014/BY 10 mfd. 40 P.	R 8	Q1X	1.5 Meg. $\frac{1}{2}$ Watt \pm 10%		D4405 A	1000 pf.	± 10%	IFI.	D2019	1st I.F. Transformer
F1X 10,000 Ohms ½ Watt ± 10% C11 C0013/M 0.05 mfd. 200V wkg. T1 D2226 O1X 500,000 Ohms ½ Watt ± 10% C11 C0013/M 0.05 mfd. 200V wkg. T2 D2227 LR.C. "AA" 800 Ohms 3 Watt ± 10% C12 D0243/Q 50 pf. ± 10% CK1 D2228 X1X 5,000 Ohms ½ Watt ± 10% C13 C0013/N 0.01 mfd. 600V wkg. Speaker C0315 J1X 100,000 Ohms ½ Watt ± 10% C14 D4405/W 100 pf. ± 5% A0035 AE1X 25,000 Ohms ½ Watt ± 10% C15 D0243/P 100 pf. ± 10% B0108 LR.C. "BW" 250 Ohms 1 Watt ± 10% C16 C0014/BZ 16 mfd. 525 p.V. D2009 C17 C0013 S 0.02 mfd. 600V wkg. D2233 C18 D4405/W 100 pf. ± 5% D2234 C20 C0014/CA 8 mfd. 525 p.V. B0112 C20 C0014/CA 8 mfd. 525 p.V. B0112 C20 C0014/BY 10 mfd. 600V ± 10% D2229A	R9	AB3X		6)	D4405/W	100 pf.	± 5%	IFT2	D2020	2nd I.F. Transformer
O1X 500,000 Ohms ½ Watt ± 10% C11 C0013/M 0.05 mld. 2000 wkg. T2 D2227 I.R.C. "AA" 800 Ohms 3 Watt ± 10% C12 D0243/Q 50 pf. ± 10% CK1 D2228 XIX 5,000 Ohms ½ Watt ± 10% C14 D4405/W 100 pf. ± 5% A0035 JIX 100,000 Ohms ½ Watt ± 10% C15 D0243/P 100 pf. ± 10% A0035 AEIX 25,000 Ohms ½ Watt ± 10% C15 D0243/P 100 pf. ± 10% D2009 I.R.C. "BW" 250 Ohms I Watt ± 10% C16 C0014/BZ 16 mld. 525 p.V. D2009 I.R.C. "BW" 250 Ohms I Watt ± 10% C17 C0013 S 0.02 mld. 600V wkg. D2233 C17 C0013 S 100 pf. ± 5% D2201A C20 C0014/CA 8 mld. 525 p.V. B0112 C21 C0014/BY 10 mld. 40 p.V. D2229A	R10	F1X	10,000 Ohms $\frac{1}{2}$ Watt \pm 10%		D4405/X	50 pf.	3 % ∓	F	D2226	Mains Transformer
I.R.C. "AA" 800 Ohms 3 Watt ± 10% C12 D0243/Q 50 pf. ± 10% CK1 D2228 X1X 5,000 Ohms ½ Watt ± 10% C13 C0013 N 0.01 mfd. 600V Speaker C0315 J1X 100,000 Ohms ½ Watt ± 10% C14 D4405 W 100 pf. ± 5% A0035 AE1X 25,000 Ohms ½ Watt ± 10% C15 D0243/P 100 pf. ± 10% B0108 I.R.C. "BW" 250 Ohms 1 Watt ± 10% C16 C0014 BZ 16 mfd. 525 P.V. D2008 C17 C0013 S 0.02 mfd. 600V wkg. D2009 C18 D4405 W 100 pf. ± 5% D2014 C19 D0243/P 100 pf. ± 10% D2014 C20 C0014 / CA 8 mfd. 525 P.V. B0112 C20 C0014 / CA 8 mfd. 525 P.V. B0112 C21 C0013 / AK 0.005 mfd. 600V ± 10% D1554	R11	V10	500,000 Ohms $\frac{1}{2}$ Watt \pm 10%		C0013/M	0.05 mfd.	200V wkg.	12	D2227	Output Transformer
X1X 5,000 Ohms ½ Watt ± 10% C13 C0013 N 0.01 mfd. 600V Speaker C0315 J1X 100,000 Ohms ½ Watt ± 10% C14 D4405 W 100 pf. ± 5% A0035 AE1X 25,000 Ohms ½ Watt ± 10% C15 D0243 P 100 pf. ± 10% D2008 I.R.C. "BW" 250 Ohms 1 Watt ± 10% C16 C0014 BZ 16 mfd. 525 p.V. D2008 C17 C0013 S 0.02 mfd. 600V wkg. D2233 C18 D4405 W 100 pf. ± 5% D1536A C19 D0243 P 100 pf. ± 10% D2011A C20 C0014 CA 8 mfd. 525 p.V. B0112 C21 C0014 / BY 10 mfd. 40 p.V. D1554	R12	I.R.C. "AA"		C12	D0243/Q	50 pf.	± 10%	CK1	D2228	H.T. Filter Choke
J1X 100,000 Ohms ½ Watt ± 10% C14 D4405, W 100 pf. ± 5% A0035 AE1X 25,000 Ohms ½ Watt ± 10% C15 D0243/P 100 pf. ± 10% B0108 I.R.C. "BW" 250 Ohms 1 Watt ± 10% C16 C0014/BZ 16 mfd. 525 P.V. D2008 C17 C0013 ′S 0.02 mfd. 600V wkg. D2233 C18 D4405/W 100 pf. ± 5% D1536A C19 D0243/P 100 pf. ± 10% D2011A C20 C0014/CA 8 mfd. 525 P.V. B0112 C21 C0014/BY 10 mfd. 40 P.V. D2229A C22 C0013/AK 0.005 mfd. 600V ± 10% D1554	R13	X1X	5,000 Ohms $\frac{1}{2}$ Watt \pm 10%		C0013 / N	0.01 mfd.	۸009	Speaker	C0315	5-inch Speaker
AE1X 25,000 Ohms 1 Watt ± 10% C15 D0243/P 100 pf. ± 10% D2008 L.R.C. "BW" 250 Ohms 1 Watt ± 10% C16 C0014/BZ 16 mfd. 525 P.V. D2008 C17 C0013 S 0.02 mfd. 600V wkg. D2009 C18 D4405/W 100 pf. ± 5% D1536A C19 D0243/P 100 pf. ± 10% D2011A C20 C0014/CA 8 mfd. 525 P.V. B0112 C21 C0014/BY 10 mfd. 40 P.V. D2229A C22 C0013/AK 0.005 mfd. 600V ± 10% D1554	R14	XI			D4405 W	100 pf.	≠ 5%		A0035	Cabinet
I.R.C. "BW" 250 Ohms 1 Watt ± 10% C16 C0014/BZ 16 mfd. 525 P.V. D2008 C17 C0013 'S 0.02 mfd. 600V wkg. D2009 C18 D4405/W 100 pf. ± 5% D1536A C19 D0243/P 100 pf. ± 10% D2011A C20 C0014/CA 8 mfd. 525 P.V. B0112 C21 C0014/BY 10 mfd. 40 P.V. D2229A C22 C0013/AK 0.005 mfd. 600V ± 10% D1554	R15	AE1X			D0243/P	100 pf.	± 10%		B0108	Grille (Cabinet)
C0013 'S 0.02 mfd. 600V wkg. D2033 D4405/W 100 pf. ± 5% D1536A D0243/P 100 pf. ± 10% D2011A C0014/CA 8 mfd. 525 P.V. B0112 C0014/BY 10 mfd. 40 P.V. D2229A C0013/AK 0.005 mfd. 600V ± 10% D1554	R1'6	I.R.C. "BW"			C0014/BZ	16 mfd.	525 P.V.		D2008	Handle (Carrying)
D4405/W 100 pf. ± 5% D1538A D0243/P 100 pf. ± 10% D1538A C0014/CA 8 mfd. 525 P.V. B0112 C0014/BY 10 mfd. 40 P.V. D2229A C0013/AK 0.005 mfd. 600V ± 10% D1554				C17	C0013 /S	0.02 mfd.	600V wkg.		D2009	Knob (Control)
D0243/P 100 pf. ± 10% D2011A C0014/CA 8 mfd. 525 P.V. B0112 C0014/BY 10 mfd. 40 P.V. D2229A C0013/AK 0.005 mfd. 600V ± 10% D1554				C18	D4405/W	100 pf.	± 5%		D2233	Dial Glass Rubber Drive Burb
C0014/CA 8 mfd. 525 P.V. B0112 C0014/BY 10 mfd. 40 P.V. D2229A C0013/AK 0.005 mfd. 600V ± 10% D1554				C19	D0243/P	100 pf.	± 10%		D2011A	Dial Pointer
C0014/BY 10 mfd. 40 P.V. D2229A C0013/AK 0.005 mfd. 600V ± 10% D1554				C20	C0014/CA	8 mfd.	525 P.V.		B0112	Loop Aerial Assembly
C0013/AK 0.005 mfd. 600V ± 10% D1554				C21	C0014/BY	10 mfd.	40 P.V.		D2229A	Dial Cord
				C22	C0013/AK	0.005 mfd.	600V ± 10%		D1554	Spring



CIRCUIT DIAGRAM OF MODEL 46, INCORPORATING CHASSIS A436BS.

RECEIVER ALIGNMENT PROCEDURE

In any case where a component replacement has been made in either the tuned I.F. or R.F. circuits of the receiver, all circuits must be re-aligned.

I.F. alignment should always precede R.F. alignment, and even if only one coil has been serviced, the whole of the re-alignment should be done in the order given.

An output meter should always be connected across the voice coil terminals of the speaker to indicate when the circuits are tuned to resonance. In carrying out the following operations, it is important that the input to the receiver from the oscillator should be kept low and progressively reduced as the circuits are brought into line, so that the output meter reading does not exceed about 1.0 volt.

LE ALIGNMENT

Rotate volume control fully clockwise and fully enmesh the tuning condenser vanes.

Connect output leads of signal generator to the grid cap of the 6A8G converter through a 0.1 mfd. condenser and to the receiver chassis. Do not remove grid lead of converter valve.

- (1) Tune signal generator to exactly 457.5 Kc.
- (2) Adjust the 1-F. transformer trimmer screws for resonance, commencing with the second 1.F. transformer and following with the first.
- (3) Continue this alignment carefully on each transformer in turn until no greater output can be obtained. It is necessary to repeat this procedure at least twice to ensure good alignment.

NOTE: If trimmer screws are screwed too far in, it may be possible to obtain a false peak due to coupling effects between the iron cores. Start alignment of each individual transformer by first screwing its core well out and then advancing core into the coil until resonance is obtained.

R.F. ALIGNMENT

With controls set as for I.F. alignment, connect signal generator output leads in series with a 200 mmfd, condenser to the aerial and earth terminals.

Check that when the ganged condenser is fully meshed the pointer coincides with the setting line at the extreme left of the dial scale. If necessary, the pointer may be adjusted to this position by first softening the wax securing the drive cord to the pointer carriage.

- (1) Tune signal generator to 600 Kc.
- (2) Rotate tuning knob until dial pointer is exactly over 600 Kc. calibration mark (third mark from the left on upper dial scale) and adjust the oscillator padder screw for maximum response.
- (3) Rotate tuning knob to 1500 Kc. calibration mark (second mark from the right on upper dial scale) and adjust the oscillator trimmer and aerial trimmer in turn for maximum response.
- (4) Repeat all the foregoing operations for proper alignment.

CONVERTER VALVE REPLACEMENT

If the 6A8G converter valve has been replaced, it may be necessary to alter the value of neutralizing capacitance used. This capacitance is in the form of a Nylex insulated wire coiled around the barrel of the aerial trimmer; its value may be adjusted by altering the length of wire used. Its value should be such as to result in approximately the same overall sensitivity at 1500 and 1000 Kcs. Too much capacitance may result in low sensitivity at the high frequency end of the band, whilst too low a value may give rise to instability.

Complete re-alignment of the oscillator and signal frequency circuits must be carried out if any adjustment of the neutralizing capacitance has been made.

ADDITIONAL DATA

Any further service information desired may be obtained by addressing an inquiry to The Service Department, The Gramophone Co. Ltd., 2 Parramatta Road, Homebush, N.S.W.

(The Company reserves the right to make any modification without notice).

- VOLTAGE TABLE -

VALUES GIVEN ARE WITH RECEIVER OPERATING ON AVERAGE MAINS VOLTAGE AND TUNED TO POINT OF NO RECEPTION ON THE BROADCAST BAND.

VOLTAGE READINGS MEASURED WITH METER RESISTANCE OF 1,000 OHMS PERVOLT.

VOLTAGE AND CURRENT READINGS WITHIN ± 15°/o.

RESISTANCE READINGS ARE APPROXIMATE.

	<u> </u>				· · · · · · · · · · · · · · · · · · ·	1	105010711105
VOLTS TO	CURRENT	RESISTANCE TO	VALVE	BASE	VOLTS TO	CURRENT	RESISTANCE TO
CHASSIS	MA.	CHASSIS	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	<i>3</i> /13c	CHASSIS	MA.	CHASSIS
-	<u> </u>	VI	6A8-G	CONVER	TER		
				☐ GRID			i·5 MΩ
96	4.9	INFIN.	SCREEN GRID				50,000 Ω
270	2.7	INFIN.	PLATE O	OSC.PLATE	175	4.2	INFIN.
A.C. 6·3	0.3 AMP		HEATER (O	HEATER	NIL		NIL
			NO CONN.	CATHODE	NIL	11.8	NIL
		V 2	6G8-G	I.F. A.V.C. [DEMODULAT	OR	
				☐ GRID			6·3 Ω
		0-51 ΜΩ		DIODE (A.V.C.)			2·6 MΩ
235	6.0	INFIN.	PLATE/O	SCREENCRID	96	l·6	INFIN.
A.C. 6·3	0.3 AMP			HEATER	NIL		NIL
			40 CONN.	CATHODE	3.1	7.6	400Ω
		V 3	6V6-GT	OUTPUT		· · · · · · · · · · · · · · · · · · ·	
96	0.7	INFIN.	SCREEN GRID	CRID			1.0 M O
265	15.5	INFIN.	PLATE O	\sim			
A.C. 6·3	0.45AMP		HEATER (O	HEATER	NIL		NIL
			NO CONN.	CATHODE	3.9	16	250 Ω
		V 4	6X5-GT	RECTIFIE	ER .	·	
				PLATE #1	A.C. 280		1,700Ω
A.C. 280		1,700Ω	PLATE # 2/0				
	A.C.0.6AMP	INFIN.	HEATER 0	HEATER			INFIN.
			но соии.	CATHODE	270	36	INFIN.

REMARKS-

H.T. TRANSFORMER C.T. TO CHASSIS — — VOLTAGE = 50 VOLTS.

H.T. TRANSFORMER C.T. TO CHASSIS——RESISTANCE = 1,400 OHMS

TOTAL H.T. CURRENT = 36 MA.

FILTERED H.T. VOLTAGE = 270 VOLTS.