

SERVICE SHEET FOR



model
PE94MBQ

CIRCUIT ANALYSIS

Mains Consumption Supply Current from Rectifier Unsmoothed H.T.		21 watts 63 mA. 127 volts	Smoothed H.T. Heater Supply Volts Battery Consumption		120 volts 7.8 volts D.C. H.T. 13.9 mA., L.T. 68 mA.			
Valve	Mullard	Ea	Ia	Es	Is	Osc.		Ik
						Ea	Ia	
V1	R.F. Amplifier	DF91	63	0.97	63	0.43	—	1.4
V2	Frequency Changer	DK92	92	0.6	63	0.06	35	1.7
V3	I.F. Amplifier	DF91	92	1.8	63	0.7	—	2.5
V4	Det. and A.F. Amp.	DAF96	21	0.05	24	0.015	—	0.065
V5	Output	DL94	116	6.9	92	1.3	—	8.2
	{ Mains Battery }		94	6.2	92	1.25	—	7.45
V6	Tuning Indicator	DM70	63	0.12	—	—	—	0.12
V7	Rectifier	EZ41	Anode to Anode 296 V. A.C.					63

Note.—All measurements taken on M.W. band with no signal input. Gang fully meshed. Mains input 210 volts into 195-220 volt tap. Measurements taken with an Avometer Model 8 instrument which has a resistance of 20,000 ohms per volt.

TRIMMING PROCEDURE

Apply Signal as below	Set Receiver Controls to	Adjust in order for Maximum Output
A. CHASSIS TESTS		
(1) 470 kc/s. between chassis and G3 of V2 via a 0.1 I F condenser	Band 1. 565 metres.	Iron dust cores of T2 and T1
(2) 600 kc/s. between chassis and C1	Band 1. 500 metres	Iron dust cores of L12 and L7
(3) As (2) but 1,500 kc/s.	Band 1. 200 metres	Trimmers C21 and C11
(4) Repeat (2) and (3) until calibration and tracking are correct.		
(5) 3.3 Mc/s. between rod aerial connection and chassis via a series 28pF*	Band 2. 91.0 metres	Iron dust cores of L13, L8 and L3
(6) As (5) but 7.2 Mc/s.	Band 2. 41.7 metres	Trimmers C12, C2
(7) Repeat (5) and (6) until calibration and tracking are correct.		
(8) As (5) but 9.6 Mc/s.	Band 3. 31.25 metres	Iron dust cores of L14, L9 and L4
(9) As (5) but 11.8 Mc/s.	Band 4. 25.42 metres	Iron dust cores of L15, L10 and L5
(10) As (5) but 15.3 Mc/s.	Band 5. 19.61 metres	Iron dust cores of L16, L11 and L6
(11) As (5) but 17.8 Mc/s.	Band 5. 16.85 metres	Trimmers C35, C19 and C9
(12) Repeat (10) and (11) until calibration and tracking are correct.		
B. COMPLETE RECEIVER TEST		
(13) 600 kc/s. into loop placed at 50 cms. from frame aerial	Band 1. 500 metres	Iron dust core of L2
(14) As (13) but 1,500 kc/s.	Band 1. 200 metres	Trimmer C1
(15) Repeat (13) and (14) until tracking is correct.		

* Sig. gen. output impedance must be 7 to 10 ohms.

Vintage Service Data CD-Rom

CONDENSERS						INDUCTANCES				
	Specification	Volts	±	Fig.	No.		Specification	Ref.	Fig.	No.
C1	3-30pF Trimmer			3	800169	L1	M.W. Frame Aerial		1	078012
C2	3-30pF Trimmer			4	800318	L2	M.W. Loading Coil		3	781200
C3	5-6pF Ceramic		20%	4	666659	L3	M.S.W. Aerial Coil		4	780275
C4	528pF Swing Gang Condenser			3	800223	L4	31 M. Aerial Coil		4	780634
C5	91pF Mica		2%	4	664096	L5	25 M. Aerial Coil		4	780277
C6	56pF Mica		10%	4	665262	L6	16 M., 19 M. Aerial Coil		4	780574
C7	100pF Ceramic		20%	4	666806	L7	M.W. R.F. Coil		4	781206
C8	160pF Mica		2%	4	664140	L8	M.S.W. R.F. Coil		4	780244
C9	3-30pF Trimmer			4	800318	L9	31 M. R.F. Coil		4	780634
C10	33pF Mica		10%	4	665238	L10	25 M. R.F. Coil		4	780277
C11	3-30pF Trimmer			4	800169	L11	16 M., 19 M. R.F. Coil		4	780574
C12	3-30pF Trimmer			4	800318	L12	M.W. Osc. Coil		4	781195
C13	0-04μF Tubular	150		4	669106	L13	M.S.W. Osc. Coil		4	781196
C14	0-04μF Tubular	150		4	669106	L14	31 M. Osc. Coil		4	781197
C15	82pF Mica		2%	4	664092	L15	25 M. Osc. Coil		4	781198
C16	528pF Swing Gang Condenser			3	800223	L16	16 M., 19 M. Osc. Coil		4	781199
C17	160pF Mica		2%	4	664140	L17	Filament Choke Coil		4	079006
C18	47pF Mica		5%	4	664754					
C19	3-30pF Trimmer			4	800318					
C20	33pF Mica		2%	4	664016					
C21	3-30pF Trimmer			4	800318					
C22	560pF Mica		2%	4	664272					
C23	2,700pF Mica		5%	4	663407					
C24	0-04μF Tubular	150		4	669106					
C25	528pF Swing Gang Condenser			3	800223					
C26	82pF Mica		2%	4	664092					
C27	100pF Mica		10%	4	665232					
C28	100pF Ceramic		20%	4	666806					
C29	180pF Mica		2%	4	664150					
C30	3-3pF Ceramic		20%	4	666982					
C31	0-01μF Tubular	150		4	669082					
C32	0-01μF Tubular	150		4	669082					
C33*	100pF Mica		2%	3	666776					
C34*	100pF Mica		2%	3	666776					
C35	3-30pF Trimmer			4	800318					
C36	39pF Mica		5%	4	664746					
C37	0-02μF Tubular	150		4	669105					
C38*	100pF Mica		2%	1 & 3	666776					
C39*	100pF Mica		2%	1 & 3	666776					
C40	100pF Ceramic		20%	4	666806					
C41	100pF Ceramic		20%	4	666806					
C42	0-01μF Tubular	150		4	669082					
C43	0-005μF Tubular	150		4	669081					
C44	0-005μF Tubular	150		4	669081					
C45	0-002μF Tubular	350		4	669093					
C46	0-002μF Tubular	350		4	669093					
C47	0-002μF Tubular	350		4	669093					
C48	4μF Electrolytic	150		4	667652					
C49	0-005μF Tubular	150		4	669081					
C50	0-04μF Tubular	150		4	669106					
C51	100μF Electrolytic	25		3	667617					
C52	100μF Electrolytic	25		3	667617					
C53	30μF Electrolytic	25		3	667617					
C54	40μF Electrolytic	200		3	667616					
C55	40μF Electrolytic	200		3	667616					

Note.—*Integral part of I.F. Transformer.

RESISTORS

	Ohms	Watts	±	Fig.	No.
R1	220,000	1/2	20%	4	670406
R2	47,000	1/2	20%	4	670402
R3	27,000	1/2	10%	4	670535
R4	47	1/2	20%	4	670384
R5	100,000	1/2	20%	4	670404
R6	180,000	1/2	10%	4	670545
R7	27,000	1/2	10%	4	670535
R8	1,000	1/2	20%	4	670392
R9	2.2 meg.	1/2	20%	4	670412
R10	47,000	1/2	20%	4	670402
R11	1 meg. Volume Control Tapped 300,000	1/2		4	810441
R12	39,000	1/2	10%	4	670537
R13	4.7 meg.	1/2	20%	4	670414
R14	2.2 meg.	1/2	20%	4	670412
R15	1 meg. Tone Control	1/2		4	810441
R16	12,000	1/2	10%	4	670531
R17	680,000	1/2	20%	4	670409
R18	1 meg.	1/2	20%	4	670410
R19	1,600	1/2	5%	4	672935
R20	220	1/2	10%	3	670434
R21	220	1/2	10%	1 & 3	670434
R22	220	1/2	10%	1 & 3	670434
R23	500	1/2	5%	4	672936
R24	10 meg.	1/2	20%	4	670416
R25	1,500	1/2	20%	4	670393
R26	330	1/2	10%	4	670512
R27	120	1/2	10%	4	670507
R28	100	1/2	10%	4	670506
R29	82	1/2	10%	4	670505
R30	82	1/2	10%	4	670505
R31	150	1/2	10%	4	670432
R32	150,000	1/2	20%	4	670405

SWITCHES, ETC.

	Specification	Fig.	No.
S1A	Bank 3 Front Aerial Section		
S1B	Bank 3 Rear Aerial Section		
S1C	Bank 2 Front R.F. Section		
S1D	Bank 2 Rear R.F. Section		
S1E	Bank 1 Front Osc. Section		
S1F	Bank 1 Rear Osc. Section		
S2A	Mains Battery Switch	4	083016
S2B	Mains Battery Switch	4	083050
L.S.	Loudspeaker 5 inch P.M.	1	850105

TRANSFORMERS

	Specification	Fig.	No.
T1	1st I.F. Trans. { Prim. 10-0Ω } { Sec. 10-8Ω }	3	770369/A
T2	2nd I.F. Trans. { Prim. 10-0Ω } { Sec. 10-8Ω }	1 & 3	770369/A
T3	Output Trans. { Prim. 410Ω } { Sec. — }	4	077056
T4	Mains Trans. { Prim. 80Ω on 220 to 250 V. Tap } { Sec. 200Ω + 195Ω }	1 & 3	077011

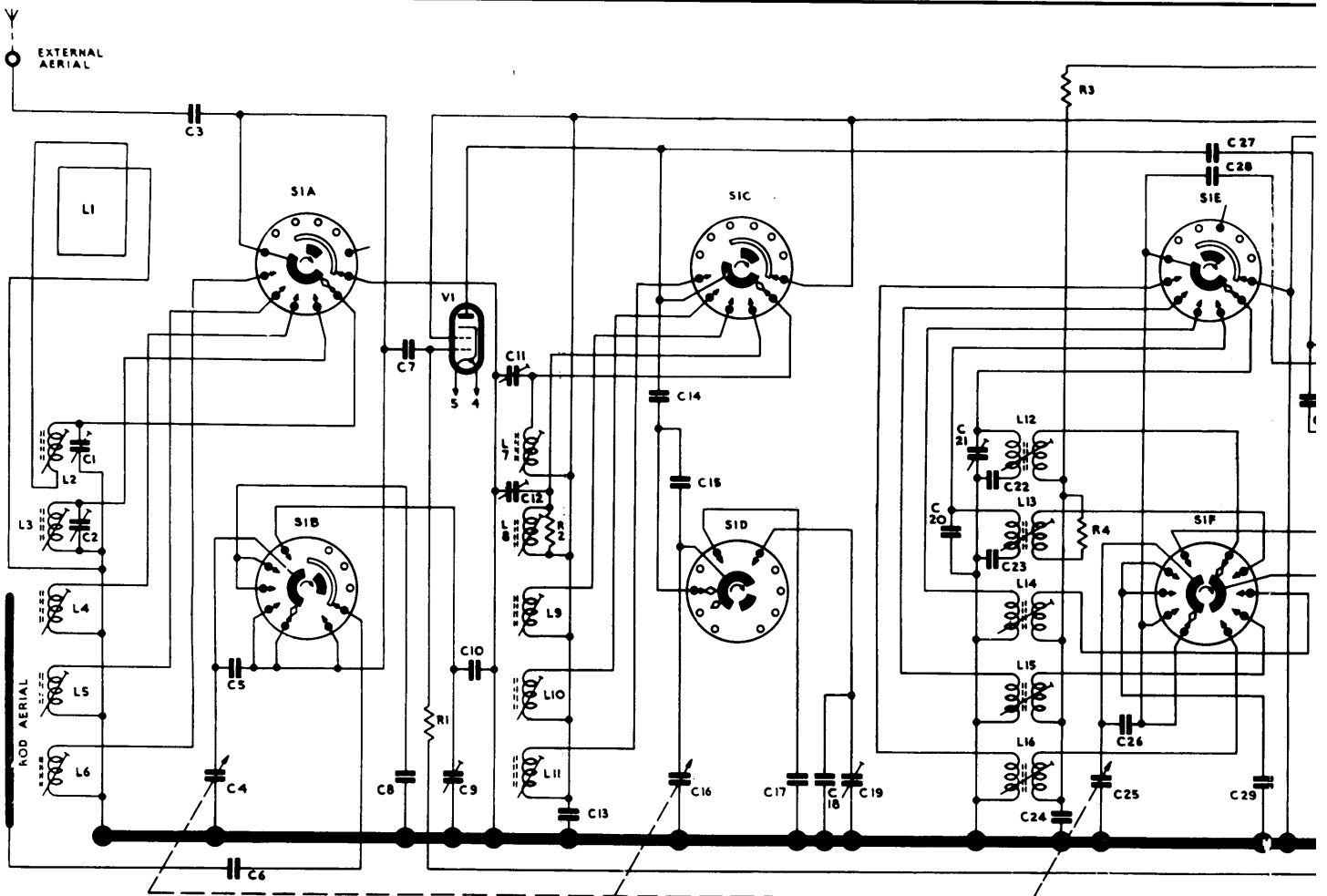
MISCELLANEOUS

	Item	No.
Cabinet		063020
Knob (Small Plain)		055039
Knob (Small Volume)		055141
Knob (Large)		055049
Aluminium Knob Disc		071105
Knob Spring (Small Knob)		709900
Knob Spring (Large Knob)		706001
Escutcheon		071096
Scale		070409
Rod Aerial		071095
Carrying Handle		071111
Battery Plug		705896

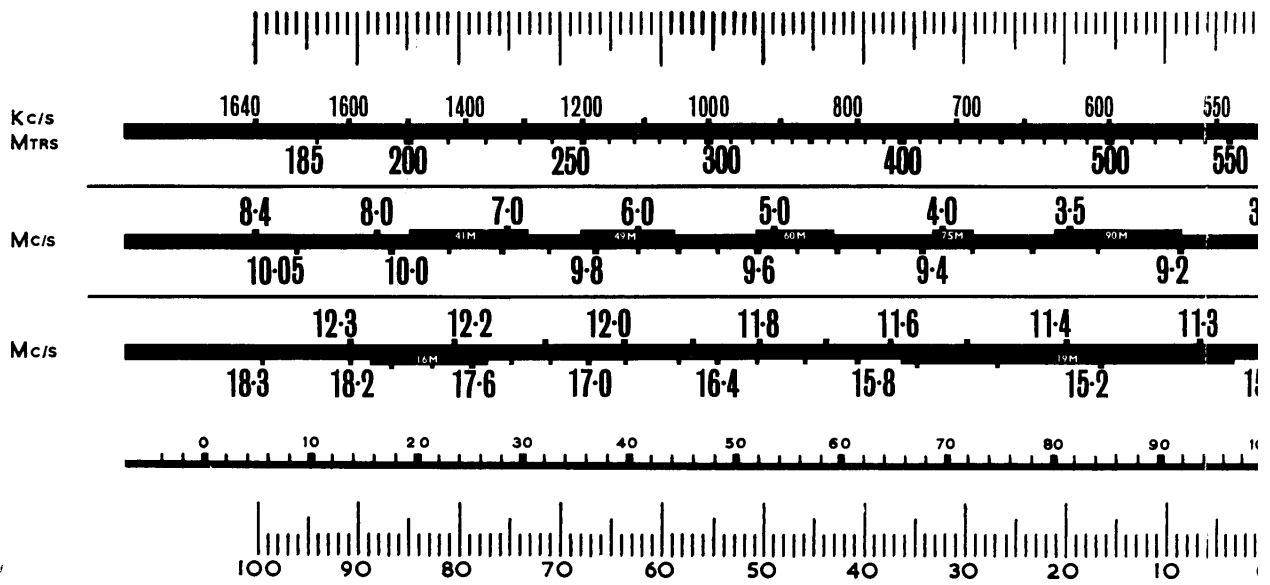
FILAMENT VOLTAGE ADJUSTMENT

If during the life of the set, the performance on mains operation becomes less good than on new batteries, the most likely reason will be low voltage across the filament chain due to the ageing of components ; this can be corrected by a readjustment of the flylead on the Filament Voltage Adjustment tag strip, see Fig. 3. The adjustment should be made with a voltmeter connected between earth and the top of the filament chain (tag No. 1 on tag strip) ; the tags 1, 2, 3 and 5 will give steps of approximately 0.4 volt, the highest voltage being obtained with the lead on tag No. 1 and the lowest with it on tag No. 5. One end of the lead must always be left on tag No. 4, which is the common point in the circuit. The voltmeter should read between 7.7 and 8.2 volts. Care must be taken to see that the mains voltage selector plug is in the correct position for your supply before this is done. The filament voltage should be tested, and adjusted if necessary, whenever a valve is replaced.

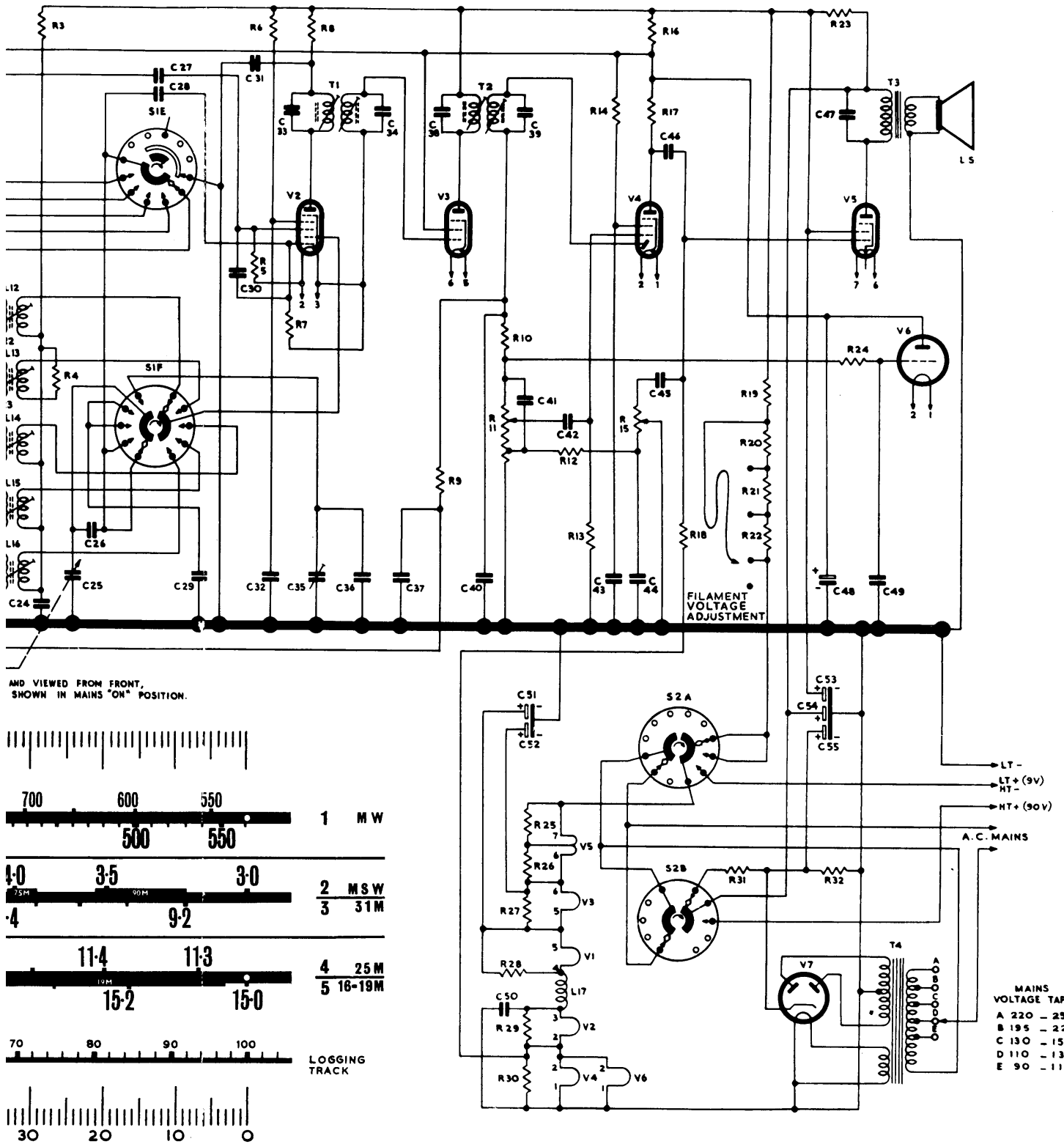
CIRCUIT DIAG



NOTE:- ALL ROTARY SWITCHES ARE SHOWN IN EXTREME ANTI-CLOCKWISE POSITION AND VIEWED FROM FRONT, IC WAVECHANGE SWITCH SHOWN IN "M.W." POSITION, MAINS-BATTERY SWITCH SHOWN IN MAINS "ON" POSITION.



GRAM and CALIBRATION CHART of the PYE MODEL P



E MODEL PE94MBQ

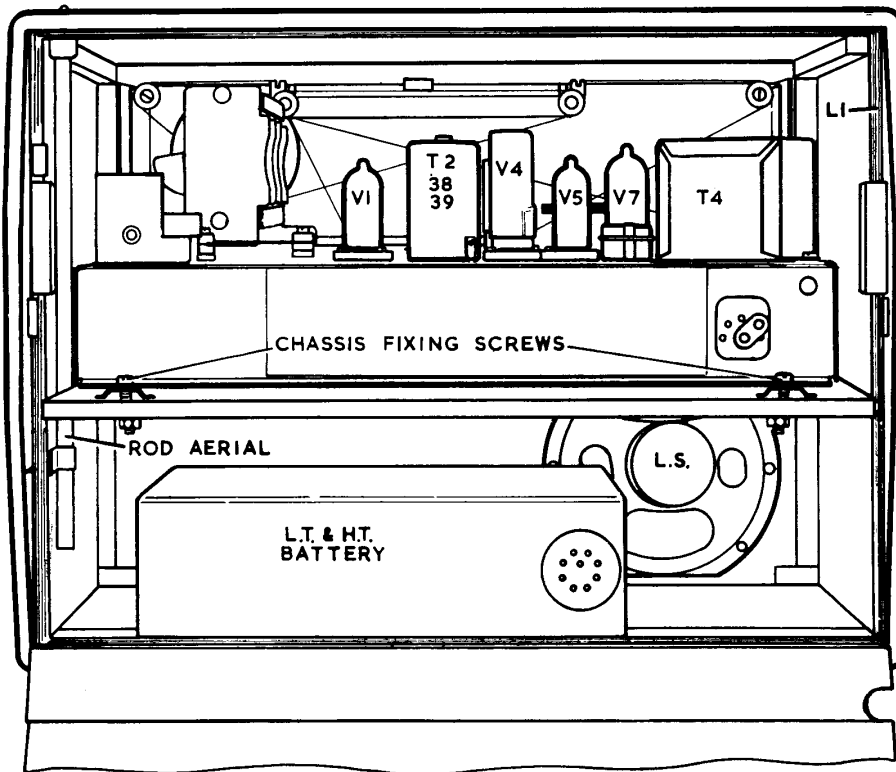
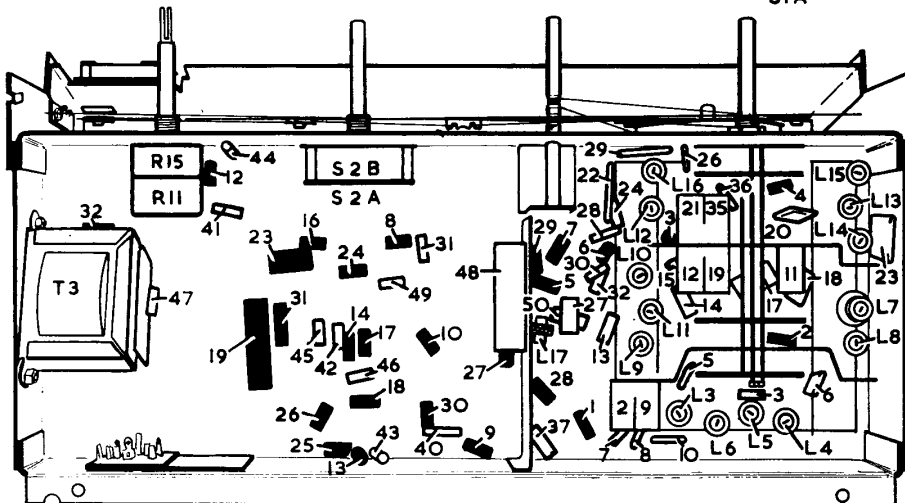
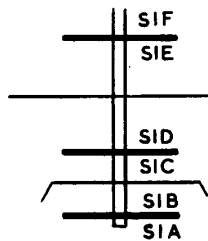


FIG. 1

CODING FOR SWITCH UNIT



NOTE: RESISTORS SHOWN SOLID BLACK

FIG. 4

DRIVE CORD VIEWED FROM FRONT OF CHASSIS WITH GANG FULLY OPEN

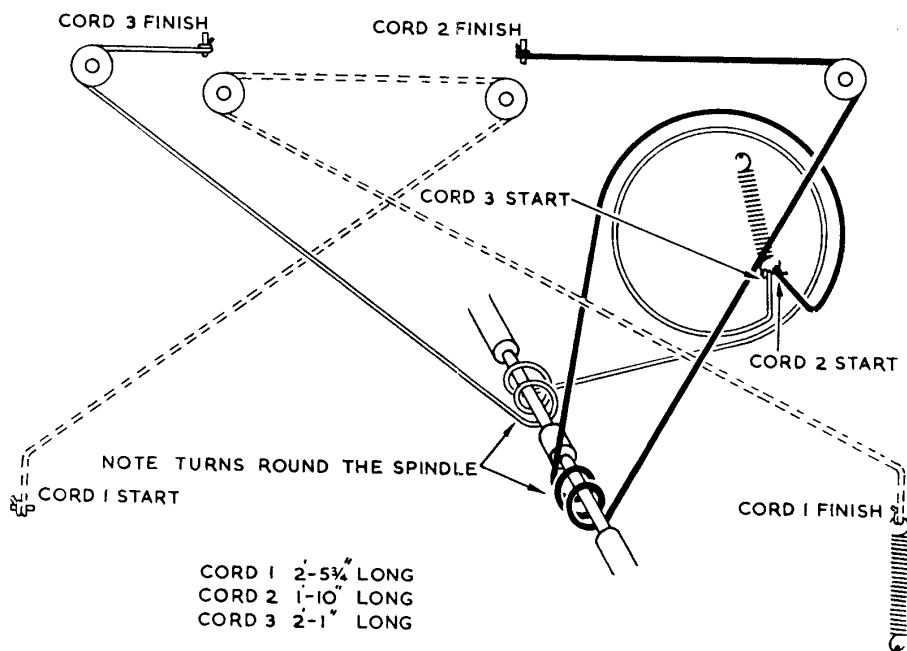


FIG. 2

Notes

- 1 A 100 Division Trimming Scale is printed on the back of the scale reflector plate for use when trimming the receiver outside the cabinet. With the Gang fully closed a mark should be made on the secondary pointer carriage to line up with 0 division; this will serve as an index for the scale. A Calibration Chart is printed adjoining the circuit diagram.
- When no accurate frequency standard is available the receiver should be calibrated against a reliable broadcasting station operating on a wavelength close to that specified in the Trimming Procedure.
- After the alignment has been carried out and the chassis refitted in the cabinet, the pointer should be lined up with the spots to be found at the right-hand end of the tracks.
- 2 External Speaker 2—4 ohms impedance.
- 3 Make sure Mains Voltage Adjuster is in correct position to ensure (a) maximum valve and component life, and (b) full benefit of the Pye "FIDELITY" reproduction.

TO REMOVE CHASSIS

- 1 Switch off the receiver and pull off knobs.
- 2 Insert a finger into the hole in the back of the receiver and pull outwards. Remove the two wood screws now visible in the bottom corners of the upper back cover and lift out.
- 3 Withdraw battery plug and remove battery.
- 4 Unsolder leads to rod aerial, frame aerial and external aerial connections and also unsolder speaker leads.
- 5 Remove the two chassis fixing screws.
- 6 Withdraw chassis.

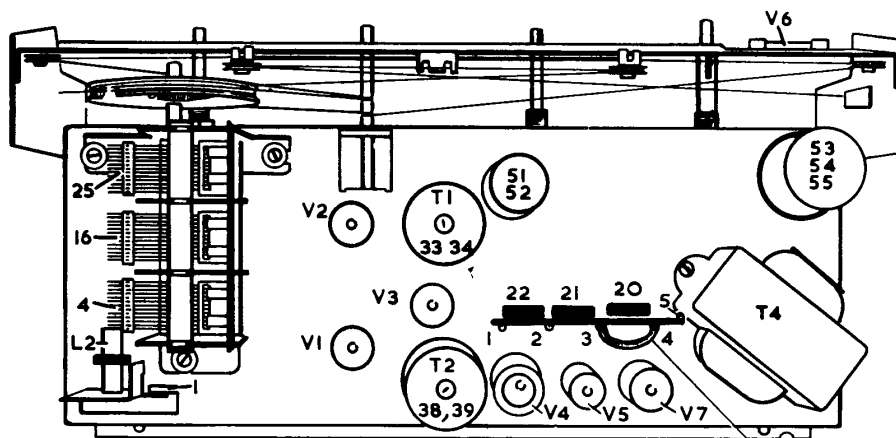
FITTING A NEW TUNING SCALE

- 1 Remove chassis as instructed above.
- 2 Loosen the four bolts securing the escutcheon.
- 3 Push escutcheon clear of cabinet.
- 4 Remove old scale, insert bottom of new scale into plastic channelling and replace this in top of escutcheon.
- 5 Holding scale and escutcheon together, insert top of scale into groove under top front edge of cabinet.
- 6 Push escutcheon back into place and tighten up bolts.
- 7 Adjust gang condenser to maximum position and line up the pointer to the spots at the right-hand end of the top and bottom tracks.

BATTERY REPLACEMENTS

Suitable replacements for the combined battery are:—

National Carbon	753	Rayovac	AB994
Burgess	F6A60	Ever Ready	B135
Pertlix	85		

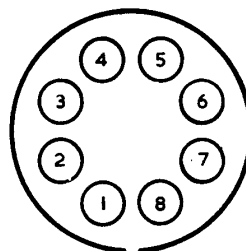
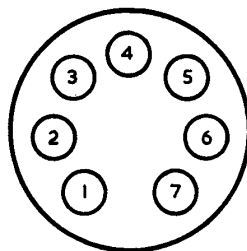


FILAMENT VOLTAGE ADJUSTMENT

FIG. 3

VALVE BASE CONNECTIONS

	1	2	3	4	5	6	7	8
V 1	F- G 3	A	G 2	—	F- G 3	G 1	F +	
V 2	F -	A	G 2	G 1	G 4	G 3	F + G 5	
V 3	F- G 3	A	G 2	—	F- G 3	G 1	F +	
V 4	F- G 3	—	A D	G 2	A	G 1	F +	
V 5	F -	A	G 2	—	G 3 F C T	G 1	F +	
V 6	G	—	—	F	F	—	—	A
V 7	H	A 1	—	—	—	A 2	K	H



VIEW LOOKING AT PINS

FIG. 5