SERVICE SHEET FOR

MODELS

PZ222

PZ222RG

PZ223RG

PZ224

PRINTED CIRCUIT RADIO

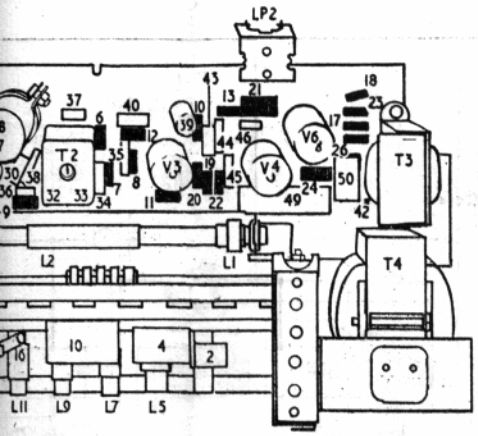
CIRCUIT ANALYSIS

	Mains Consumption 45 watts.		A.F. Output 2·5 watts.			
	Valve	Mullard	Anode	Screen	Osc. Anode	Cathode
V1	Frequency Changer	ECH81	195V	50V	84V	
V2	I.F. Amplifier	EF89	195V	50V		
V3	Det. and A.F. Amplifier ...	EBC81	70V	—		
V4	Output	EL84	220V(31mA)	195V		6·5V(36mA)
V5	Tuning Indicator	EM81	30V	—	Target 195V	
V6	Rectifier	EZ80	Anode to Anode 460V. A.C.			227V(48·5mA)
	Smoothed Volts across C39 = 170					

Note.—All measurements taken on Avometer Model 8 instrument. No signal input; receiver switched to M.W. All voltages over 10V. measured on 250V. range. All voltages below 10V. measured on 10V. range. Mains input 210V. into 195 to 220 volt. tap.

TRIMMING PROCEDURE

Apply signal as below	Set receiver controls as follows	Adjust in order for maximum output
1. 455 kc/s between chassis and control grid of V1 via 0·1 μF condenser	Low frequency end B.C. band	Iron dust cores of T2 and T1.
2. 600 kc/s between aerial & earth sockets via standard dummy aerial in series with 200 pF condenser, with "External Aerial" connection.*	B.C. 600 kc/s	Iron dust core of L5 and undoped turns of M.W. aerial coil L2.
3. As 2 but 1500 kc/s	B.C. 1500 kc/s	Trimmers C6 & C8.
4. Repeat 2 and 3 until tracking and calibration are correct. Secure turns of L2 with dope.		
5. As 2 but 2 Mc/s	M.S.W. 2 Mc/s	Iron dust cores of L7 and L6.
6. As 2 but 4 Mc/s	M.S.W. 4 Mc/s	Trimmers C13 & C12.
7. Repeat 5 & 6 until tracking and calibration are correct.		
8. As 2 but 9·6 Mc/s	31 M. 9·6 Mc/s	Aluminium slug of L9 & iron dust core of L8.
9. As 2 but 11·8 Mc/s	25 M. 11·8 Mc/s	Aluminium slug of L11 & iron dust core of L10.
10. As 2 but 15·3 Mc/s	S.W. 15·3 Mc/s	Iron dust cores of L13 & L12. Core of L12 to be screwed fully into coil before adjustment.
11. As 2 but 21·6 Mc/s	S.W. 21·6 Mc/s	Trimmers C20 & C17.
12. Repeat 10 and 11 until tracking and calibration are correct.		



D BLACK

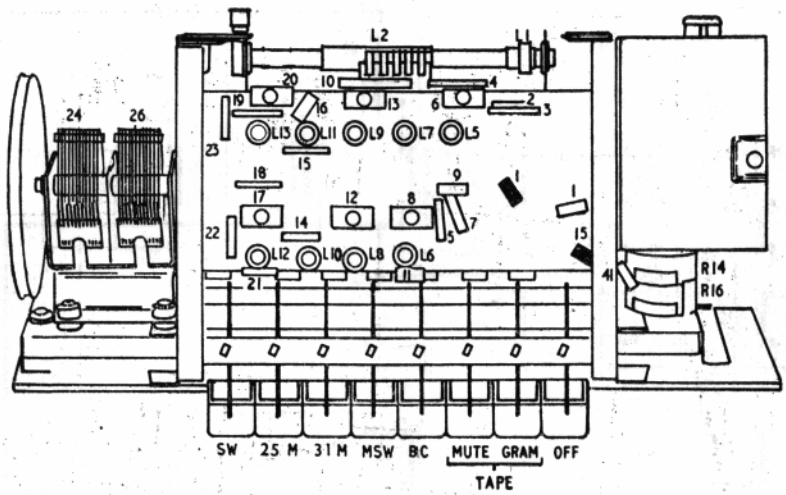
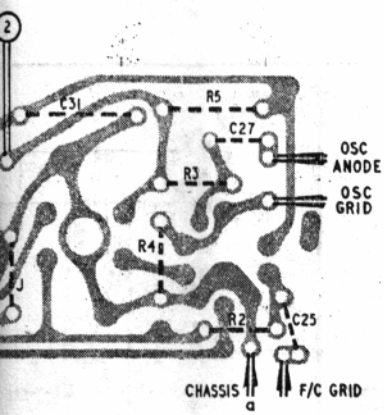
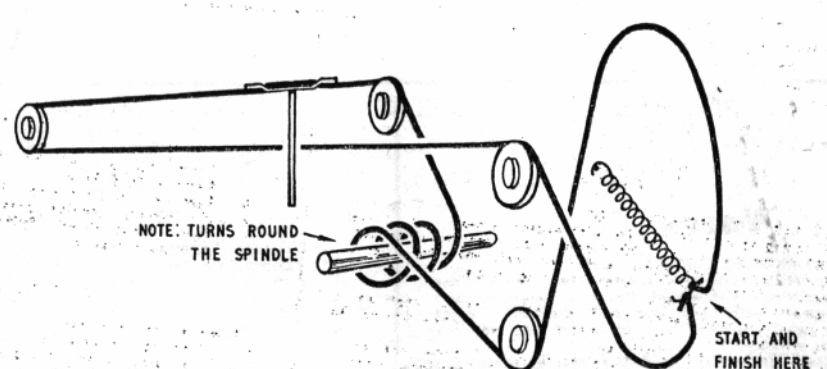


FIG. 3



DRIVE CORD VIEWED FROM FRONT THREE QUARTER RIGHT WITH GANG FULLY CLOSED



DRIVE CORD SHOULD BE OF NYLON BRAIDED GLASS YARN
LENGTH BETWEEN CENTRES OF LOOPS IS 42 INCHES

FIG. 5

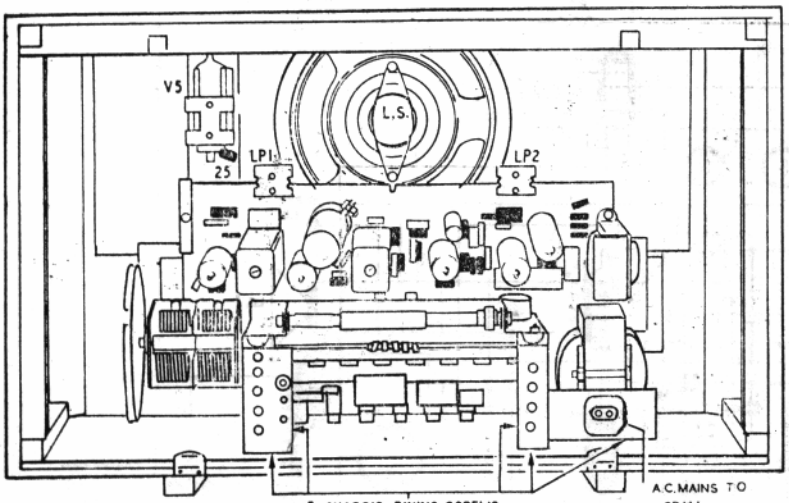
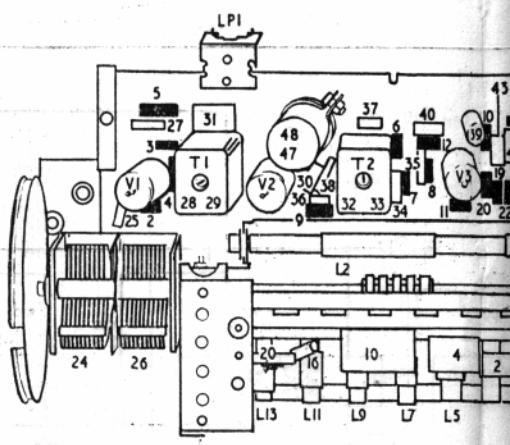


FIG. 1



NOTE:— RESISTORS SHOWN SOLID BLACK

FIG. 2

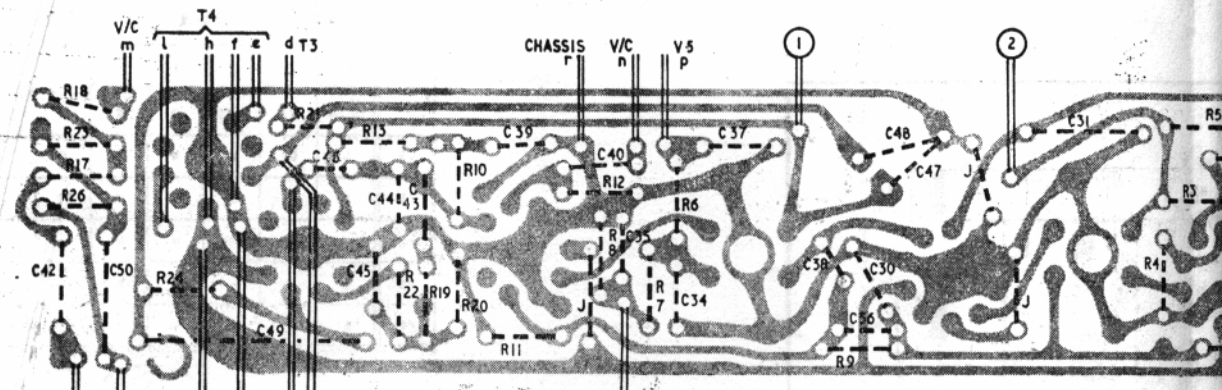


FIG. 4

CONDENSERS

	Specification	Volts	±	Fig.	No.
C1	0·01 μF Tubular	150		3	669082
C2					
C3					
C4	520 pF Mica		2%	3	665571
C5					
C6	3-50 pF Trimmer			3	800328
C7	100 pF Ceramic		20%	3	653116
C8	3-50 pF Trimmer			3	800328
C9					
C10	1700 pF Mica		5%	2 & 3	
C11	5·6 pF Ceramic		10%	3	652674
C12	3-50 pF Trimmer			3	800328
C13	3-50 pF Trimmer			3	800328
C14	120 pF Mica		2%	3	664108
C15	150 pF Mica		2%	3	664130
C16	15 pF Ceramic		10%	2 & 3	652675
C17	3-50 pF Trimmer			3	800328
C18	150 pF Mica		2%	3	664130
C19	130 pF Mica		2%	3	664130
C20	3-50 pF Trimmer			2 & 3	800328
C21	56 pF Mica		2%	3	664064
C22	47 pF Mica		2%	3	664565
C23	150 pF Mica		2%	3	664130
C24	528 pF Swing Gang Condenser...			2 & 3	800365
C25	100 pF Ceramic		20%	2	652775
C26	528 pF Swing Gang Condenser...			2 & 3	800365
C27	100 pF Ceramic		20%	2	652775
C28*	100 pF Mica		2%	2	666776
C29*	100 pF Mica		2%	2	666776
C30	0·02 μF Tubular	150		2	669105
C31	0·05 μF Tubular	350		2	669122
C32*	100 pF Mica		2%	2	666776
C33*	100 pF Mica		2%	2	666776
C34	100 pF Ceramic		20%	2	652755
C35	100 pF Ceramic		20%	2	652755
C36	8.2 pF Ceramic		10%	2	652603
C37	0·01 μF Tubular	150		2	669082
C38	47 pF Mica		20%	2	662860
C39	4 μF Electrolytic	250		2	667732
C40	0·04 μF Tubular	150		2	669106
C41	0·002 μF Tubular	350		3	669093
C42	0·04 μF Tubular	150		2	669106
C43	0·01 μF Tubular	350		2	669096
C44	100 pF Ceramic		20%	2	652755
C45	100 pF Ceramic		20%	2	652755
C46	18 pF Ceramic		10%	2	652618
C47	32 μF + } Electrolytic	275		2	667786
C48	32 μF }				
C49	50 μF Electrolytic	12		2	667580
C50	0·1 μF Tubular	150		2	669111
C51	25 μF Electrolytic	25			

NOTE: *Integral part of I.F. Transformer.

RESISTORS

	Ohms.	Watts	±	Fig.	No.
R1	100,000	¼	20%	3	670404
R2	1 meg	¼	20%	2	674658
R3	33,000	¼	20%	2	674371
R4	47,000	¼	20%	2	674350
R5	33,000	¼	10%	2	670460
R6	2·2 meg	¼	20%	2	674660
R7	100,000	¼	20%	2	674351
R8	330,000	¼	20%	2	675667
R9	1 meg	¼	20%	2	674658
R10	220,000	¼	20%	2	674663
R11	1 meg.	¼	20%	2	674658
R12	10 meg.	¼	20%	2	674659
R13	47,000	¼	20%	2	674350
R14	1 meg. Volume Control ...			3	810442
R15	470	½	10%	3	670514
R16	1 meg. Tone Control ...			3	810442
R17	220	¼	10%	2	674374
R18	1,000	¼	10%	2	675717
R19	100,000	¼	20%	2	674351
R20	680,000	¼	20%	2	675668
R21	1,600	4	5%	2	671836
R22	22,000	¼	20%	2	674364
R23	2,200	¼	10%	2	675720
R24	180	¼	10%	2	674662
R25	470,000	¼	20%	1	670408
R26	22,000	¼	20%	2	674364
R27	220	¼	10%		
R28	220	¼	10%		

INDUCTANCES

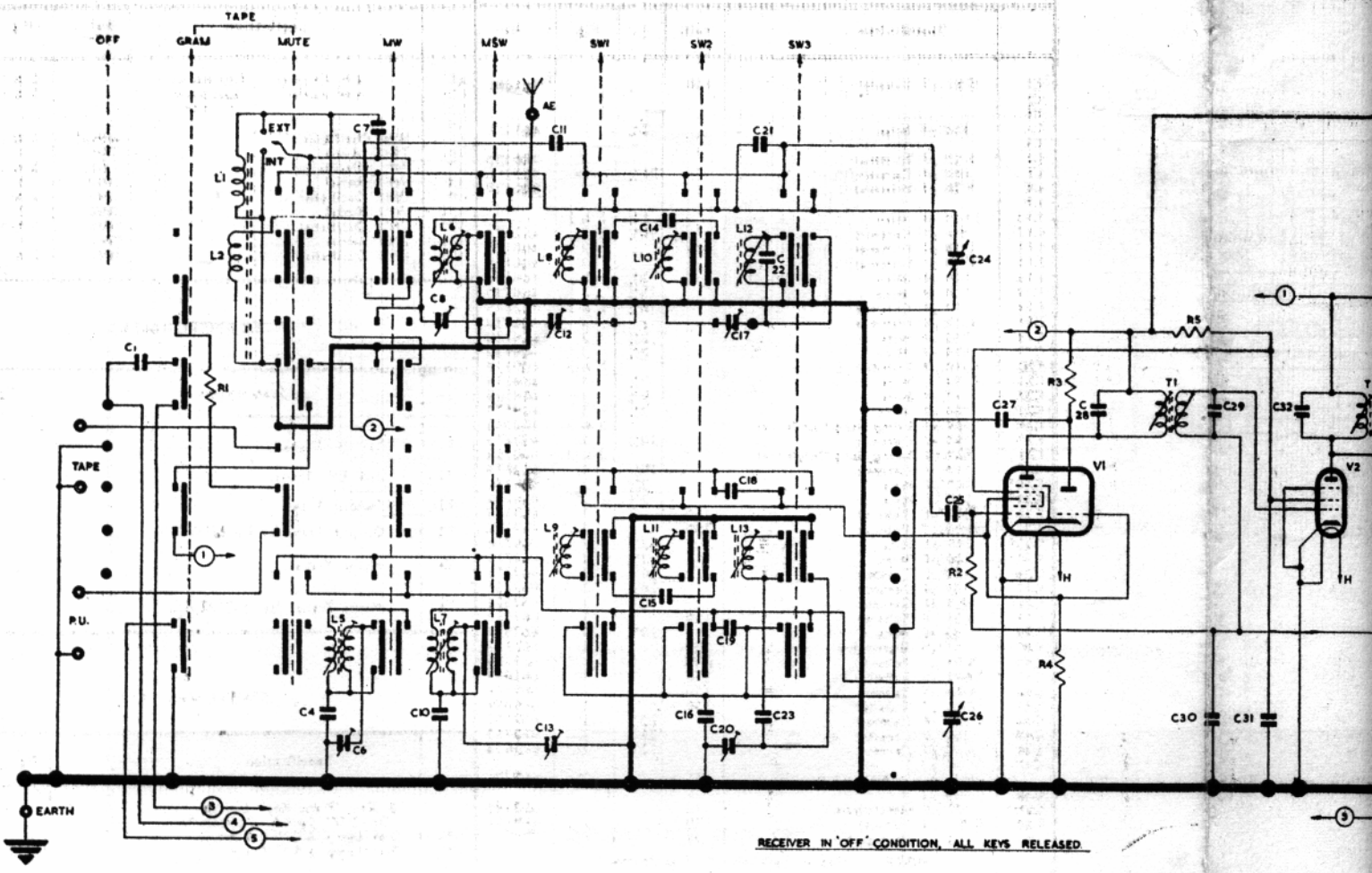
	Specification	Ref.	Fig.	No.
L1	MW Coupler Rod Aerial		2 & 3	078036
L2	MW Aerial Assembly		2 & 3	078034
L3	073355			
L4				
L5	MW Oscillator	MW27	2 & 3	781191
L6	TB Aerial	TB4	3	780605
L7	TB Oscillator	TB1	2 & 3	780249
L8	SW1 Aerial	SW7	3	780275
L9	SW1 Oscillator	SW7	2 & 3	780275
L10	SW2 Aerial	SW6	3	780276
L11	SW2 Oscillator	SW6	2 & 3	780276
L12	SW3 Aerial	SW3	3	780272
L13	SW3 Oscillator	SW3	2 & 3	780272

TRANSFORMERS

	Specification	Fig.	No.
T1	1st I.F. Trans.	2	077080
T2	2nd I.F. Trans.	2	077080
T3	Output Trans.	2	077077
T3	Output Trans. for PZ222RG		3745
T4	Mains Trans.	2	077025
T4	Mains Trans. for PZ222RG		3739

SWITCHES, ETC.

	Specification	Fig.	No.
	8 Key 'Piano-Key' Switch	3	841800
	'ON-OFF' Switch, Double Pole	3	830751
LP1	Dial Lamp 6·5 V 0·3 A	1 & 2	700494
LP2	Dial Lamp 6·5 V 0·3 A	1 & 2	700494
LS1	Loudspeaker for PZ222	1	K6DO
LS1	Loudspeakers for PZ222RG		K5QO
LS2	... ...		J61QO
LS3	... ...		J61QO
LS1	Loudspeakers for PZ223RG		K5DQ
LS2	... ...		K6DO
LS1	Loudspeaker for PZ224		K64DO



Notes

REPLACING PARTS ON PRINTED CIRCUIT

To avoid damaging printed circuits with excessive heat, use a soldering iron (60 watts maximum) with a small tip, when replacing parts. Clean and tin replacement parts, and then melt the circuit solder before insertion into panel. To avoid running solder into adjoining circuits, use as little as possible.

For quick replacement, resistors and condensers may be replaced by clipping out the defective component and soldering the new one to the connecting wire from the original part.

Open or damaged sections of the printed circuit can be repaired by soldering a jumper of ordinary wire across the connection points.

TESTING

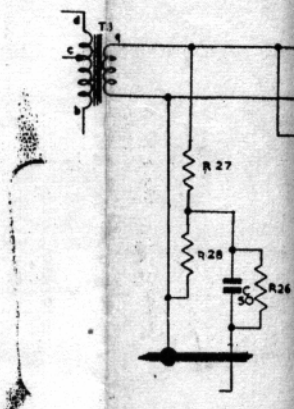
Where the need arises for testing on the printed circuit side of the chassis plate, the insulating varnish covering must first be scraped away from the test points.

TO REMOVE CHASSIS

1. Disconnect receiver from Mains supply.
2. Remove Card Back.
3. Remove nuts from Magic Eye assembly and pull out.
4. If necessary, unsolder speaker leads.
5. Remove five chassis fixing screws from bottom of cabinet.
6. Withdraw chassis.

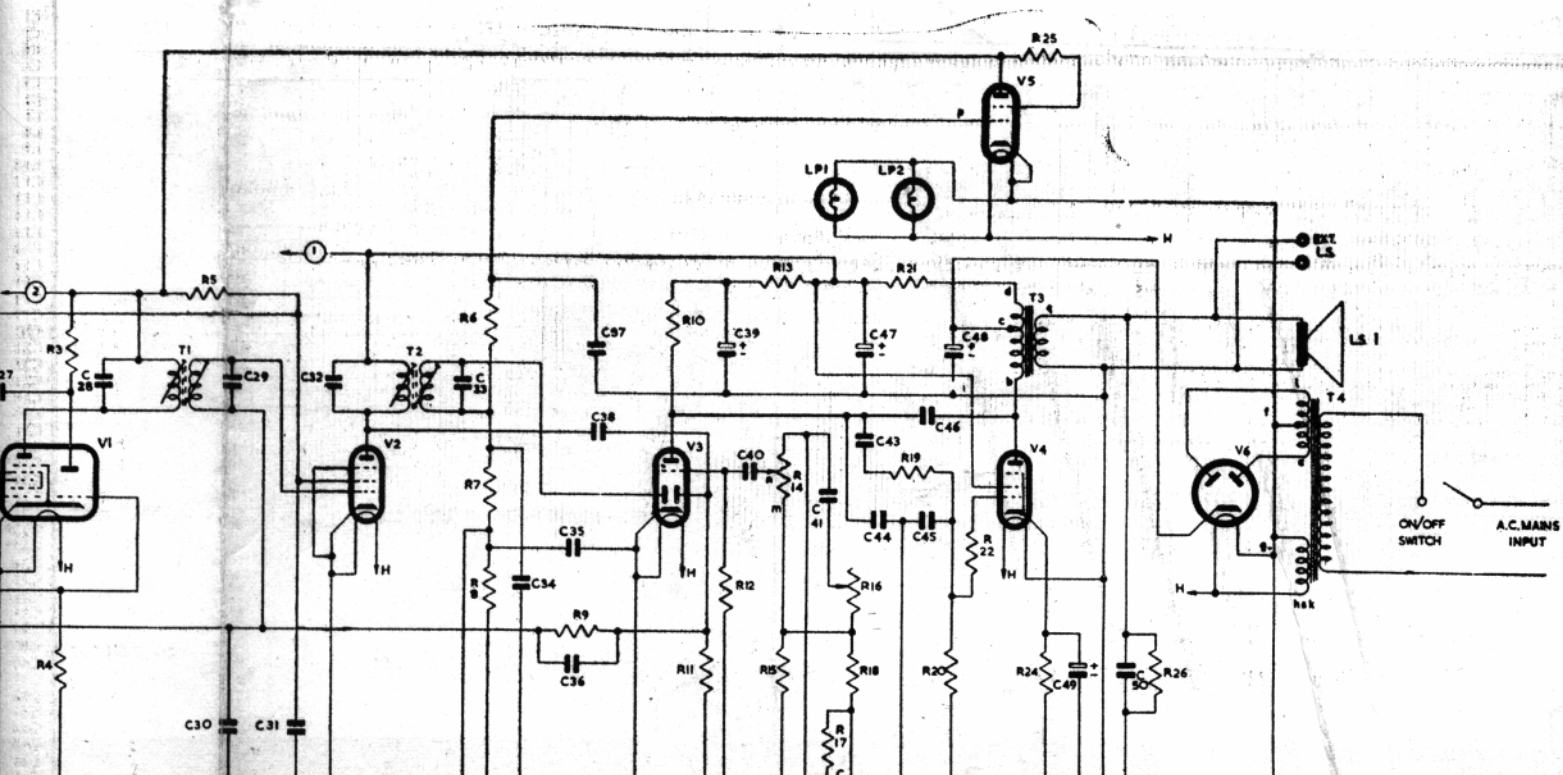
TO REPLACE DIAL LAMPS

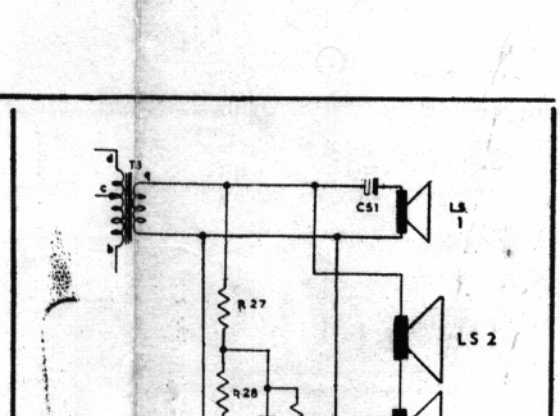
Remove the card back. The dial lamp holders, which are clipped in position on brackets fitted to the top of the printed circuit plate, should be removed and brought clear of the chassis. The faulty lamp can then be replaced with a 6·5 volt 0·3 amp. bulb.



Loudspeaker circuit for PZ222 R

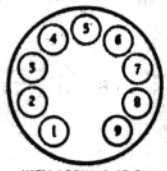
CIRCUIT DIAGRAM FOR MODELS





Loudspeaker circuit for PZ222 R.G.

VALVE BASE CONNECTIONS									
	1	2	3	4	5	6	7	8	9
V1	G2.G4	G1	K.G3.5	H	H	AH	G3	AT	GT
V2	S	G1	K	H	H	S	A	G2	G3
V3	A	G	K	H	H	D1	S	D2	—
V4	—	G1	K.G3	H	H	—	A	—	G2
V5	G	K	—	H	H	—	A	—	T
V6	A	—	K	H	H	—	A	—	—



VIEW LOOKING AT PINS

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MODELS PZ222 SERIES