

SERVICE SHEET FOR

F.T.C. RADIO SERVICE DEPT.

6.4.55



model PZ 69

FOR OPERATION OFF 230 VOLT 50 CYCLE A.C. MAINS

CIRCUIT ANALYSIS

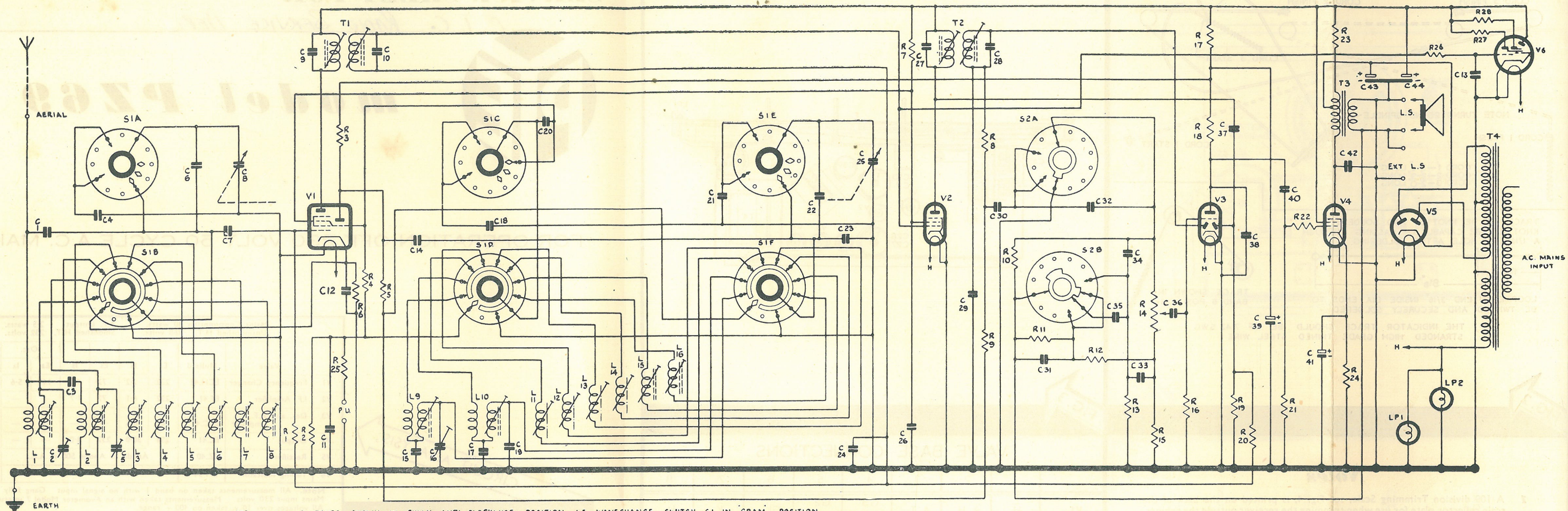
Mains Consumption 40 watts. Unsmoothed H.T. 268 volts.			A.F. Output Smoothed H.T. 232 volts.				2.5 watts. Smoothed H.T. 232 volts.			
	Valve	Mullard	Ea	Ia	Es	Is	Osc.		Ek	Ik
							Ea	Ia		
V1	Frequency Changer	ECH.42	232	2.2	72	4.2	143	5.6	—	12.0
V2	I.F. Amplifier	EF.41	232	6.1	72	1.7	—	—	—	7.8
V3	Det. and A.F. Amplifier	EBC.41	62	0.6	—	—	—	—	—	0.6
V4	Output	EL.41	254	30.0	232	4.0	—	—	6.1	34.0
V5	Rectifier	EZ.40	Anode to Anode 500 v. A.C.						268	54.4
V6	Tuning Indicator	EM 34							—	1.6

Note:— All measurements taken on band 1 with no signal input. Gang fully meshed.
Mains input 230 volts. Measurements taken with an Avometer Model 7 instrument.
All voltages over 10 v. taken on 400 v. range.
All voltages under 10 v. taken on 10 v. range.

TRIMMING PROCEDURE

Apply signal as below	Set Receiver Controls to	Adjust in order for Maximum Output
(1) 470 kc/s. between chassis and control grid of V1 via 0.1 μ F condenser	Low frequency end of Band 1.	Iron dust cores of I.F. Transformers T2 and T1
(2) 600 kc/s. between Aerial and Earth Sockets via standard Dummy Aerial	Band 1. 600 kc/s.	Iron dust cores of L9 and L1
(3) As (2) but 1500 kc/s. (200 m.)	Band 1 1500 kc/s.	Trimmers C16 and C2
(4) Repeat (2) and (3) above until calibration and tracking are correct.		
(5) As (2) but 3.3 Mc/s.	Band 2. 3.3 Mc/s.	Iron dust cores of L10 and L2
(6) As (2) but 7.2 Mc/s.	Band 2. 7.2 Mc/s.	Trimmer C5
(7) Repeat (5) and (6) above until calibration and tracking are correct.		
(8) As (2) but 9.6 Mc/s.	Band 3. 9.6 Mc/s.	Aluminium slugs of L11 and L3
(9) As (2) but 11.8 Mc/s.	Band 4. 11.8 Mc/s.	Aluminium slugs of L12 and L4
(10) As (2) but 15.3 Mc/s.	Band 5. 15.3 Mc/s.	Aluminium slugs of L13 and L5
(11) As (2) but 17.8 Mc/s.	Band 6. 17.8 Mc/s.	Aluminium slugs of L14 and L6
(12) As (2) but 21.6 Mc/s.	Band 7. 21.6 Mc/s.	Iron dust cores of L15 and L7
(13) As (2) but 25.8 Mc/s.	Band 8. 25.8 Mc/s.	Iron dust cores of L16 and L8

* Pointer should be lined up with the spots at the top of each band.



NOTE. ALL SWITCHES SHOWN IN FULLY ANTI-CLOCKWISE POSITION, I.E. WAVECHANGE SWITCH S1 IN 'GRAM' POSITION, AND TONE SWITCH S2 IN 'OFF' POSITION. ALL SWITCHES ARE VIEWED FROM THE FRONT, AND THE DIRECTION OF ROTATION IS CLOCKWISE.

circuit diagram
of the
PYE
MODEL
PZ 69

CONDENSERS						CONDENSERS, Contd.						RESISTORS						TRANS.	
	Specification	Volts	±	Fig.	No.		Specification	Volts	±	Fig.	No.		Ohms	Watts	±	Fig.	No.		Specification
C1	5.6 pF Ceramic		20%	4	666659	C34	82 pF Ceramic		20%	4	666677	R1	1 meg.		20%	4	670410	T1	1st I.F. Trans.
C2	3-50 pF Trimmer			4	800076	C35	0.02 μF Tubular	500		4	668594	R2	220,000 meg.		20%	4	670406		Sec. 12-2
C3	47 pF Ceramic		20%	4	666660	C36	0.05 μF Tubular	350		4	668966	R3	10,000		20%	4	670398	T2	2nd I.F. Trans.
C4	150 pF Mica		2%	4	664130	C37	47 pF Ceramic		20%	4	666660	R4	82,000		20%	4	671047		Sec. 12-2
C5	3-50 pF Trimmer			4	800076	C38	100 pF Ceramic		20%	4	666520	R5	220,000		20%	4	670406	T3	Output Trans.
C6	82 pF Mica		2%	4	664092	C39	16 μF Electrolytic	350		1 & 3	667537	R6	220		20%	4	670388		Prim. Start
C7	100 pF Ceramic		20%	4	666520	C40	0.005 μF Tubular	350		4	669095	R7	27,000		20%	4	671218	T4	Mains Trans.
C8	528 pF Swing Gang Condenser			1 & 3	800032	C41	50 μF Electrolytic	12		4	667171	R8	220,000		20%	4	670406		Prim. 35 Ω
C9*	100 pF + } Mica		2%	1 & 3		C42	0.005 μF Tubular	1000		1 & 3	668870	R9	220,000		20%	4	670406		Sec. 270
C10*	100 pF + } Mica		5%	1 & 3		C43	32 μF + } Electrolytic	350		1 & 3	667504	R10	2.2 meg		20%	4	670412		
C11	270 pF Mica			4	669082	C44	32 μF + } Electrolytic	350		1 & 3	667504	R11	4,700		20%	4	670396		
C12	0.01 μF Tubular	150		4	666678	INDUCTANCES						R12	2,200		20%	4	670394		
C13	0.01 μF Tubular	350		4	664260							R13	390		20%	4	671061		
C14	560 pF Ceramic		20%	4	800076							R14	1 meg. Volume Control		20%	4	810241		
C15	510 pF Mica		2%	4	664938							R15	220		20%	4	670388		
C16	3-50 pF Trimmer		5%	4	664130							R16	10 meg.		20%	4	670416		
C17	2700 pF Mica		2%	4	666517							R17	4,700		20%	4	670396		
C18	150 pF Mica		2%	4	664130							R18	220,000		20%	4	670406	S1A	Rear Bank 3
C19	27 pF Mica		10%	4	666520	L1	M.W. Aerial Coil			4	780246	R19	1 meg.		20%	4	670410	S1B	Front Bank 3
C20	100 pF Ceramic		20%	4	664130	L2	M.S.W. Aerial Coil			4	780338	R20	1 meg.		20%	4	670410	S1C	Rear Bank 2
C21	150 pF Mica		2%	4	664130	L3	31 m. Aerial Coil			4	780276	R21	470,000		20%	4	670408	S1D	Front Bank 2
C22	150 pF Mica		2%	4	664130	L4	25 m. Aerial Coil			4	780277	R22	10,000		20%	4	670398	S1E	Rear Bank 1
C23	15 pF Ceramic N750K		10%	4	666515	L5	19 m. Aerial Coil			4	780278	R23	1,600 Wire Wound		5%	4	671836	S1F	Front Bank 1
C24	0.05 μF Tubular	350		1 & 3	800032	L6	16 m. Aerial Coil			4	780272	R24	180		10%	4	670509	S2A	Rear Bank 1
C25	528 pF Swing Gang Condenser			1 & 3	668966	L7	13 m. Aerial Coil			4	780279	R25	470,000		20%	4	670408	S2B	Front Bank 1
C26	0.05 μF Tubular	350		1 & 3		L8	11 m. Aerial Coil			4	780280	R26	2.2 meg		20%	4	670412	S2C	Mains ON/OFF Switch
C27*	100 pF + } Mica		2%	1 & 3		L9	M.W. Osc. Coil			4	780254	R27	1 meg		20%	4	670410	LP1	Dial Bulb 6.5 volt 0.3 amp.
C28*	100 pF + } Mica		2%	1 & 3		L10	M.S.W. Osc. Coil			4	780255	R28	1 meg		20%	4	670410	LP2	Dial Bulb 6.5 volt 0.3 amp.
C29	100 pF Ceramic		20%	4	666520	L11	31 m. Osc. Coil			4	780275						LS	Loudspeaker	
C30	0.02 μF Tubular	500		4	668594	L12	25 m. Osc. Coil			4	780276								
C31	0.25 μF Tubular	350		4	668609	L13	19 m. Osc. Coil			4	780277								
C32	0.005 μF Tubular	150		4	669081	L14	16 m. Osc. Coil			4	780278								
C33	0.05 μF Tubular	350		4	668599	L15	13 m. Osc. Coil			4	780279								
						L16	11 m. Osc. Coil			4	780280								

Note.—* Integral

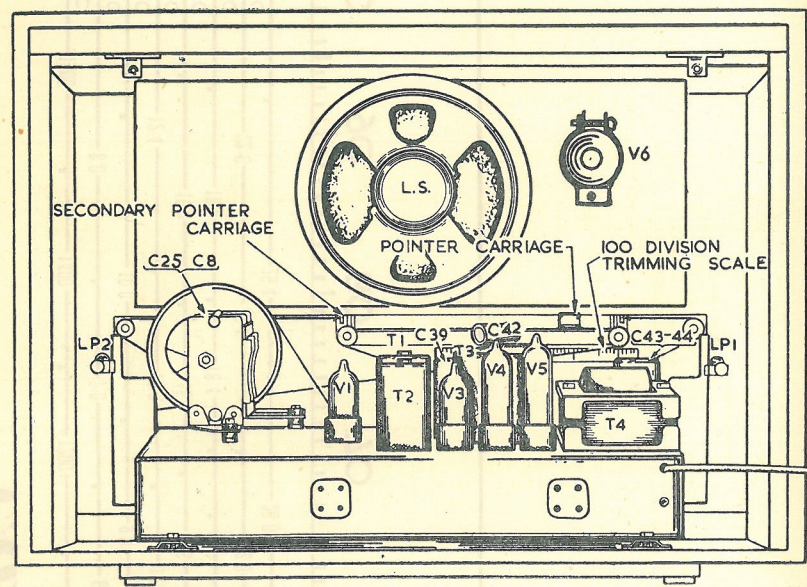


FIG. 1

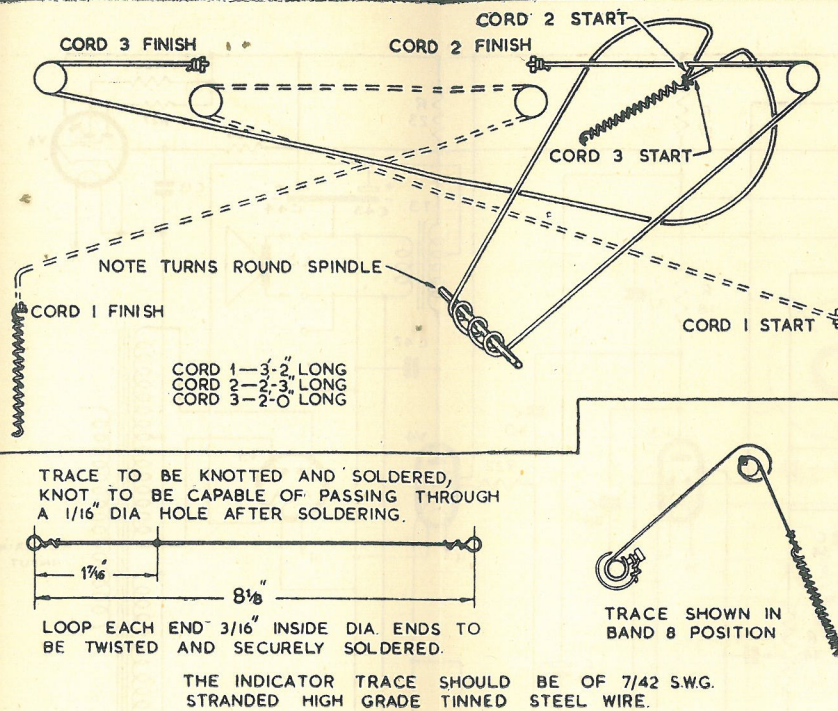


FIG. 2

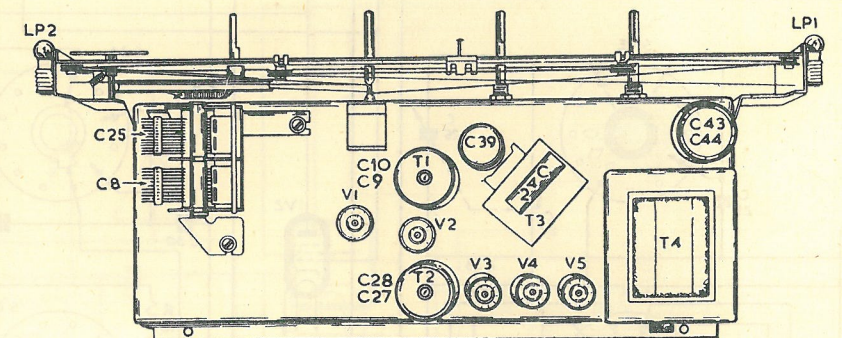
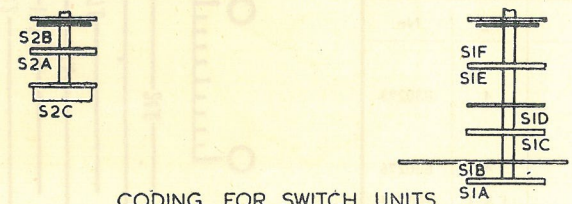
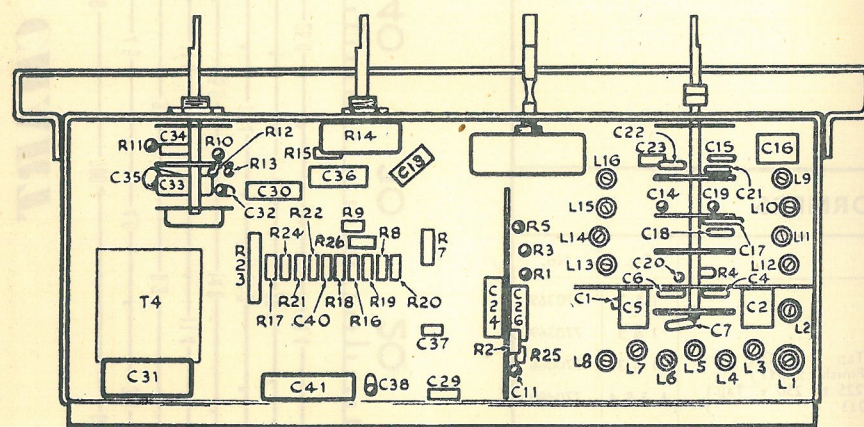


FIG. 3



CODING FOR SWITCH UNITS

FIG. 4

Notes

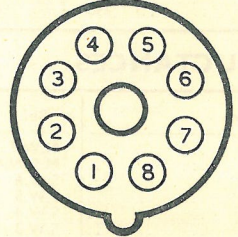
- 1 A 100 division Trimming Scale, see Fig. 4, is printed on the back of the scale reflector plate for use when trimming the receiver outside the cabinet. With the Gang fully closed, a mark should be made on the secondary pointer carriage to line up with O division; this will serve as an index for the scale.
A Calibration Chart is printed on page 2.
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 top and bottom tracks of the tuning scale.
- 2 External Speaker 2-4 ohms impedance.
- 3 Dial Bulbs 6.5 volt 0.3 amp.

TO REMOVE CHASSIS

- 1 Remove back of set.
- 2 Pull off knobs.
- 3 Pull out Loudspeaker Plugs.
- 4 Remove Tuning Indicator
- 5 Remove the two Chassis Fixing Screws.
- 6 Withdraw chassis approximately 2 inches, turn sideways and remove from cabinet, taking care not to damage the dial bulbs,

VALVE BASE CONNECTIONS

	1	2	3	4	5	6	7	8
V1	H	A H	A T	G3 GT	G2 G4	G1	K	H
V2	H	A	K G3 S	K G3 S	G2	G1	K G3 S	H
V3	H	A	G	S	D1	D2	K	H
V4	H	A	K G3	—	G2	G1	K G3	H
V5	H	A1	—	—	—	A2	K	H
V6	—	H	A1	G	T	A2	H	K



VIEW LOOKING AT PINS

FIG. 5