RECEPTION SET R216

(Supply unit rectifier No 24 and Power supply unit No 45)

TECHNICAL HANDBOOK - FAULT FINDING AND REPAIR DATA

Errata

Note: This Page 0, Issue 1, must be filed immediately in front of Page 1001, Issue 3, dated 31 Dec 56.

1. The following amendments must be made to the regulation.

2. Page 1006, Fig 2001a

   a. Capacitor C6, grid ref F7
   Delete: '5p' Insert: '4.7p'

   b. Capacitor C10, grid ref G7
   Delete: '5p' Insert: '4.7p'

3. Page 1009, Table 2004, CAPACITORS

   a. Amend C6 line to read

   'C6 F7 2B2 4.7pF 750V ±20% Ceramic'

   b. Amend C10 line to read

   'C10 G7 2B1 4.7pF 750V ±20% Ceramic'

4. Page 1010, Table 2004, CAPACITORS, column 5

   a. C34 line

   Delete: '500V' Insert: '750V'

   b. C36 line

   Delete: '500V' Insert: '750V'

EME/8c/2146/Tels

END

Distribution - Class 337. Code No 4

RECEPTION SET R216

(Supply unit rectifier No 24 and Power supply unit No 45)

TECHNICAL HANDBOOK - FAULT FINDING AND REPAIR DATA

Notes: 1. Pages 1001 and 1002, Issue 3 dated 31 Dec 56 supersede pages 1001 and 1002, Issue 2, dated 1 Oct 56.
2. This Part 2, (together with the Part 1) pages 1001 and 1002, Issue 3 dated 31 Dec 56 and pages 1003 to 1028, Issue 2 dated 1 Oct 56, supersedes the Issue 1 which consists of the following, page 0 dated 21 Jul 56, two pages of contents dated 1 May 53, pages 1 to 9 and 1001 - 1021 dated 1 May 53.

This Part 2 contains details of the conditions under which the specification tests should be carried out, this data is in tabular and diagrammatic form for ready reference. The text describing how various operations are to be carried out will be found in the Part 1 and the appropriate regulations dealing with unit, field and base repairs.

SUBJECT INDEX

INDEX TO TABLES

INDEX TO FIGURES

RECEPTION SET R216

SPECIFICATION TESTS

General

Specification test figures only are listed in this part. Full details of the conditions under which these tests should be made, can be found in Tels E384, together with other specification figures which may be of use in fault tracing.

Test Equipment Required

(a) Signal Generator No 12
(b) Signal Generator No 14 or
Signal Generator No 15 or
Signal Generator No 13 and Signal Generator No 2 Mk 4
(c) Frequency Meter, r.f., portable No 1 or
Frequency Meter SCR 211
(d) Wattmeter Absorption a.f. No 1
(e) Oscillator b.f. No 8
(f) Instrument Testing Electronic Multi-Range No 1
(g) Noise factor meter (see Tels E384)

RECEPTION SET R216 - AM CHARACTERISTICS

Sensitivity

Range	Frequency	Noise Figure
1	20	7dB
1	25	7dB
1	30	7dB
2	31	8dB
2	38	8dB
2	45	8dB
3	50	9dB
3	56	9dB
3	65	9dB
4	70	11dB
4	85	11dB
4	100	11dB
5	110	13dB
5	125	13dB
5	150	13dB

Table 2001

Overall Gain

Frequency	Input level μV @ 75Ω	Audio Output
20	3.5	Not less than 20mW in each case
31	4.0	
50	5.0	
70	6.0	
110	9.0	

Table 2002

IF Rejection

Not less than 90dB at 20Mc/s dial setting.

Overall Audio Response

400c/s to 3kc/s, ± 5dB relative to the level at 1kc/s

5kc/s Not less than -4dB relative to the level at 3kc/s.

AF Distortion

There should be no appreciable distortion. (Not more than 10%).

RECEPTION SET R216 FM CHARACTERISTICS

Deviation	Rel Output
5kc/s	-12 ± ½dB
10kc/s	- 6 ± ½dB
20kc/s	0dB
40kc/s	+ 3dB

Table 2003

Limiter Efficiency

Input 5μV to 1V.
Output variation not more than 2dB.

RECEPTION SET R216 - MISCELLANEOUS CHARACTERISTICS

BFO Range

9-12kc/s on each side of zero.

IF Output Level

Not less than 10mV for 10μV input at 75Ω.

Power Supply Noise

Signal to noise ratio (a.m.) to be not less than 36dB with inputs above 500μV.

Seal Test

Initial pressure 10 lb/sq in
Time constant 33 hours.

RESTRICTED

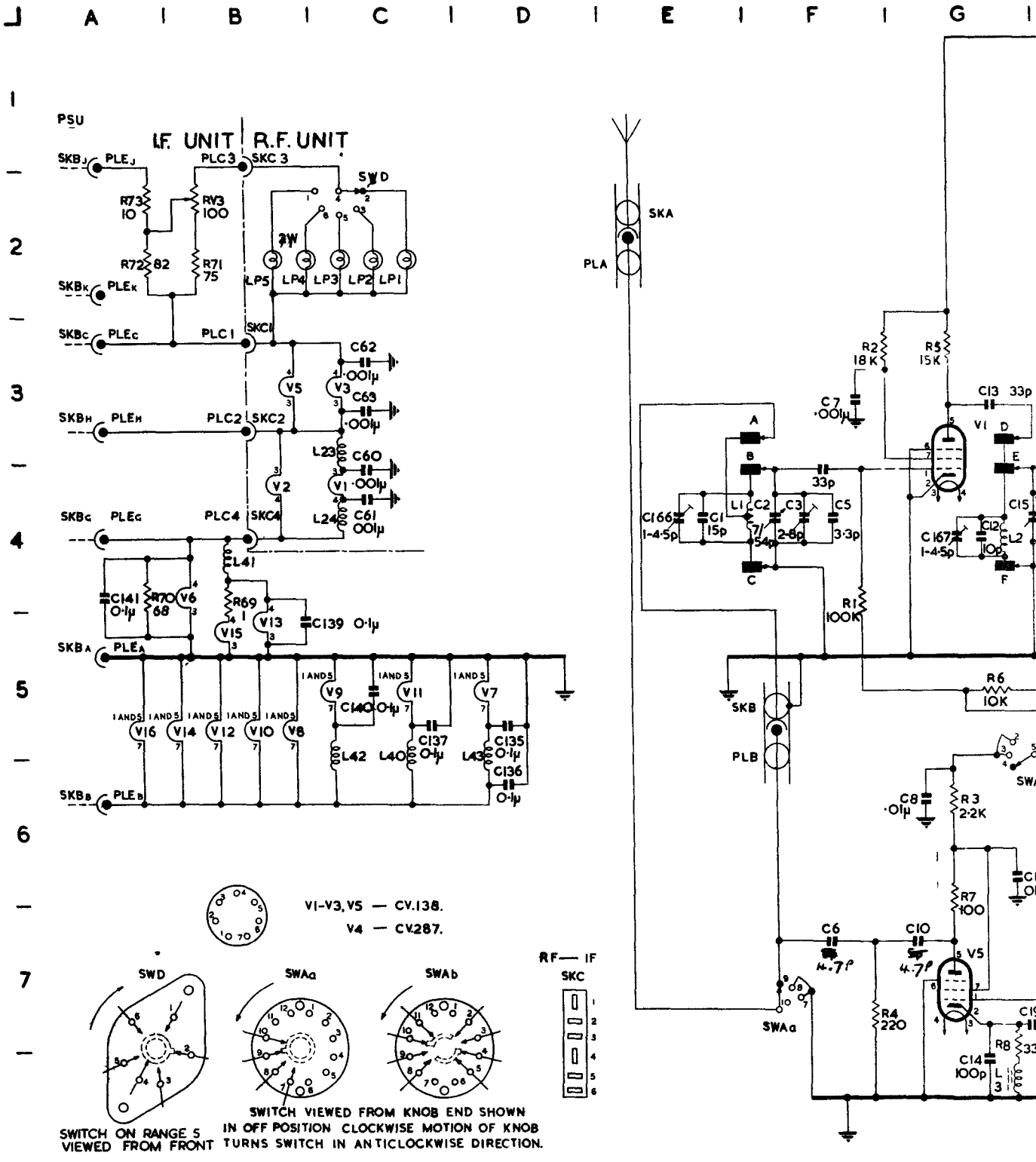
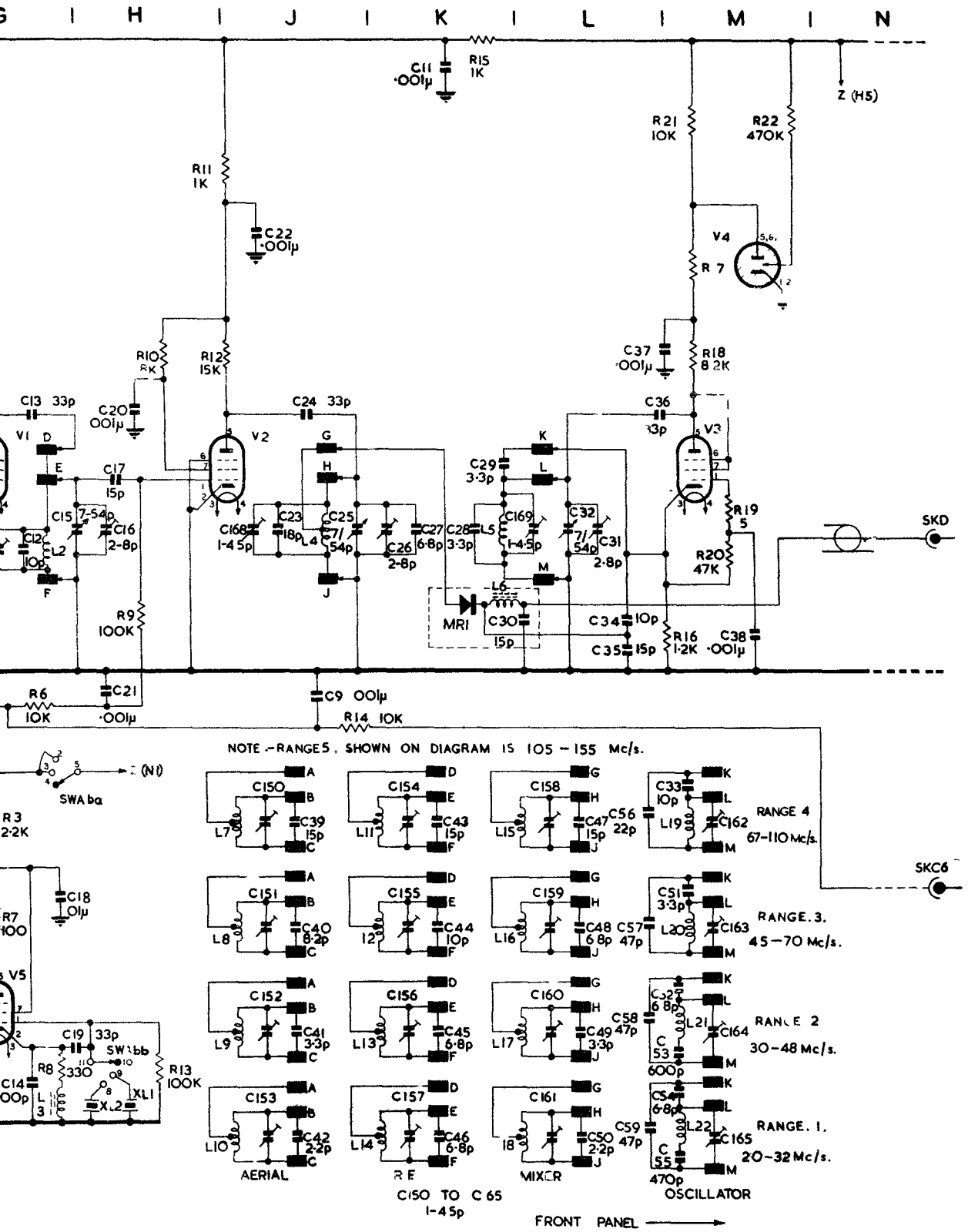


Fig 2001a - Circuit Diag



it Diagram R216

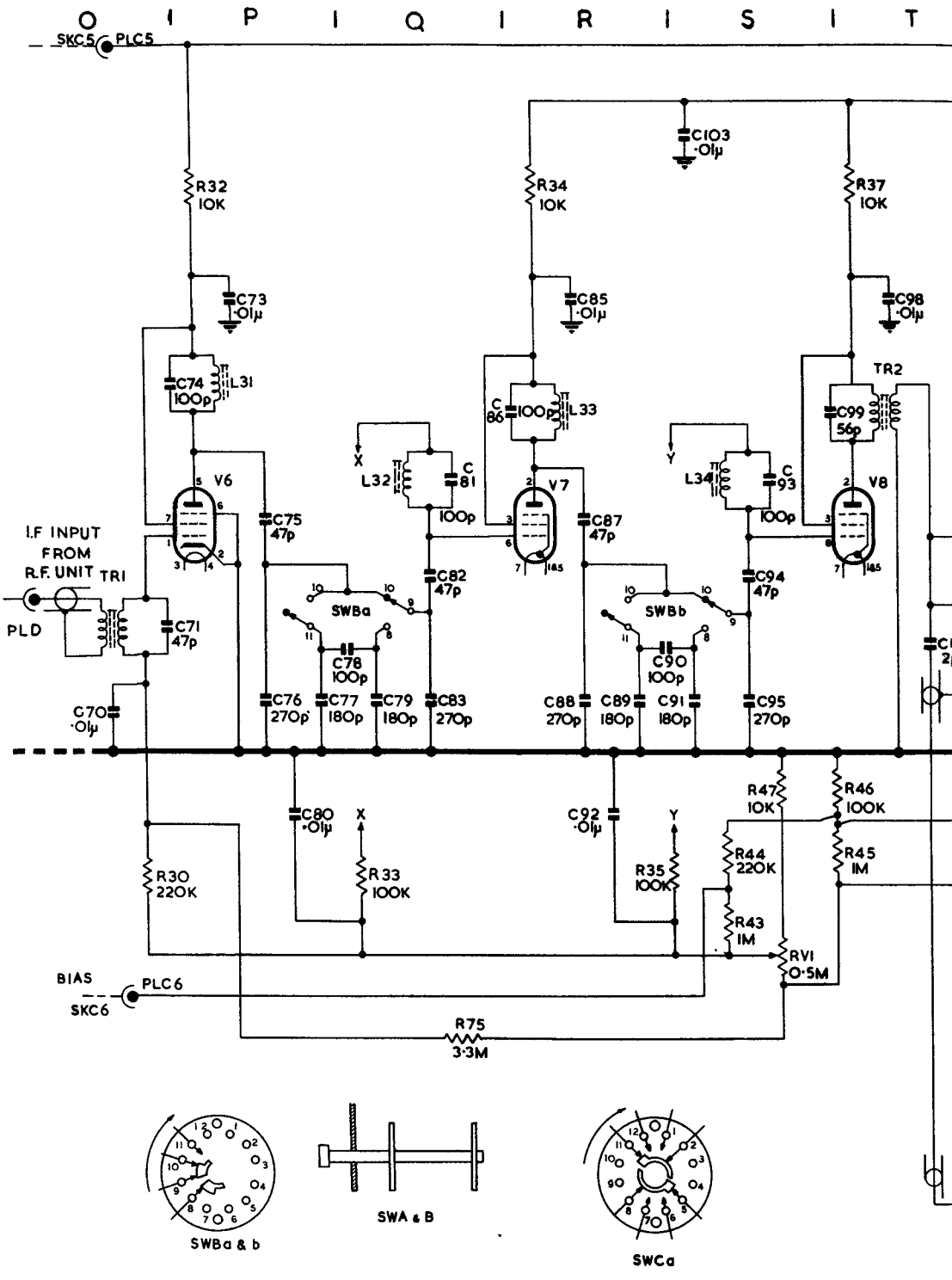
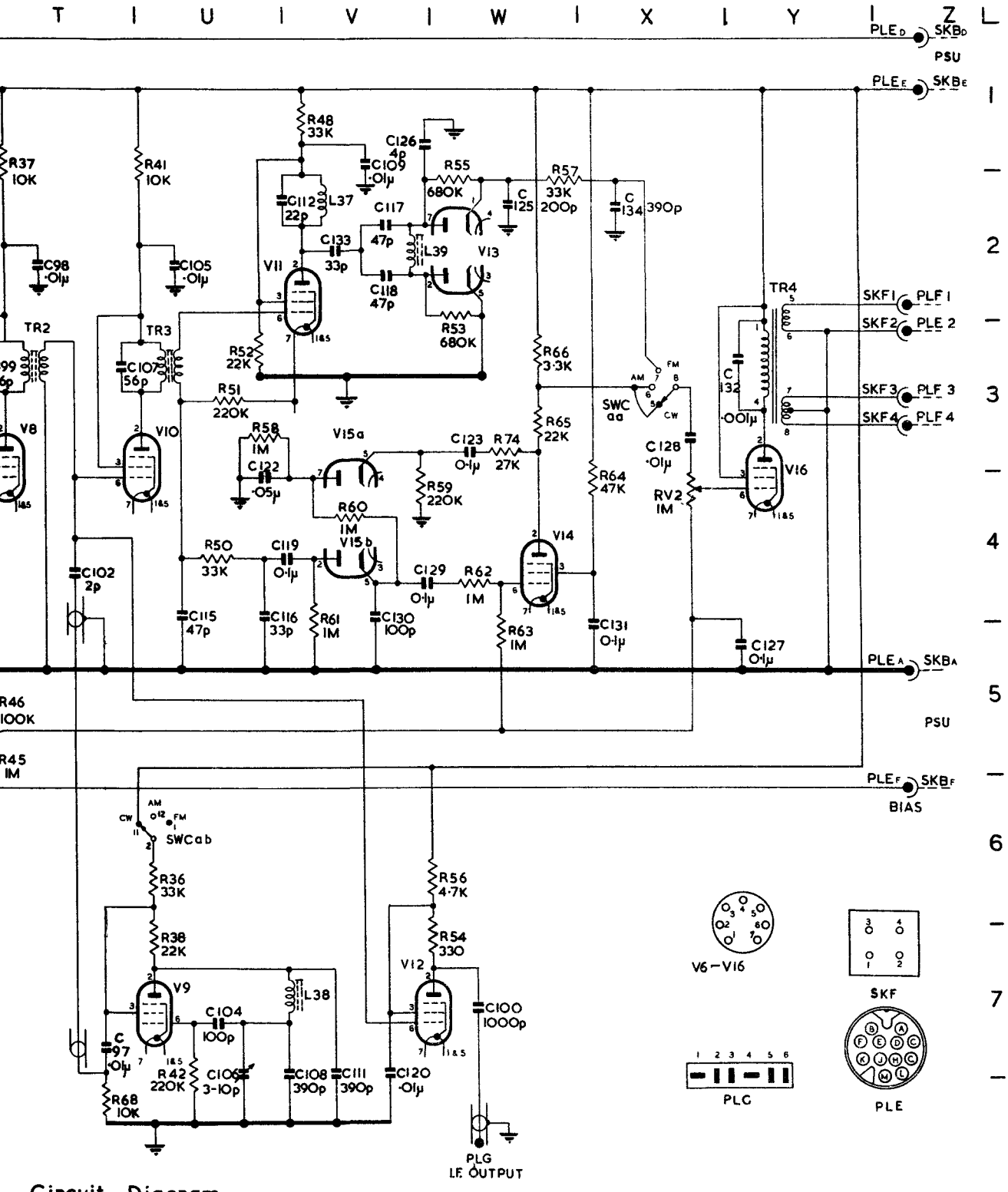


Fig. 1001 b

Circui

Fig 2001b - Circu



Circuit Diagram.

- Circuit Diagram R216

RESTRICTED

Table 2004 - WIRELESS SET 216

NOTE: Number Prefixes on Layout References refer to EMER Figs
e g R1 (4C2) Fig 1004 C2

Circuit reference	Location of components		Value	Rating	Type and limit
	Circuit diagram	Component layout			
RESISTORS					
R1	F4	2C2	100KΩ	1/4W	±20% Carbon
R2	F3	2C2	18KΩ	1/4W	±10% Carbon
R3	G6	2C2	2.2KΩ	1/2W	±20% Carbon
R4	F7	2C2	220 Ω	1/2W	±10% Carbon
R5	G3	2C2	15KΩ	3/4W	±10% Carbon
R6	G5	2C3	10KΩ	1/4W	±20% Carbon
R7	G6	2B1	100 Ω	1/2W	±10% Carbon
R8	G7	2B2	330 Ω	1/2W	±20% Carbon
R9	H4	2C3	100KΩ	1/4W	±20% Carbon
R10	H3	2C3	18KΩ	1/4W	±10% Carbon
R11	J2	2C3	1.0KΩ	1/4W	±20% Carbon
R12	H3	2C3	15KΩ	3/4W	±10% Carbon
R13	H7	2B2	100KΩ	1/2W	±20% Carbon
R14	J5	2C1	10KΩ	1/4W	±20% Carbon
R15	K1	2C2	1KΩ	1/4W	±20% Carbon
R16	M5	2C4	1.2KΩ	1/4W	±10% Carbon
R17	M2	2C4	1KΩ	1/4W	±20% Carbon
R18	M3	2C5	8.2KΩ	3/4W	±10% Carbon
R19	M4	2C4	5.0 Ω	1/2W	±20% Carbon
R20	M4	2C4	47KΩ	1/4W	±10% Carbon
R21	M1	2C1	10KΩ	3.0W	± 5% Wire wound
R22	M1	2C1	470KΩ	1/4W	±20% Carbon
R30	O5	5D5	220KΩ	1/2W	±20% Carbon
R32	P1	4A4, 5D4	10KΩ	1/2W	±10% Carbon
R33	Q6	4A3, 5D3	100KΩ	1/2W	±20% Carbon
R34	R1	4A1, 5E2	10KΩ	1/2W	±10% Carbon
R35	R6	4B2, 5D2	100KΩ	1/2W	±20% Carbon
R36	U6	4B5	33KΩ	1/2W	±10% Carbon
R37	T1	4C2, 5C2	10KΩ	1/2W	±10% Carbon
R38	U7	4B5, 5C5	22KΩ	1/2W	±10% Carbon
R41	U1	4D2, 5B2	10KΩ	1/2W	±10% Carbon
R42	U7	4B5, 5C5	220KΩ	1/2W	±20% Carbon
R43	S6	4D5	1.0MΩ	1/2W	±10% Carbon
R44	S5	4D5	220KΩ	1/2W	±10% Carbon
R45	T5	4D5	1.0MΩ	1/2W	± 5% Carbon
R46	T5	4D5	100KΩ	1/2W	± 5% Carbon
R47	S5	4D5	10KΩ	1/2W	±10% Carbon
R48	V1	4D2, 5A2	33KΩ	1/2W	±10% Carbon
R50	U4	4D2, 5A2	33KΩ	1/2W	±10% Carbon
R51	U3	4D1	220KΩ	1/2W	±10% Carbon
R52	U3	4D2, 5A2	22KΩ	1/2W	±10% Carbon

Table 2004 (continued)

Circuit reference	Location of components		Value	Rating	Type and limit
	Circuit diagram	Component layout			
RESISTORS (continued)					
R53	W2	4D3, 5A3	680KΩ	1/2W	± 5% Carbon
R54	W7	4D2	330 Ω	1/2W	±10% Carbon
R55	W2	4D3, 5A3	680KΩ	1/2W	± 5% Carbon
R56	W6	4D2	4.7KΩ	1/2W	±20% Carbon
R57	W2	4D3	33KΩ	1/2W	±10% Carbon
R58	U3	4B4	1.0MΩ	1/2W	±10% Carbon
R59	V4	4B3	220KΩ	1/2W	±20% Carbon
R60	V4	4B4	1.0MΩ	1/2W	±10% Carbon
R61	V4	4B4	1.0MΩ	1/2W	±10% Carbon
R62	W4	4B3	1.0MΩ	1/2W	±10% Carbon
R63	W5	4B3	1.0MΩ	1/2W	±10% Carbon
R64	X4	4C2	47KΩ	1/2W	±10% Carbon
R65	W3	4B3	22KΩ	1/2W	±10% Carbon
R66	W3	4B3	3.3KΩ	1/2W	±10% Carbon
R68	T8	4C5	10KΩ	1/2W	±20% Carbon
R69	B4	4C3	1.0 Ω	1.0W	± 5% Wire wound
R70	A4	4B5	68 Ω	3/4W	±10% Carbon
R71	B2	5A5	75 Ω	1.0W	± 5% Wire wound
R72	A2	5A5	82 Ω	1.0W	± 5% Wire wound
R73	A2	5A5	10 Ω	1.0W	± 5% Wire wound
R74	W3	5A5	27KΩ	1/2W	±10% Carbon
R75	Q7	4A4	3.3MΩ	1/2W	±10% Carbon
VARIABLE RESISTORS					
RV1	S6	4D5	500KΩ	1/4W	Carbon
RV2	X4	5A6	1MΩ	1/4W	Carbon
RV3	B2	5E6	100 Ω	1/2W	Wire wound
CAPACITORS					
C1	E4	Turret	15pF	500V	± .5pF Ceramic
C2	F4	3A1	7-54pF		Variable
C3	F4	3A1	2- 8pF	500V	Trimmer
C4	F4	2C2	33pF	500V	±10% Ceramic
C5	F4	2C1	3.3pF	500V	± .5pF Ceramic
C6	F7	2B2	4.7pF	500V	±20% Ceramic
C7	F3	2C2	.001 µF	500V	±25% Ceramic
C8	G6	2B2	0.01µF	350V	±25% Tubular Paper
C9	J5	2C2	.001µF	500V	±25% Ceramic
C10	G7	2B1	4.7 pF	500V	±20% Ceramic
C11	K1	2C2	.001µF	500V	±25% Ceramic
C12	G4	Turret	10pF	500V	± .5pF Ceramic
C13	G3	2D2	33pF	500V	±10% Ceramic
C14	G8	2A2	100pF	500V	±10% Ceramic
C15	G4	3A2	7-54pF		Variable

Table 2004 (continued)

Circuit reference	Location of components		Value	Rating	Type and limit
	Circuit diagram	Component layout			
CAPACITORS (continued)					
C16	H4	3A2	2-8pF	500V	Trimmer
C17	H4	2C3	15pF	500V	±10% Ceramic
C18	G6	2B1, 3D2	.01µF	350V	±25% Tubular paper
C19	G7	2A2	33pF	500V	±10% Ceramic
C20	H3	2C3	.001µF	500V	±25% Ceramic
C21	H5	2C3	.001µF	500V	±25% Ceramic
C22	J2	2C3	.001µF	500V	±25% Ceramic
C23	J4	Turret	18pF	500V	± .5pF Ceramic
C24	J3	2C3	33pF	500V	±10% Ceramic
C25	J4	3B3	7-54pF		Variable
C26	K4	3A3	2- 8pF	500V	Trimmer
C27	K4	2C4	6.8pF	500V	±10% Ceramic
C28	K4	Turret	3.3pF	500V	± .5pF Ceramic
C29	K3	Turret	3.3pF	500V	± .5pF Ceramic
C30	L4	3B4	15pF	500V	±10% Ceramic
C31	L4	3A5	2-8pF	500V	Trimmer
C32	L4	3A4	7-54pF		Variable
C33	M6	Turret	10pF	500V	± .5pF Ceramic
C34	L4	2C4	10pF	500V	±10% Ceramic
C35	L5	2C4	15pF	500V	±10% Ceramic
C36	L3	2C5	33pF	500V	± 5% Ceramic
C37	L3	2C4	.001µF	500V	±25% Ceramic
C38	M5	2C4	.001µF	500V	±25% Ceramic
C39	J6	Turret	15pF	500V	± .5pF Ceramic
C40	J7	"	8.2pF	500V	± .5pF Ceramic
C41	J7	"	3.3pF	500V	± .5pF Ceramic
C42	J8	"	2.2pF	500V	± .5pF Ceramic
C43	K6	"	15pF	500V	± .5pF Ceramic
C44	K7	"	10pF	500V	± .5pF Ceramic
C45	K7	"	6.8pF	500V	± .5pF Ceramic
C46	K8	"	6.8pF	500V	± .5pF Ceramic
C47	L6	"	15pF	500V	± .5pF Ceramic
C48	L7	"	6.8pF	500V	± .5pF Ceramic
C49	L7	"	3.3pF	500V	± .5pF Ceramic
C50	L8	"	2.2pF	500V	± .5pF Ceramic
C51	M6	"	3.3pF	500V	± .5pF Ceramic
C52	M7	"	6.8pF	500V	± .5pF Ceramic
C53	M7	"	600pF	350V	± 5% Mica
C54	M8	"	6.8pF	500V	± .5pF Ceramic
C55	M8	"	470pF	350V	± 5% Mica
C56	M6	"	22pF	500V	± 5% Ceramic
C57	M6	"	47pF	500V	±10% Ceramic
C58	M7	"	47pF	500V	±10% Ceramic
C59	M8	"	47pF	500V	±10% Ceramic
C60	C4	2D2	.001µF	500V	±25% Ceramic
C61	C4	2C2	.001µF	500V	±25% Ceramic
C62	C3	2C4	.001µF	500V	±25% Ceramic

Table 2004 (continued)

Circuit reference	Location of components		Value	Rating	Type and limit
	Circuit diagram	Component layout			
CAPACITORS (continued)					
C63	C3	2C4	.001µF	500V	±25% Ceramic
C70	05	5E5	0.01µF	350V	±20% Tubular paper
C71	04	5E5	47pF	500V	± 5% Ceramic
C73	P2	5D5	0.01µF	350V	±20% Tubular paper
C74	03	4A4, 5D4	100pF	500V	± 5% Ceramic
C75	P3	4A4, 5D4	47pF	500V	± 5% Ceramic
C76	P5	4A4, 5D4	270pF	350V	± 5% Mica
C77	P5	4A4, 5D4	180pF	350V	± 5% Mica
C78	Q4	4A4	100pF	500V	± 5% Ceramic
C79	Q5	4A4, 5D4	180pF	350V	± 5% Mica
C80	P5	4B3, 5D3	0.01µF	350V	±20% Tubular paper
C81	Q3	4A3, 5D3	100pF	500V	± 5% Ceramic
C82	Q4	4A3, 5D3	47pF	500V	± 5% Ceramic
C83	Q5	4A4, 5D4	270pF	500V	± 5% Ceramic
C85	R2	4B3, 5D2	0.01µF	350V	±20% Tubular paper
C86	R3	4A2, 5E1	100pF	500V	± 5% Ceramic
C87	R3	4A2, 5E2	47pF	500V	± 5% Ceramic
C88	R5	4A1, 5D1	270pF	350V	± 5% Mica
C89	R5	4A1, 5E1	180pF	350V	± 5% Mica
C90	R4	4A1	100pF	500V	± 5% Ceramic
C91	S5	4A1, 5D1	180pF	350V	± 5% Mica
C92	R5	4B1, 5D1	0.01µF	350V	±20% Tubular paper
C93	S3	4B2, 5D2	100pF	500V	± 5% Ceramic
C94	S4	4B2, 5D1	47pF	500V	± 5% Ceramic
C95	S5	4A1, 5D1	270pF	350V	± 5% Mica
C97	T7	4B5	0.01µF	350V	±20% Tubular paper
C98	T2	4C1, 5C1	0.01µF	350V	±20% Tubular paper
C99	T3	4C1, 5C1	56pF	500V	± 5% Ceramic
C100	W7	4D2	.001µF	500V	±20% Ceramic
C102	T4	4C2, 5C2	2pF	500V	±20% Ceramic
C103	S1	4C1, 5C1	0.01µF	350V	±20% Tubular paper
C104	U7	4B5, 5C5	100pF	500V	±10% Ceramic
C105	U2	4D1, 5B1	0.01µF	350V	±25% Tubular paper
C106	U8	4B5	3-10pF		Trimmer
C107	T3	4D2, 5B1	56pF	500V	± 5% Ceramic
C108	V8	4B5	390pF	350V	± 5% Mica
C109	V1	4D2, 5A2	0.01µF	350V	±20% Tubular paper
C111	V8	4B5	390pF	350V	± 5% Mica
C112	V2	4D2, 5A2	22pF	500V	± 2½% Ceramic
C115	U4	4D1	47pF	500V	±10% Ceramic
C116	U4	4D1	33pF	500V	±10% Ceramic
C117	V2	4D3, 5A3	47pF	500V	± 2% Ceramic
C118	V2	4D3, 5A3	47pF	500V	± 2% Ceramic
C119	V4	4B3	0.1µF	200V	±25% Tubular paper
C120	V8	4C2, 5B3	0.01µF	350V	±20% Tubular paper
C122	U4	4B4, 5C4	0.05µF	200V	±25% Tubular paper

Table 2004 (continued)

Circuit reference	Location of components		Value	Rating	Type and limit
	Circuit diagram	Component layout			
CAPACITORS (continued)					
C123	W3	4B3	0.1µF	200V	±25% Tubular paper
C125	W2	4D2	200pF	350V	±10% Mica
C126	V1	4D3, 5A3	4.0pF	500V	± .5pF Ceramic
C127	Y5	4D4, 5A4	0.1µF	200V	±25% Tubular paper
C128	X3	4D5, 5A6	0.01µF	350V	±20% Tubular paper
C129	V4	4B3	0.1µF	200V	±25% Tubular paper
C130	V4	4C3	100pF	350V	±10% Mica
C131	X5	4C2, 5C2	0.1µF	150V	±25% Tubular paper
C132	Y3	4C4	.001µF	350V	±20% Mica
C133	V2	4D2	33pF	500V	± 5% Ceramic
C134	X2	4C3	390pF	350V	±10% Mica
C135	D5	4B3, 5D3	0.1µF	150V	±25% Tubular paper
C136	D6	4B1, 5C1	0.1µF	150V	±25% Tubular paper
C137	C5	4D1, 5A1	0.1µF	150V	±25% Tubular paper
C139	B5	4C3, 5B3	0.1µF	150V	±25% Tubular paper
C140	C5	4B5, 5C4	0.1µF	150V	±25% Tubular paper
C141	A4	5D4	0.1µF	150V	±25% Tubular paper
C150	J6	Turret	1-4.5pF		Trimmer
C151	J6	"	1-4.5pF		Trimmer
C152	J7	"	1-4.5pF		Trimmer
C153	J8	"	1-4.5pF		Trimmer
C154	K6	"	1-4.5pF		Trimmer
C155	K6	"	1-4.5pF		Trimmer
C156	K7	"	1-4.5pF		Trimmer
C157	K8	"	1-4.5pF		Trimmer
C158	L6	"	1-4.5pF		Trimmer
C159	L6	"	1-4.5pF		Trimmer
C160	L7	"	1-4.5pF		Trimmer
C161	L8	"	1-4.5pF		Trimmer
C162	M6	"	1-4.5pF		Trimmer
C163	M6	"	1-4.5pF		Trimmer
C164	M7	"	1-4.5pF		Trimmer
C165	M8	"	1-4.5pF		Trimmer
INDUCTORS					
L1	F4	Turret			Aerial range 5
L2	G4	"			RF " 5
L3	G8	2B2			RF choke
L4	J4	Turret			Mixer range 5
L5	K4	"			Osc " 5
L6	K4	3B4			Choke
L7	J6	Turret			Aerial range 4
L8	J7	"			" " 3
L9	J7	"			" " 2
L10	J8	"			" " 1

Table 2004 (continued)

Circuit reference	Location of components		Value Rating	Type and limit
	Circuit diagram	Component layout		
INDUCTORS (continued)				
L11	K6	Turret		RF range 4
L12	K7	"		" " 3
L13	K7	"		" " 2
L14	K8	"		" " 1
L15	K6	"		Mixer range 4
L16	K7	"		" " 3
L17	K7	"		" " 2
L18	K8	"		" " 1
L19	M6	"		Osc range 4
L20	M7	"		" " 3
L21	M7	"		" " 2
L22	M8	"		" " 1
L23	C3	2C2		Heater choke
L24	C4	2C2		" "
L31	P3	4A4, 5D4		IF coil
L32	Q3	4A3, 5D3		" "
L33	R3	4A2, 5E1		" "
L34	S3	4B2, 5D1		" "
L37	V2	4D2, 5A2		" "
L38	V7	4B5, 5C5		BFO coil
L39	V2	4D3, 5A3		IF coil
L40	C5	4D1		Heater choke
L41	B4	4A4		" "
L42	C5	4B4		" "
L43	D5	4A3		" "
TRANSFORMERS				
TR1	O4	5D5		IF
TR2	T3	4C2, 5C1		IF
TR3	U3	4D2, 5A1		IF
TR4	Y3	4C4, 5B4		Output
RECTIFIERS				
MR1	K4	2D4		CV291 crystal
CRYSTALS				
XL1	H8	2B2, 3D2		5Mc/s
XL2	H8	2A2, 3E2		1Mc/s

Table 2004 (continued)

Circuit reference	Location of components		Value	Rating	Type and limit
	Circuit diagram	Component layout			
VALVES					
V1	G3	2C2, 5B2			CV138
V2	J3	2C3, 5B3			CV138
V3	M3	2C4, 5B5			CV138
V4	M2	2C1, 5B1			CV287
V5	G7	2B1, 5D1			CV138
V6	P3	5D5			CV131
V7	R3	4A2, 5D2			CV785
V8	T3	4B2, 5C2			CV785
V9	U7	4B5, 5C4			CV1758
V10	U3	4C2, 5B2			CV1758
V11	V2	4D2, 5A2			CV1758
V12	V7	4C2, 5B2			CV1758
V13	W2	4D3, 5B3			CV140
V14	W4	4C2, 5C2			CV785
V15	V4	4C3, 5C3			CV140
V16	Y3	4D4, 5A4			CV1758
SWITCHES					
SWAa	F7	2B2			
SWAba	G6	2B2			
SWAbb	H7	2B2			
SWBa	P4	4A3			
SWBb	R4	4A1			
SWCaa	X3	4C5			
SWCab	U6	4C5			
SWD	C2	2D6			
LAMPS					
LP1	Tuning scale illumination Ranges 1-5		12V	2W	Festoon type
LP2			12V	2W	
LP3			12V	2W	
LP4			12V	2W	
LP5			12V	2W	

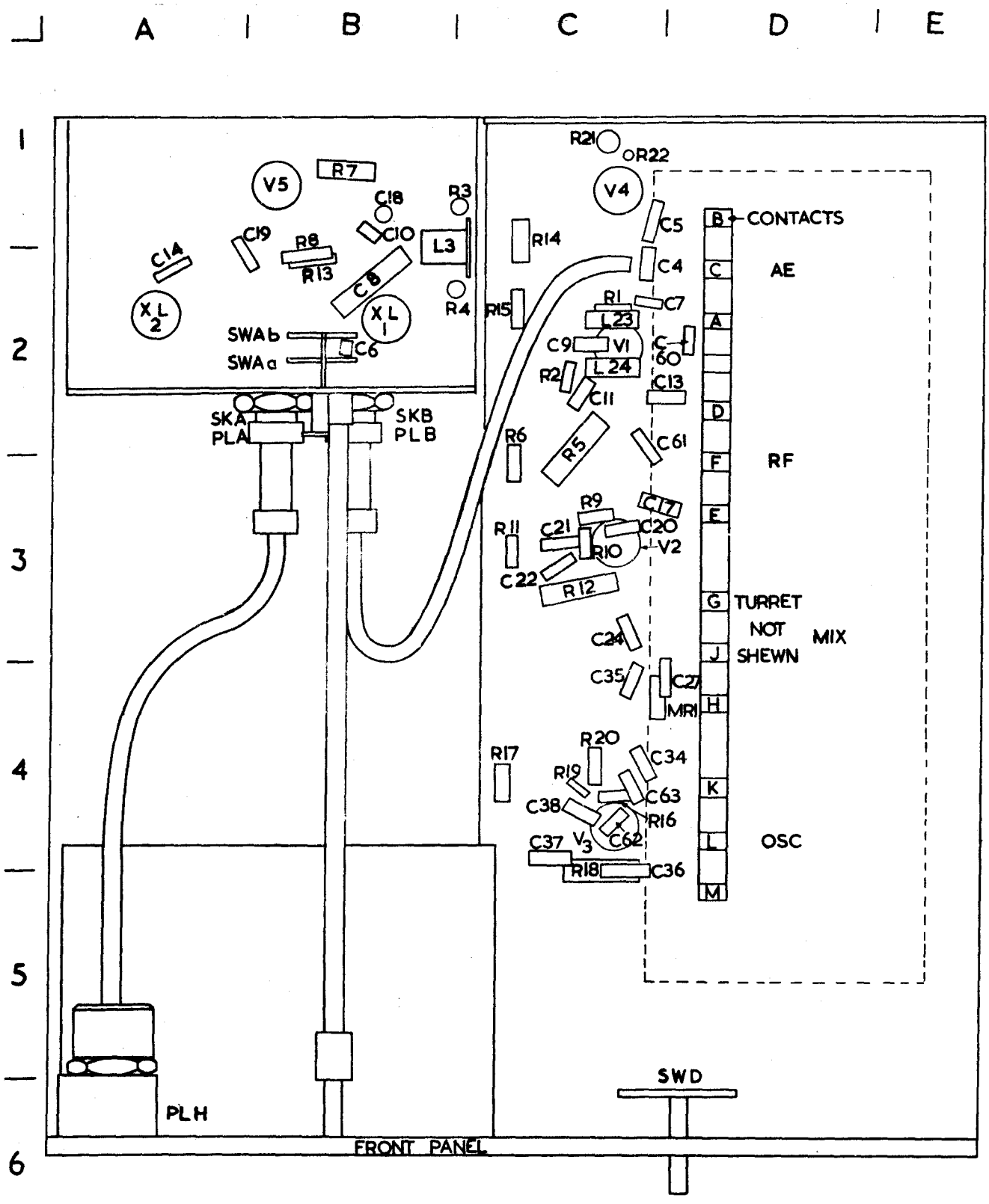


Fig 2002 - Component Layout R216
Oscillator and RF Chassis (underside)

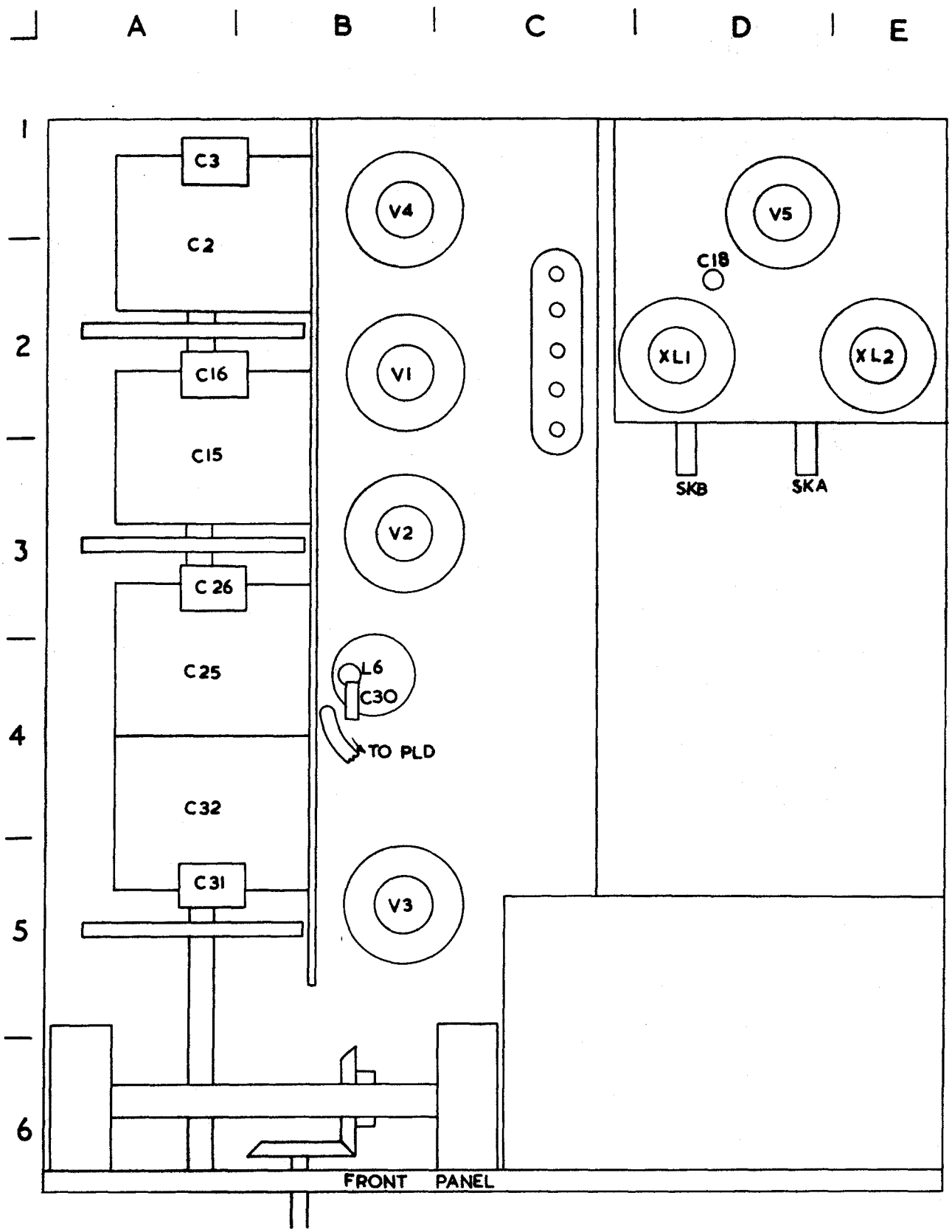


Fig 2003 - Component Layout R216
Oscillator and RF Chassis (top)

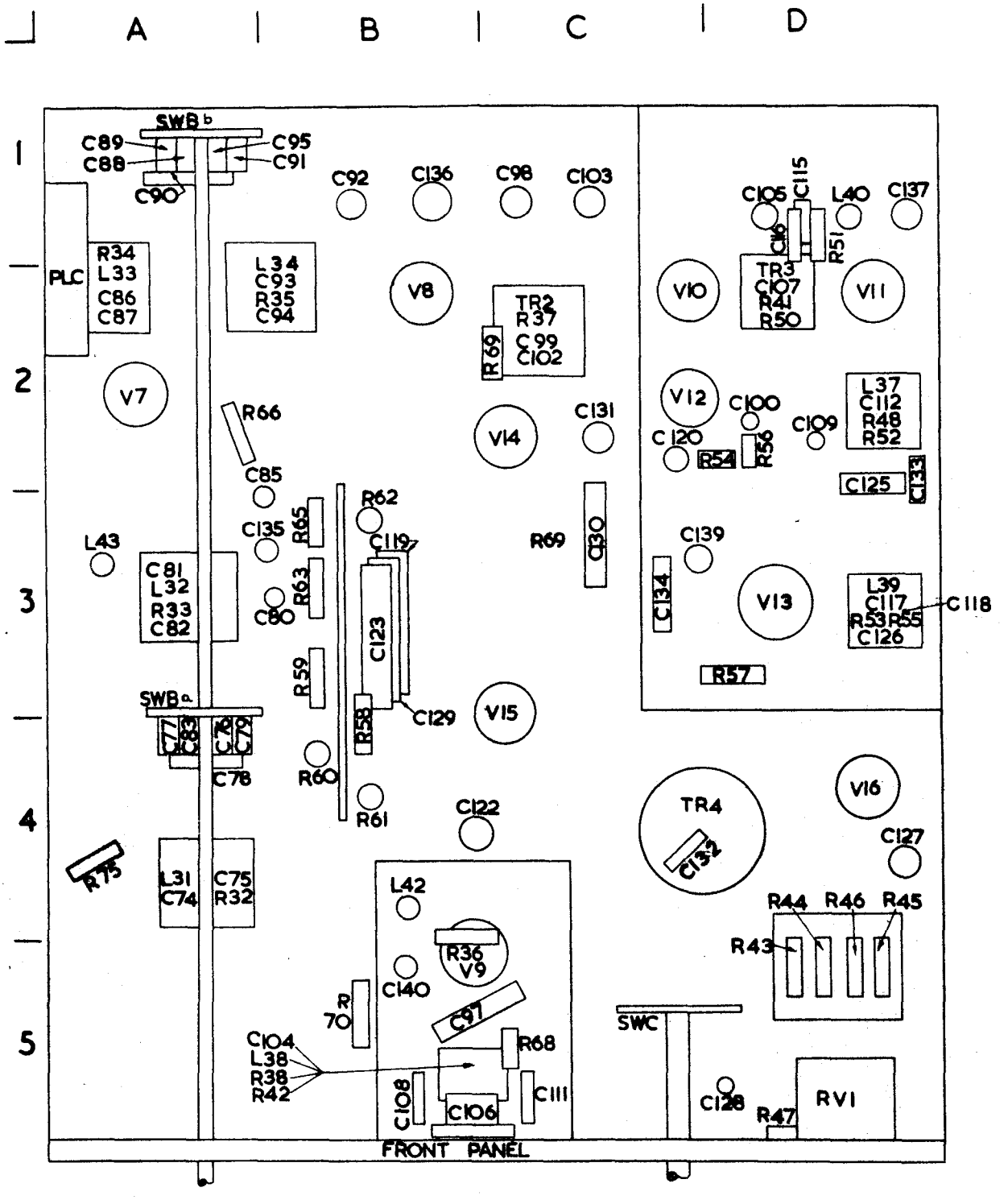


Fig 2004 - Component Layout
IF Chassis (underside)

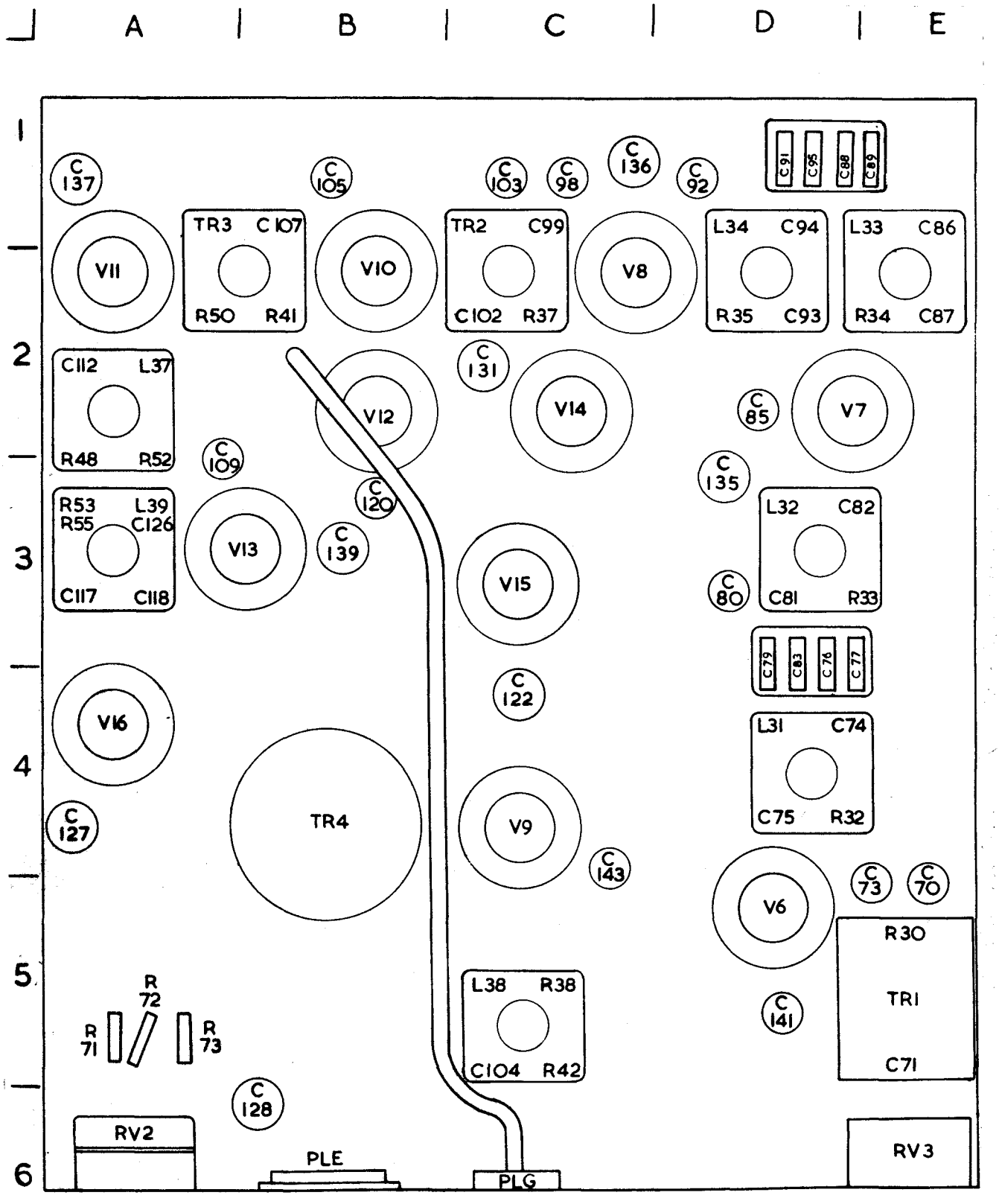


Fig 2005 - Component Layout
IF Chassis (top.)

POWER SUPPLY UNIT NO 45

SPECIFICATION FIGURES

Voltage Regulator

Input voltage variation 22 - 32V
Output voltage variation 19 ± .5V
Check for instability

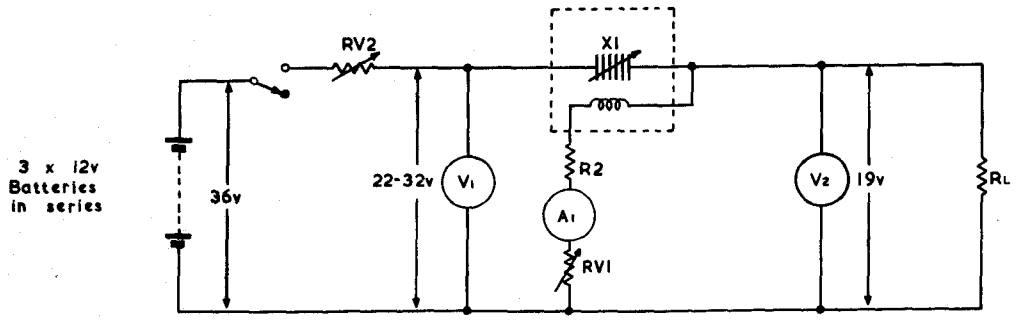


Fig 2006 - Test Circuit for Carbon Pile Regulator

Output Supply Limits (on load)

Pin	Voltage
B	1.3 - 1.5V
C	18.7 - 19.3V
D	250 ± 5%
E	95 ± 5%
F	-25 ± 10%

Table 2005

Note: The limits given for pins B and C should be obtained with the front panel control at min and max respectively.

Power Consumption

Power consumption should not exceed

2.8A at 21V
2.9A at 29V

Ripple Content

250V h.t. supply, max 2V peak to peak
95V h.t. supply, max .75V peak to peak

Meter Accuracy

With correct voltages available at the set, the meter should read .8 ± .1

Seal Test

Time constant 33 hours from 10 lb/sq in.

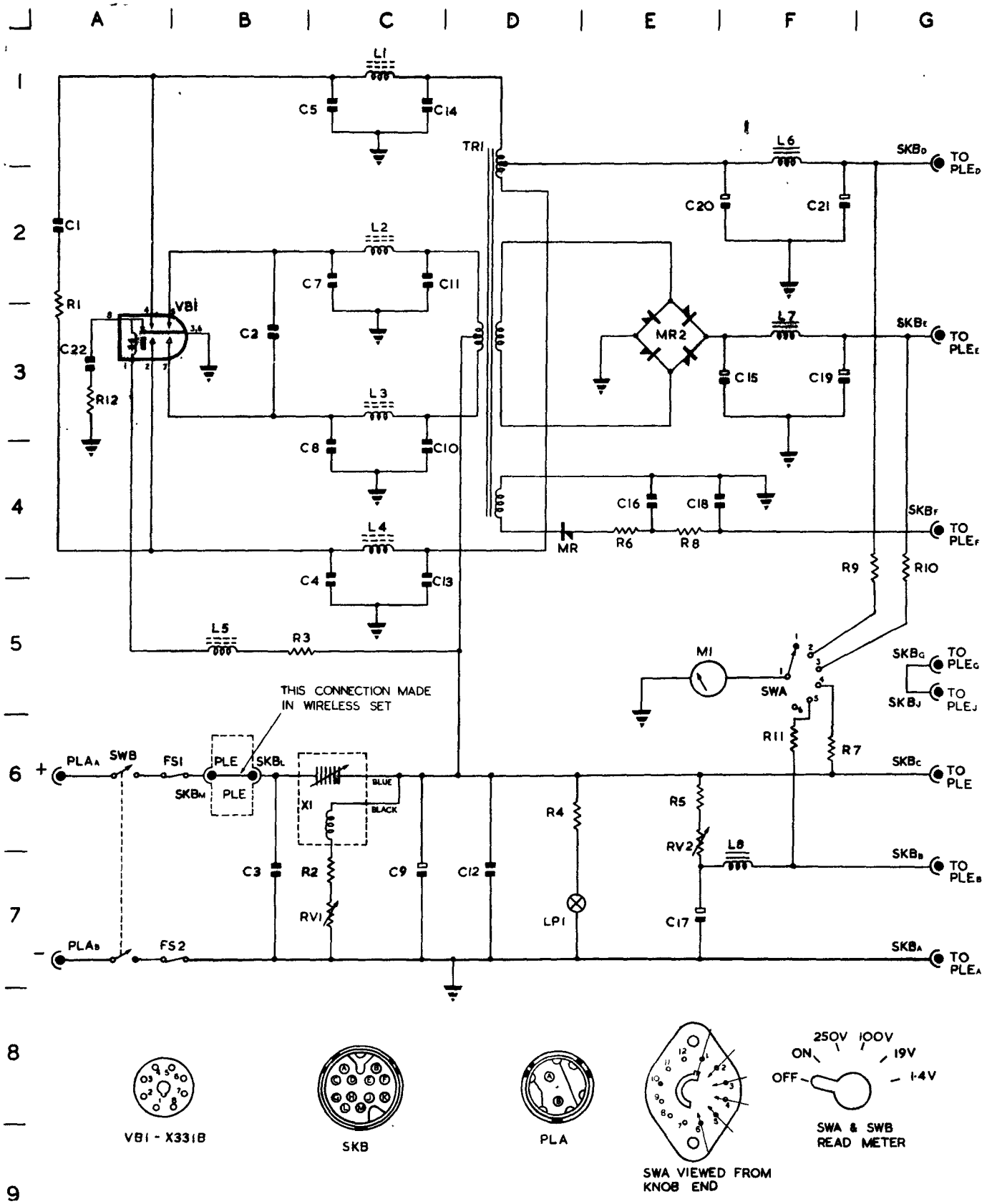


Fig 2007 - Circuit Diagram PSU No 45

Table 2006 - PSU NO 45 - COMPONENTS LIST

Circuit reference	Location of components		Value	Rating	Type and limit
	Circuit diagram	Component layout			
RESISTORS					
R1	A2	D2	1KΩ	3/4W	20% Carbon
R2	C7	A8	22 Ω	2.5W	5% Wire wound
R3	B5	D3	22 Ω	2.5W	5% Wire wound
R4	D6	G7	220 Ω	1.5W	5% Wire wound
R5	E6	G8	36 Ω	10W	5% Wire wound
R6	E4	G7	22KΩ	1/2W	20% Carbon
R7	F6	A7	47KΩ	1/2W	2% Carbon high stab.
R8	E4	G8	22KΩ	1/2W	20% Carbon
R9	G4	A8	620KΩ	3/4W	2% Carbon high stab.
R10	G4	A7	240KΩ	1/2W	2% Carbon high stab.
R11	F6	A8	3.3KΩ	1/2W	2% Carbon high stab.
R12	A3	C2	10 Ω	1/2W	20% Carbon
RESISTORS VARIABLE					
RV1	C7	F3	10 Ω	1.0W	10%
RV2	E6	B3	10 Ω	1.0W	10%
CAPACITORS					
C1	A2	D1	0.02μF	800V	20% Tubular paper
C2	B3	D1	1.0μF	150V	25% Tubular paper
C3	B7	A8	0.1μF	150V	25% Tubular paper
C4	C4	D2	.001μF	1KV	20% Tubular paper
C5	C1	C2	.001μF	1KV	20% Tubular paper
C7	C2	D2	0.01μF	350V	20% Tubular paper
C8	C4	D2	0.01μF	350V	20% Tubular paper
C9	C7	F2	250μF	25V	+50% -20% Electrolytic
C10	C4	D3	0.01μF	350V	20% Tubular paper
C11	C2	C3	0.01μF	350V	20% Tubular paper
C12	D7	A8	0.1μF	150V	25% Tubular paper
C13	C5	D3	.001μF	1KV	20% Tubular paper
C14	C1	C3	.001μF	1KV	20% Tubular paper
C15	F3	B2	16μF	150V	+100% -20% Electrolytic
C16	E4	F7	2.0μF	150V	25% Tubular paper
C17	E7	F1	500μF	12V	+50% -20% Tubular paper
C18	E4	F8	2.0μF	150V	25% Tubular paper
C19	F3	B2	16μF	150V	+100% -20% Electrolytic
C20	F2	B7	8.0μF	350V	+50% -20% Electrolytic
C21	F2	C7	8.0μF	350V	+50% -20% Electrolytic
C22	A3	C1	2.0μF	150V	25% Tubular paper

Table 2006 (continued)

Circuit reference	Location of components		Value	Rating	Type and limit
	Circuit diagram	Component layout			
INDUCTORS					
L1	C1	C2	10μH		25% RF choke
L2	C2	D2	10μH		25% RF choke
L3	C3	D2	10μH		25% RF choke
L4	C4	D2	10μH		25% RF choke
L5	B5	D2	10μH		25% RF choke
L6	F1	B7	14 H	30mA	Choke
L7	F3	E7	14 H	30mA	Choke
L8	F7	B6	100mH	400mA	Choke
RECTIFIERS					
MR1	D4	G7	19V	80μA	Westinghouse
MR2	E2/3	B1	100V	30mA	Selenium
TRANSFORMERS					
TR1	D3	E6			
LAMPS					
LP1	E7		6V	60mA	Type J
FUSES					
FS1	B6	E4	7A		
FS2	B7	B4	7A		
SWITCHES					
SWA	F5	B8			
SWB	A6	B8			
VIBRATOR					
VB1	A3	D1	12V		Type X331B
VOLTAGE REGULATOR					
X1	C6	D8	19V		Carbon pile
METER					
M1	E5	F8			Meter DC $1\frac{1}{2}$ in 0-0.5mA

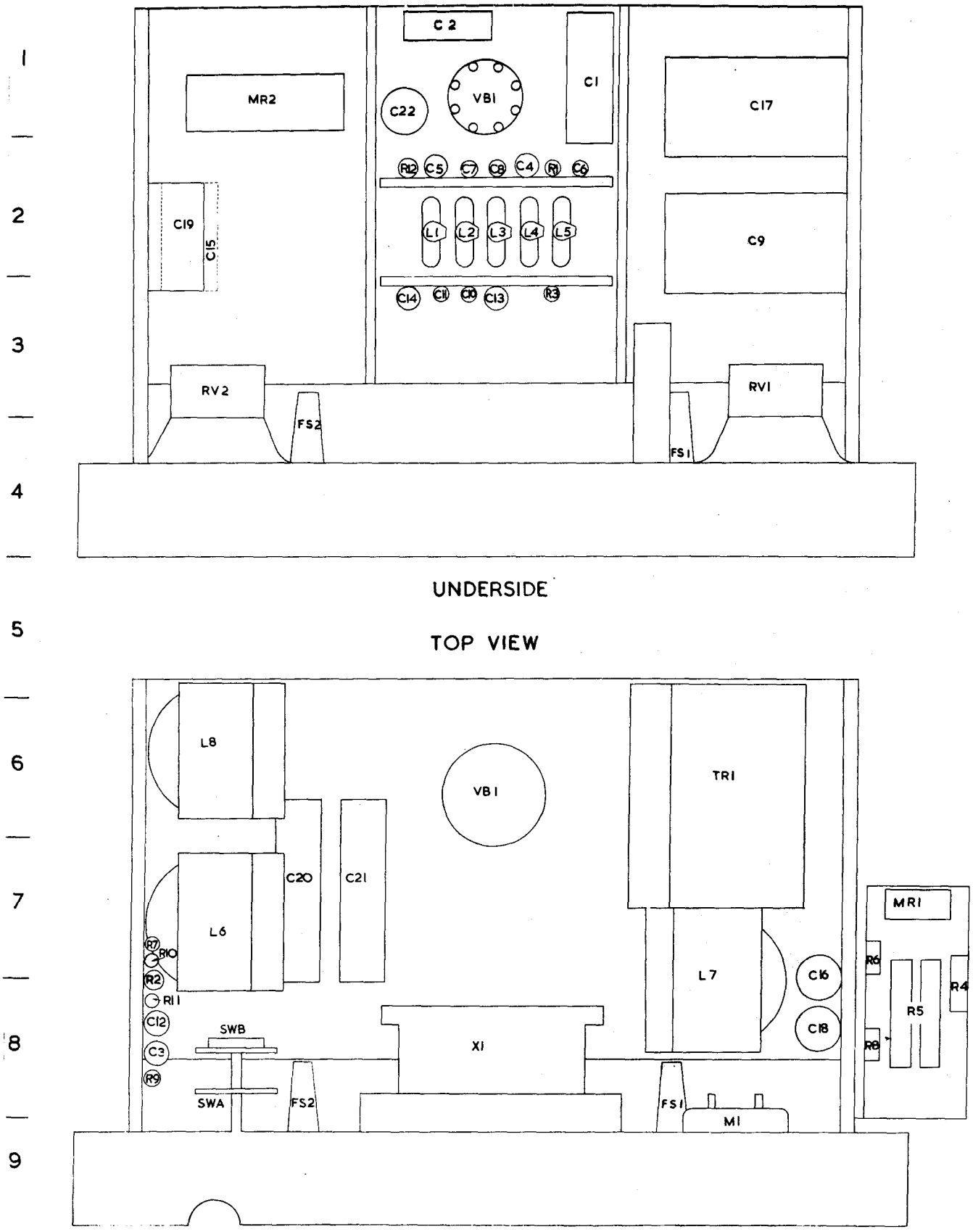


Fig 2008 - Component Layout PSU No 45

SUPPLY UNIT RECTIFIER NO 24

SPECIFICATION FIGURES

Output Supply Limits

Using Reception Set R216 as load,

Pin	Voltage
B	1.3 - 1.5
C	6.3 ± 5%
D	250 ± 5%
E	95 ± 5%
F	-25 ± 10%
G	6.3 ± 5%
J	20.5 ± 7.5%

Table 2007

Limits at pin B with control at minimum and maximum respectively.

Input Power Consumption

Input Volts ±1%	Input Current mA
100	720
110	660
120	600
200	360
220	330
240	300

Table 2008

Ripple Content

250V supply - 2V peak to peak
95V supply - .75V peak to peak.

Meter Accuracy

With correct voltages, meter reading .8 ± .1

Seal Test

Time constant 33 hours from 10 lb/sq in.

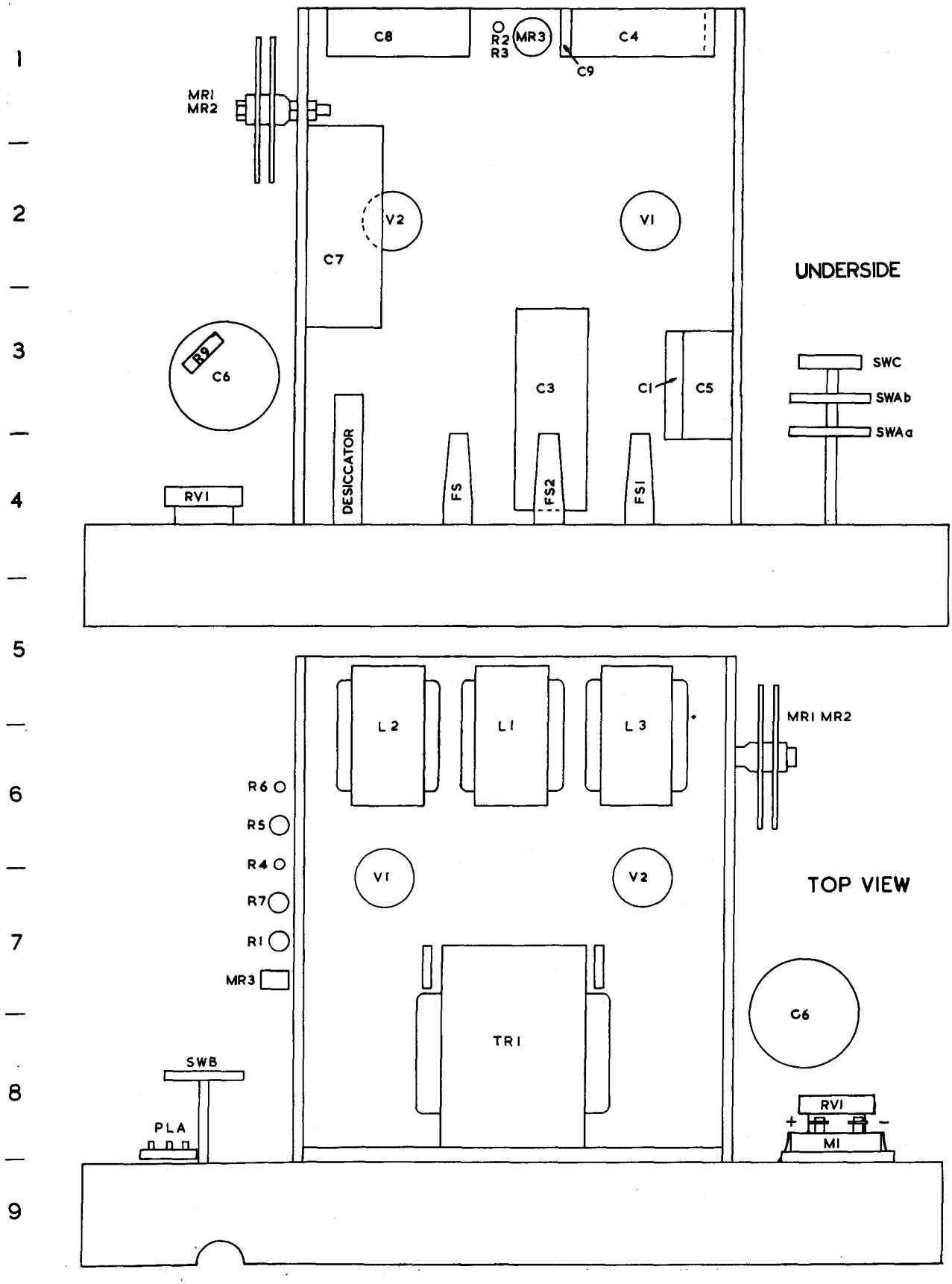


Fig 2009 - Component Layout SUR 24

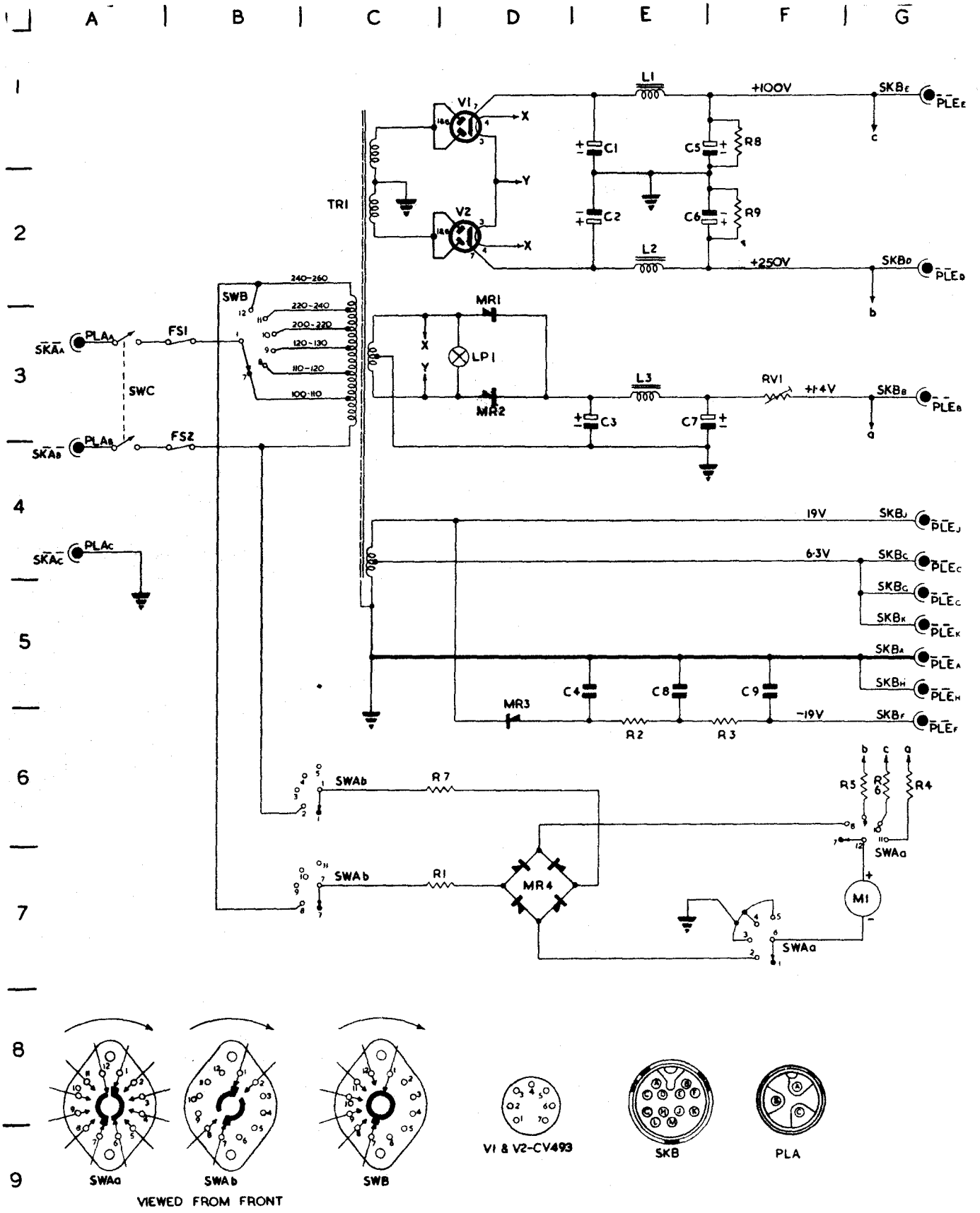


Fig 2010 - Circuit Diagram SUR 24

Table 2009 - SUR NO 24 COMPONENTS LIST

Circuit reference	Location of components		Value	Rating	Type and limit
	Circuit diagram	Component layout			
RESISTORS					
R1	C7	B7	200KΩ		2% Carbon high stab.
R2	E6	D1	22KΩ		10% Carbon
R3	E6	D1	22KΩ		10% Carbon
R4	G6	B6	3.3KΩ		2% Carbon high stab.
R5	G6	B6	620KΩ		2% " " "
R6	G6	B6	240KΩ		2% " " "
R7	D6	B7	300KΩ		2% " " "
R8	F1	D3	1.0MΩ	1/2W	20% Carbon
R9	F2	B3	1.0MΩ	1/2W	20% Carbon
RESISTORS VARIABLE					
RV1	F3	B4	3Ω	1/2W	Wire wound
CAPACITORS					
C1	E1	E3	16μF	150V	Electrolytic
C2	E2	E3	8.0μF	350V	Electrolytic
C3	E3	D3	1000μF	6.0V	Electrolytic
C4	E5	E1	2.0μF	150V	±20% Tubular paper
C5	E/F1	E3	16μF	150V	Electrolytic
C6	E/F2	F7	32μF	350V	Electrolytic
C7	E/F3	C2	1000μF	6.0V	Electrolytic
C8	E5	C1	2.0μF	150V	+20% Tubular paper
C9	F5	D1	2.0μF	150V	∓20% Tubular paper
INDUCTORS					
L1	E1	D5/6	14 H	30mA	Choke
L2	E2	C5/6	14 H	30mA	Choke
L3	E3	E5/6	100mH	400mA	Choke
RECTIFIERS					
MR1/MR2	D3	B1			Selenium
MR3	D6	D1			Copper Oxide
MR4	D7	B7		1mA	Meter rectifier
TRANSFORMERS					
TR1	C3	D8			Mains transformer
LAMPS					
LP1	D3	Front panel	6V	0.35W	Lamp

Table 2009 (continued)

Circuit reference	Location of components		Value	Rating	Type and limit
	Circuit diagram	Component layout			
VALVES					
V1	D1	E2			CV493
V2	D2	C2			CV493
SWITCHES					
SWAa 1-6	F7	F3			
SWAa 7-12	G6	F3			
SWAb	B6/7	F3			
SWB	B3	B8			
SWC	A3	F3			

END OF PART 2

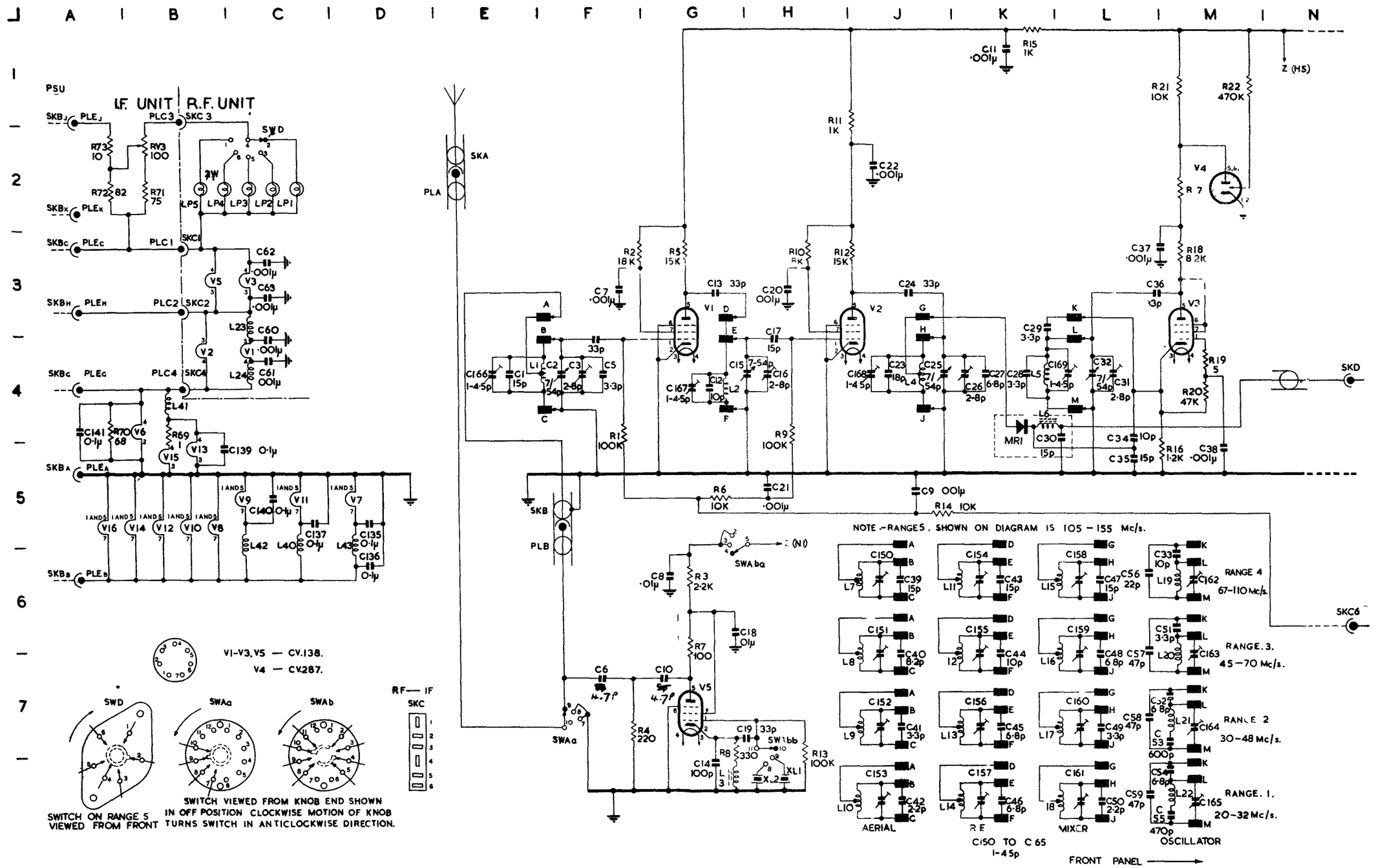


Fig 2001a - Circuit Diagram R216

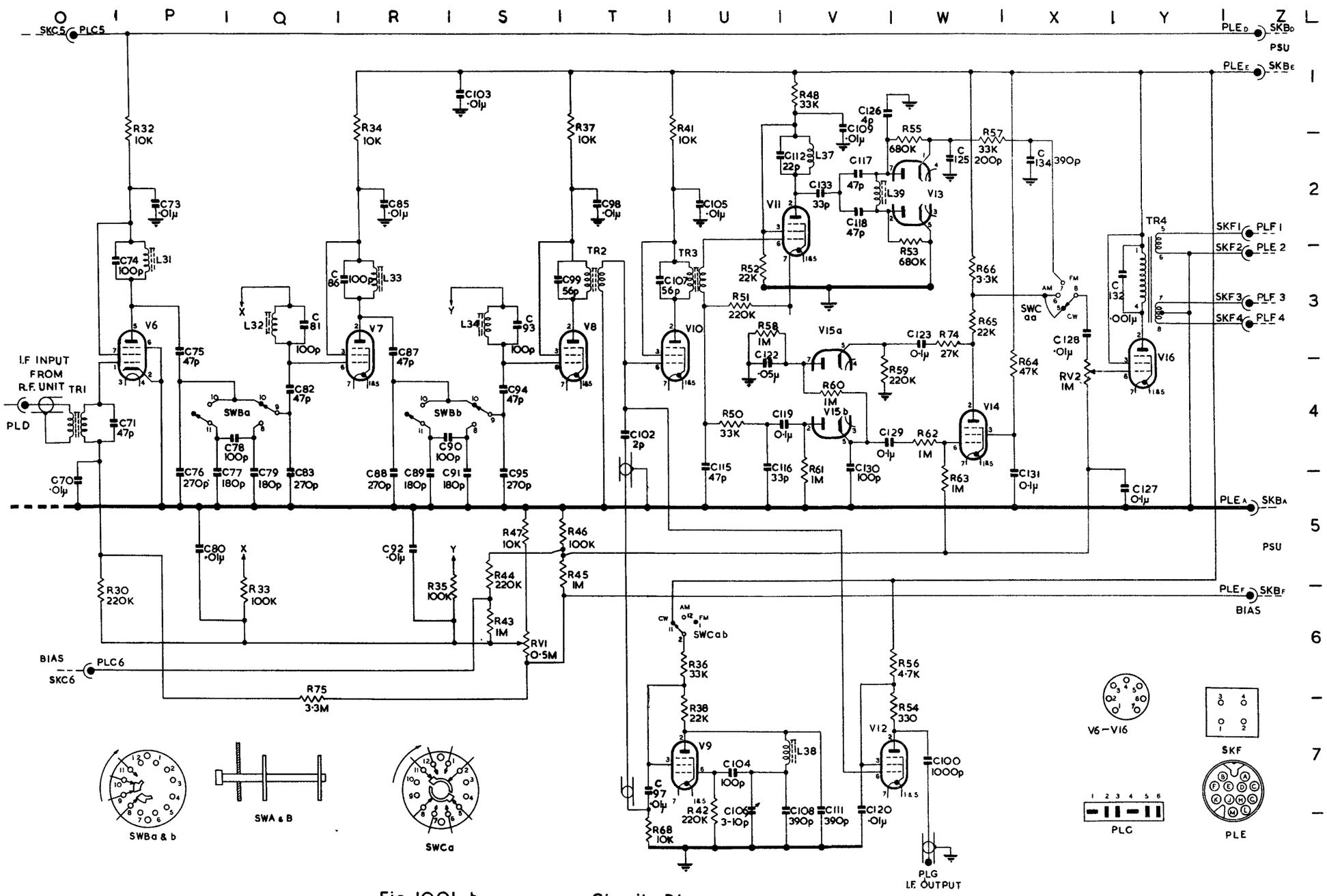


Fig. 1001 b Circuit Diagram.

Fig 2001b - Circuit Diagram R216