STATION, RADIO, BURNDEPT, BE201

TECHNICAL HANDBOOK - TECHNICAL DESCRIPTION

Errata

Note: These Pages 0-01, Issue 1, will be filed immediately in front of Page 1, Issue 1, dated 23 Jun 52.

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

2. Page 1004, Table 1001

After C89 insert the following details in the appropriate columns:-

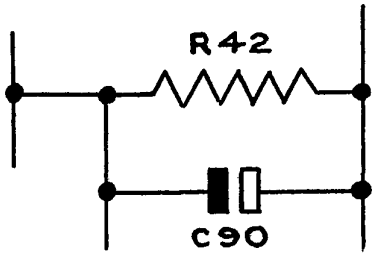
Circuit reference	Circuit location	Value	Rating	Tolerance	Type
'*C90'	'G5'	'25μF'	'50V'	+100-20%'	'Electrolytic'

3. Page 1004 (free space at bottom of page)

Insert: '*Z/5910-99-012-4902 Capacitor, fixed, elect., A.L., ins., 25μF +100 -20%, 50V d.c. wkg'

4. Page 1006, Fig 1001, location G5

Insert electrolytic capacitor symbol across R42 and designate it as C90 as shown:-



WIRELESS SET BURNDEPT BE 201

TECHNICAL HANDBOOK - TECHNICAL DESCRIPTION

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INTRODUCTION

1. The Wireless set Burndept BE 201 is an amplitude-modulated V.H.F. sender-receiver which replaced the Wireless set CN 348. It is used for ground-to-air R/T communication and the range of operation is in the order of 50 miles with an aircraft flying at 5,000 ft.

2. The set is splash-proof and can be used either as a man-pack station with four men, as an animal-pack station or as a vehicle station. Power is supplied from Power supply unit No. 42, in conjunction with a Battery, secondary portable, 12V.

COMPLETE STATION

3. The complete station includes:-

(i) Sender-receiver, Wireless set Burndept BE 201
(ii) Power supply unit No. 42.
(iii) Aerial dipole No. 24 and Aerial feeder 27 ft., No. 1.
(iv) Antennae rods G and Connectors, coaxial, No. 11.
(v) Microphone and headgear assemblies No. 10.
(vi) Batteries, secondary portable, 12V, 22 and/or 75Ah.
(vii) Charging set, lightweight, 80W, 18V.
(viii) Spare valves (cased).

BRIEF DESCRIPTION

Electrical (see Fig. 1)

4. The wireless set comprises two independent circuits for sender and receiver. Each circuit is separately crystal controlled and netting is not required. A choice of four channels is provided in the 100-150Mc/s band for send-receive operation, these being pre-determined by eight plug-in crystals. Each circuit must be tuned to the selected crystal channel. The aerial is centre-fed $\frac{1}{2}$ wave vertical dipole and is switched to either circuit by means of a relay, controlled by a microphone pressel switch.

5. The receiver sensitivity is of the order of 1mW output into 150Ω for 5μV signal input. Headphone output only, is available and two snatch sockets permit two microphone and headgear assemblies to be used at the same time. The power output of the sender is 4W into 80Ω.

6. The sender and receiver have separate H.T. power supplies, which are generated by two rotary transformers in the power supply unit. These are energized for send or receive operation respectively by a second relay. A meter on the front panel of the power supply unit monitors the battery voltage. A switch is provided which allows the set to be operated whilst the battery is being charged.

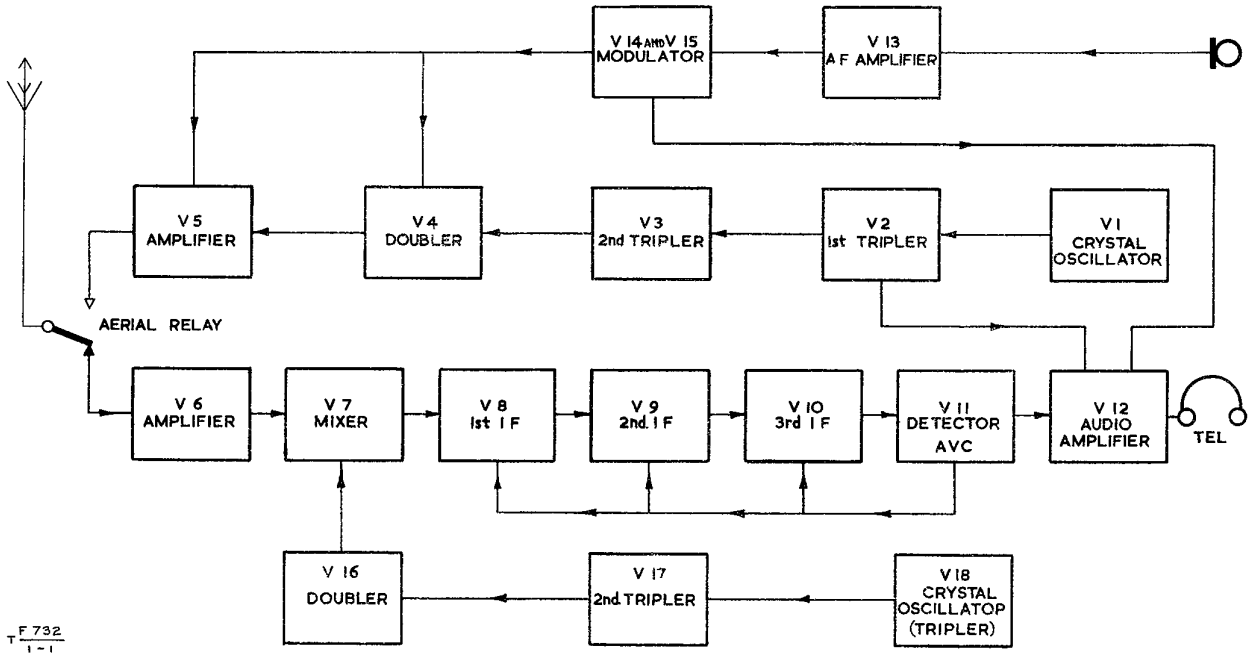

Fig. 1 - Sender-receiver - block diagram

Mechanical

7. The sender-receiver chassis and front panel are of aluminium alloy and the housing is a steel case. A rubber gasket forms a splash-proof seal between the case and the panel, which is secured by ten captive screws. A steel cover is provided to protect the controls on the front panel during transit. This cover is attached by six captive screws to threaded pillars mounted round the edges of the front panel.

8. The dimensions of the sender-receiver are $7\frac{1}{2}$ in. x $13\frac{1}{2}$ in. x 17 in. and the weight is 30 lb. Separate man-pack carriers are provided for the sender-receiver, the power unit, the charging set and the battery.

9. The power unit chassis and front panel are of steel and are housed in a steel case. A steel cover is provided and the method of fixing both front panel and cover is the same as with the sender-receiver. The dimensions of the power unit are $7\frac{1}{2}$ in. 13 in. x 9 in. and the weight is 24 lb.

10. The aerial assembly, see Fig. 2, is collapsible and consists of a hinged wooden arm carrying a dipole support block at one end and a steel mounting plate at the other. This allows the assembly to be attached to any convenient vertical pole or tree. The aerial elements are two pairs of $\frac{1}{4}$ wave rods. The longer pair are colour coded green and are used in the 100-128Mc/s band, whilst the shorter pair are coloured red and are used in the 128-156Mc/s band. The appropriate pair of rods screw into the dipole support block, which contains the feeder connections, and thus form a vertical $\frac{1}{2}$ wave dipole. A 27 ft. length of 80Ω coaxial feeder fitted with Sockets, single, No. 11B is used to connect the dipole to the sender-receiver.

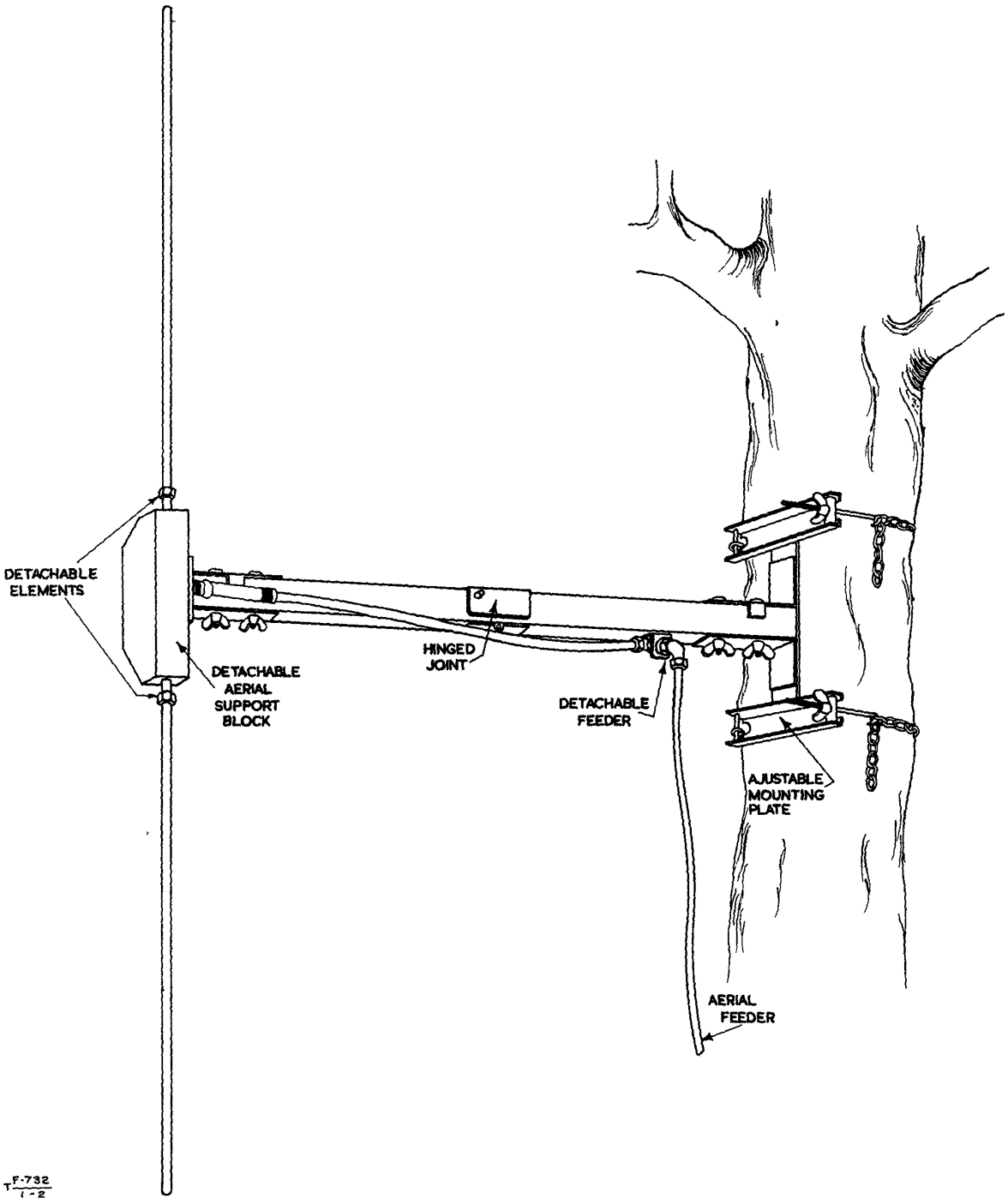

Fig. 2 - Aerial, dipole, No. 24 - general view

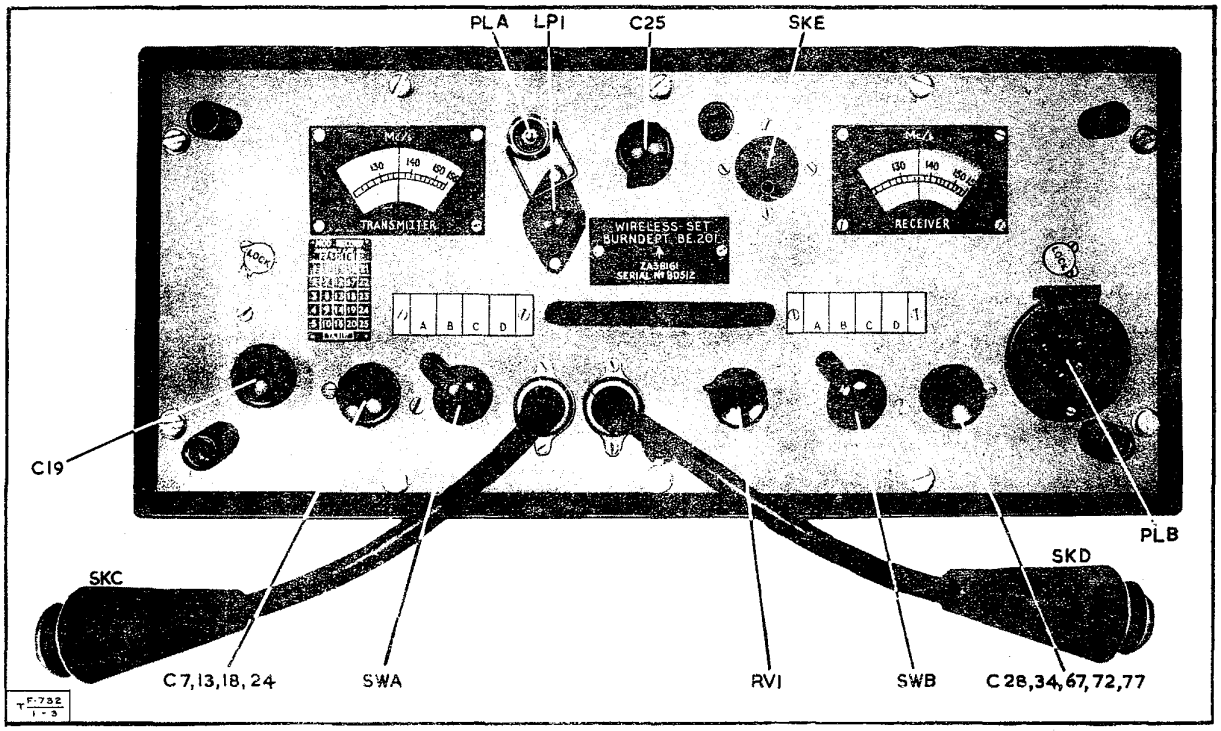

Fig. 3 - Wireless set Burndept BE 201 - front panel layout

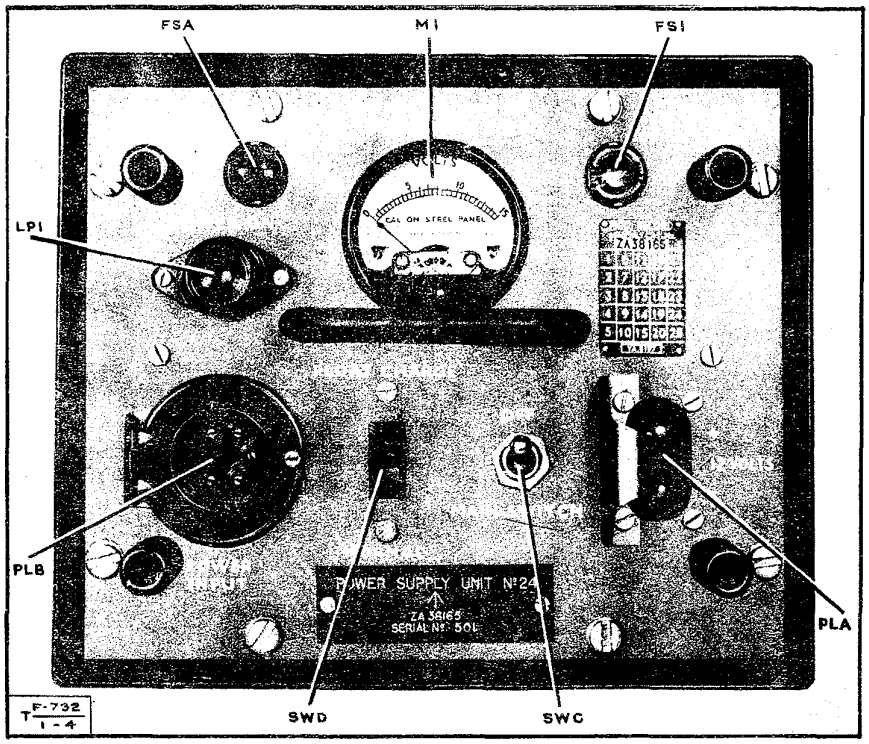

Fig. 4 - Power supply unit No. 42 - front panel layout

Controls

11. The designation, location, circuit reference and function of the front panel controls on both sender-receiver and power supply unit are shown in Table 1 (see Figs. 3 and 4)

Designation	Location	Circuit reference	Fig. No.	Function
MAIN SWITCH	Power supply unit	SWC	4	On-Off switch
FLOAT CHARGE	Power supply unit	SWD	4	Switches in voltage limiting resistors
CHANNEL SELECTION (receiver)	Sender-receiver	SWB	3	Receiver and sender frequency change switches
CHANNEL SELECTION (sender)	Sender-receiver	SWA		
RECEIVER TUNE	Sender-receiver	C28, 34, 67, 72, 77	3	Receiver main tuning control
SENDER TUNE	Sender-receiver	C7, 13, 18, 24	3	Sender main tuning control
RECEIVER GAIN	Sender-receiver	RV1	3	A.F. volume control
DRIVE ADJUST	Sender-receiver	C19	3	Sender drive trimmer
AERIAL TRIM	Sender-receiver	C25	3	Sender aerial trimmer
Pressel switch	Microphone	SWE		Send-receive switch

Table 1 - Front panel controls

TECHNICAL DESCRIPTION

SENDER (see Fig. 1001)

General

12. The sender circuit consists of a crystal controlled Pierce oscillator followed by two tripler stages, a doubler stage and a final power amplifier stage. The crystal frequency is thus multiplied eighteen times. The multiplier stages comprise three beam tetrode harmonic amplifiers, V2 - V4 each with an R.F. choke anode load and a tuned grid circuit. The grid circuits, together with the grid circuit of V5 are tuned by a four-section ganged capacitor, C7, C13, C18 and C24, controlled by

SENDER TUNE on the front panel. An approximate indication of sender R.F. output is given by a Bulb 6V, type J (SENDER TUNE lamp).

Oscillator

13. V1 is a Pierce oscillator and provides the fundamental frequency. Oscillation is maintained by feedback from the anode to the control-grid via the crystal, which is selected by switch SWA (CHANNEL SELECTION).

Multiplier stages

14. The output of V1 is fed to the grid of V2 whose anode load is L2. L2 is capacity coupled to the tuned grid circuit of V3. L3 and C7 tune to the third harmonic of the crystal frequency. The anode load of V3 is L4 and this is coupled to the tuned grid circuit of V4. L5 and C13 tune to the ninth harmonic of the fundamental.

15. V4, in association with the grid circuit of V5 acts as a doubler and as a driver stage for V5. L7 and C18 tune to the eighteenth harmonic of the crystal frequency. The trimming capacitor C19 across C18 is controlled from the front panel by DRIVE ADJUST.

Output stage

16. V5 is the power output stage and is choke capacity coupled to the aerial circuit L9 and C24. The trimming capacitor, C25, for this circuit is controlled from the front panel by AERIAL TRIM. The output circuit is matched to the 80 Ω coaxial feeder by the one turn coil coupled to the earthy end of L9.

17. The R.F. output is monitored by a Bulb 6V, type J loosely coupled to the aerial plug by C27. It serves as a sender tuning indicator and as a modulation indicator.

Modulation

18. When the microphone pressel switch contact SWE2 is operated, the microphone output is fed via TR2 to the grids of the push-pull stage V13. V13 is R.C. coupled to the push-pull modulator stage V14 and V15. Modulation is accomplished at the anode and screen of the output stage V5 and at the screen of the driver stage V4 by TR3.

Sidetone

19. Sidetone is obtained by feeding part of the modulator output from the anode of V14 via C85 to the primary of the receiver output transformer TR1 (see Fig. 1002).

Muting bias

20. On switching from receive to send the receiver rotary transformer does not immediately stop running, hence the receiver will operate for a short time while the sender is on. To mute the howl that would thus be caused, the grid circuit of V12 is taken to earth via R4 in the grid circuit of V2. On SEND a potential of approximately 80V is developed across R4 and R44 by grid current, and this is sufficient to drive V12 well beyond cut off.

Send-receive switching

21. Operation of the microphone pressel switch SWE closes two contacts. Contact SWE1 energizes two relays. The first, RLA1 in the sender-receiver, changes the aerial connection from the receiver input to the sender output. The second relay RLB1 is in the power unit and changes the L.T. supply from the receiver rotary transformer X2 to the sender rotary transformer X1. Contact SWE2 complete the microphone circuit to TR2. The time taken to change from receive to send conditions is approximately one second.

RECEIVER (see Fig. 1002)

General

22. The receiver is a superheterodyne using a crystal local oscillator. A single R.F. stage is followed by a triode mixer. The crystal frequency is multiplied by two trebler stages and a doubler before being fed to the mixer. The aerial circuit together with the mixer and local oscillator multiplier circuits are tuned by a five-section ganged capacitor, C28, C34, C67, C72 and C77, controlled by RECEIVER TUNE on the front panel. There are three I.F. amplifiers followed by detector and A.G.C. diodes and an A.F. output amplifier.

Local oscillator and multiplier stages

23. The local oscillator is a pentode V18. Four crystals are provided and can be selected by CHANNEL SELECTION switch SWB on the front panel. Oscillation is maintained by feedback from the screen-grid to the control-grid of the valve through the crystal. Screen-grid, control-grid and cathode act together as a triode oscillator. The anode circuit of V18 is tuned to the third harmonic of the fundamental crystal frequency, the suppressor grid of the valve acting as a screen between the oscillatory section of the valve and the anode circuit.

24. The third harmonic of V18 is fed to a second trebler stage V17, and then to a doubler stage V16. The final output is therefore eighteen times the frequency of the crystal. For a given channel frequency (say 100Mc/s) the transmitter crystal frequency is $f_t/18 = 100/18 = 5.555$Mc/s, whereas the receiver crystal for the same channel has a frequency of $f_r - f_{if}/18$Mc/s. Since the I.F. is 9.72Mc/s the receiver crystal frequency is 100-9.72/18 = 5.016Mc/s.

R.F. and mixer stages

25. The aerial is coupled to the R.F. stage V6, by a tapping on L10. The output of V6 is taken to the control-grid of the triode mixer V7. The local oscillator output from V16 is also fed to this point.

I.F. stages

26. The 9.72Mc/s I.F. output from V7 is amplified in three I.F. stages V8, V9 and V10. Inter-stage coupling is by conventional I.F. transformers, the inductors L12-L13, L14-L15, L16-L17 and L18-L19 having individually adjustable iron-dust cores.

Detector and A.G.C. stage

27. Transformer TR7 feeds the amplified I.F. signal to both diodes in V11. The detector circuit is conventional and the audio output appears across RV1. A.G.C. voltage is developed across R31 and applied to the grids of the three I.F. amplifiers.

A bias from the junction of R29 and R57 across the L.T. supply is fed to the cathode of the A.G.C. diode and provides a delay of 3V.

Output stage

28. The audio signal is fed to the grid of V12 from RV1, RECEIVER GAIN. Muting bias is fed to the low potential end of RV1 (see para. 20). TR1 in the anode circuit of the output valve feeds the headphones.

POWER SUPPLY UNIT NO. 42 (see Fig. 1003)

29. This unit consists of; two rotary transformers X1 and X2, supplying H.T. to sender and receiver respectively; a send-receive relay RLB1; and indicator lamp; main and float charge switches. Two fuses, FS1 and FS2 for the two H.T. supplies are accessible on the front panel. Smoothing and decoupling is provided by capacitors and chokes.

30. A 12V D.C. supply for the power supply unit is provided by a battery, secondary, portable. The negative side of all supplies is earthed and the MAIN SWITCH breaks the positive line from the battery. The contact of relay RLB1 is normally in the receive position and is then connected to the input of the receiver rotary transformer X2. X2 is therefore energized from the 12V supply as soon as the MAIN SWITCH is on. When the microphone pressel switch is operated the relay is energized, switching off the receiver transformer and switching on the sender transformer.

31. A 12V bulb (LP1) across the L.T. supply line indicated when the MAIN SWITCH SWC is on. The FLOAT CHARGE switch SWD allows the set to be operated whilst the battery is being charged by the charging set. Its action is to counteract the resulting high supply voltage by switching in series resistors in the heater and rotary transformers supply lines. The current consumption from the battery is 6A on receive and 12.5A on send.

The next page is Page 1001

Table 1001 - Sender-receiver - components

Circuit reference	Circuit location	Value	Rating	Tolerance	Type
		RESISTORS			
R1	A3	47kΩ	½W	±10%	Insulated carbon
R2	A2	47Ω	½W	±10%	Insulated carbon
R3	B1	3,300Ω	¾W	±10%	Insulated carbon
R4	C2	100kΩ	½W	±10%	Insulated carbon
R5	C1	100kΩ	½W	±10%	Insulated carbon
R6	D2	100kΩ	¾W	±10%	Insulated carbon
R7	E1	100kΩ	¾W	±10%	Insulated carbon
R8	F2	100kΩ	¾W	±10%	Insulated carbon
R9	G1	47kΩ	¾W	±10%	Insulated carbon
R10	G2	100kΩ	¾W	±10%	Insulated carbon
R11	G1	15kΩ	¾W	±10%	Insulated carbon
R12	M2	22Ω	½W	±10%	Insulated carbon
R13	L1	47kΩ	½W	±10%	Insulated carbon
R14	L1	6,800Ω	¾W	±10%	Insulated carbon
R15	N3	10kΩ	½W	±10%	Insulated carbon
R16	N1	1kΩ	½W	±10%	Insulated carbon
R17	N3	470kΩ	½W	±20%	Insulated carbon
R18	O3	220Ω	½W	±10%	Insulated carbon
R19	N1	22kΩ	½W	±20%	Insulated carbon
R20	O1	1kΩ	½W	±10%	Insulated carbon
R21	O3	470kΩ	½W	±20%	Insulated carbon
R22	P3	220Ω	½W	±10%	Insulated carbon
R23	P1	22kΩ	½W	±20%	Insulated carbon
R24	P1	1kΩ	½W	±20%	Insulated carbon
R25	P3	470kΩ	½W	±20%	Insulated carbon
R26	Q3	220Ω	½W	±10%	Insulated carbon
R27	Q1	22kΩ	½W	±10%	Insulated carbon
R28	Q1	1kΩ	½W	±10%	Insulated carbon
R29	R5	470Ω	½W	±10%	Insulated carbon
R30	S3	470kΩ	¼W	±20%	Insulated carbon
R31	S3	1MΩ	¼W	±10%	Insulated carbon
R32	S2	47kΩ	½W	±10%	Insulated carbon
R33	R3	100kΩ	½W	±10%	Insulated carbon
R34	T2	100kΩ	½W	±10%	Insulated carbon
R35	T3	150Ω	½W	±10%	Insulated carbon
R36	F5	1,500Ω	½W	±10%	Insulated carbon
R37	F1	39kΩ	½W	±10%	Insulated carbon
R38	G5	270kΩ	½W	±10%	Insulated carbon
R39	G5	270kΩ	½W	±10%	Insulated carbon
R40	G5	470kΩ	½W	±10%	Insulated carbon
R41	G5	470kΩ	½W	±10%	Insulated carbon
R42	G5	330Ω	1¼W	±5%	Wire-wound
R43	S1	270kΩ	½W	±10%	Insulated carbon
R44	C3	1kΩ	½W	±10%	Insulated carbon
R45	D3	1kΩ	½W	±10%	Insulated carbon
R46	F3	1kΩ	½W	±10%	Insulated carbon
R47	G1	1kΩ	½W	±10%	Insulated carbon
R48	N4	100kΩ	½W	±10%	Insulated carbon
R49	N5	100kΩ	½W	±10%	Insulated carbon

Table 1001 - (contd.)

Circuit reference	Circuit location	Value	Rating	Tolerance	Type
		RESISTORS - (contd.)			
R50	N5	1kΩ	½W	±10%	Insulated carbon
R51	O4	100kΩ	½W	±10%	Insulated carbon
R52	P5	100kΩ	½W	±10%	Insulated carbon
R53	P5	1kΩ	½W	±10%	Insulated carbon
R54	Q4	22kΩ	½W	±10%	Insulated carbon
R55	Q5	100kΩ	½W	±10%	Insulated carbon
R56	Q5	1kΩ	½W	±10%	Insulated carbon
R57	R6	150Ω	½W	±10%	Insulated carbon
R58	U5	18Ω	3W	±5%	Wire-wound
R59	T5	68Ω	3W	±5%	Wire-wound
R61	B2	100kΩ	½W	±10%	Insulated carbon
		POTENTIOMETER			
RV1	T3	1MΩ	2W	-	Log law
		CAPACITORS			
C1	A3	47pF	350V	±10%	Silver mica
C2	B2	100pF	500V	±5%	Silver mica
C3	B2	300pF	500V	±10%	Silver mica
C4	B1	0.002μF	350V	±25%	Tubular paper
C5	C3	330pF	500V	-	Silver ceramic
C6	C2	100pF	500V	±5%	Silver mica
C7	D3	6-50pF	-	-	Variable
C8	D3	3-30pF	-	-	Concentric trimmer
C9	D2	100pF	500V	±5%	Silver mica
C10	D1	0.002μF	350V	±25%	Tubular paper
C11	E1	330pF	500V		Silver ceramic
C12	E2	100pF	500V	±5%	Silver mica
C13	E1	6-50pF			Variable
C14	E1	2-8pF			Concentric trimmer
C15	F1	0.001μF	350V	±25%	Tubular paper
C16	F3	330pF	500V		Silver ceramic
C17	F2	100pF	500V	±5%	Silver mica
C18	G3	6-50μF			Variable
C19	G3	2-6pF			Variable trimmer
C20	F2	100pF	500V	±5%	Silver mica
C21	G1	100pF	500V	±5%	Silver mica
C22	G2	15pF	500V	±5%	Silver mica
C23	G2	330pF	500V		Silver ceramic
C24	H3	6-38pF			Variable
C25	H3	2.3-5pF			Variable trimmer
C26	H2	100pF	500V	±5%	Silver mica
C27	J1	4pF	500V	±20%	Silver ceramic
C28	L2	6-50pF			Variable
C29	L2	3-30pF			Concentric trimmer
C30	L3	330pF	500V		Silver ceramic
C31	L2	330pF	500V		Silver ceramic

Table 1001 - (contd.)

Circuit reference	Circuit location	Value	Rating	Tolerance	Type
CAPACITORS - (contd.)					
C32	M1	330pF	500V		Silver ceramic
C33	M2	100pF	500V		Variable
C34	M2	6-50pF			Concentric trimmer
C35	M2	3-30pF			Silver ceramic
C36	N3	330pF	500V		Silver mica
C37	N2	55pF	350V	±2%	Tubular paper
C38	N1	0.01μF	350V	±25%	Silver mica
C39	N1	65pF	350V	±2%	Tubular paper
C40	O3	0.01μF	350V	±25%	Tubular paper
C41	N3	0.01μF	350V	±25%	Tubular paper
C42	N2	0.01μF	350V	±25%	Silver mica
C43	O1	65pF	350V	±2%	Tubular paper
C44	O1	0.01μF	350V	±25%	Silver mica
C45	O1	65pF	350V	±2%	Tubular paper
C46	O3	0.01μF	350V	±25%	Tubular paper
C47	P3	0.01μF	350V	±25%	Tubular paper
C48	P2	0.01μF	350V	±25%	Silver mica
C49	P1	65pF	350V	±2%	Tubular paper
C50	P1	0.01μF	350V	±25%	Tubular paper
C51	Q3	0.01μF	350V	±25%	Silver mica
C52	P1	65pF	350V	±2%	Tubular paper
C53	Q3	0.01μF	350V	±25%	Tubular paper
C54	Q2	0.01μF	350V	±25%	Silver mica
C55	Q1	65pF	350V	±2%	Tubular paper
C56	Q1	0.01μF	350V	±25%	Silver mica
C57	S3	65pF	350V	±2%	Tubular paper
C58	S3	0.01μF	350V	±25%	Silver ceramic
C59	S2	330pF	500V		Silver ceramic
C60	R1	330pF	500V		Silver ceramic
C61	S2	330pF	500V		Tubular paper
C62	R3	0.01μF	350V	±25%	Tubular paper
C63	T2	0.01μF	350V	±25%	Tubular paper
C64	T1	0.001μF	500V	±25%	Electrolytic
C65	T3	25μF	12V		Silver ceramic
C66	M4	2pF	500V	±½pF	Variable
C67	M5	6-38pF			Concentric trimmer
C68	M5	2-8pF			Silver ceramic
C69	M4	330pF	500V		Silver ceramic
C70	N5	330pF	500V		Silver mica
C71	N5	100pF	350V	±10%	Variable
C72	N5	6-50pF			Concentric trimmer
C73	O5	2-8pF			Silver ceramic
C74	O4	330pF	500V		Silver ceramic
C75	O5	330pF	500V		Silver mica
C76	P5	100pF	350V	±10%	Variable
C77	P5	6-50pF			Concentric trimmer
C78	P5	2-8pF			Silver ceramic
C79	P4	330pF	500V		

Table 1001 - (contd.)

Circuit reference	Circuit location	Value	Rating	Tolerance	Type
CAPACITORS - (contd.)					
C80	Q5	100pF	350V	±10%	Silver mica
C81	Q6	15pF	350V	±5%	Silver mica
C82	F3	4μF	350V		Electrolytic
C83	G4	0.01μF	350V	±25%	Tubular paper
C84	G5	0.01μF	350V	±25%	Tubular paper
C85	H6	0.01μF	1,000V	±25%	Tubular paper
C86	S6	330pF	500V		Silver ceramic
C87	C2	0.01μF	350V	±25%	Tubular paper
C88	O2	1pF	500V	±½pF	Silver ceramic
C89	P2	1pF	500V	±½pF	Silver ceramic
C91	M1	330pF	500V		Silver ceramic
C92	S6	330pF	500V		Silver ceramic
C93	S6	330pF	500V		Silver ceramic
C94	T6	330pF	500V		Silver ceramic
C95	U6	330pF	500V		Silver ceramic
C96	U6	330pF	500V		Silver ceramic
C97	P4	0.01μF	350V	± 25%	Tubular paper

Circuit reference	Circuit location	Value or function
INDUCTORS		
L1	B2	R.F. choke
L2	C1	R.F. choke
L3	D2	1st tripler coil
L4	E1	R.F. choke
L5	E2	2nd tripler coil
L6	F1	R.F. choke
L7	G2	Doubler coil
L8	H1	R.F. choke
L9	J2	Sender aerial coil
L10	L2	Receiver aerial coil
L11	M2	Receiver H.F. coil
L12	N1	3.287μH)
L13	N1	3.287μH) Enclosed in TR4
L14	O1	3.287μH)
L15	O1	3.287μH) Enclosed in TR5
L16	P1	3.287μH)
L17	P1	3.287μH) Enclosed in TR6
L18	Q1	3.287μH)
L19	R1	3.287μH) Enclosed in TR7
L20	M5	3rd multiplier coil
L21	N4	R.F. choke
L22	N5	2nd multiplier coil
L23	O4	R.F. choke
L24	P5	Crystal oscillator multiplier coil
L25	P4	R.F. choke

Table 1001 - (contd.)

Circuit reference	Circuit location	Value or function
		TRANSFORMERS
TR1	T1	Output transformer
TR2	E5	Microphone input transformer
TR3	H5	Modulation transformer
TR4	N1	1st I.F. transformer
TR5	O1	2nd I.F. transformer
TR6	P1	3rd I.F. transformer
TR7	Q1	4th I.F. transformer
		SWITCHES
SWA	B2	Rotary, 1-pole 4-way
SWB	Q5	Rotary, 1-pole 4-way
SWE1	V3	Microphone pressel switch
SWE2	E5	
		RELAY
RLA1	W4	12V, single pole, change over (R.F. contacts)
		LAMP
LP1	J1	Bulb 6V, type J
		VALVES
V1	B2	CV 133 (6C4)
V2	C2	CV 309 (QV04-7)
V3	E2	CV 309 (QV04-7)
V4	F2	CV 309 (QV04-7)
V5	H2	CV 309 (QV04-7)
V6	L2	CV 138 (8D3)
V7	N2	CV 133 (6C4)
V8	O2	CV 131 (9D6)
V9	P2	CV 131 (9D6)
V10	Q2	CV 131 (9D6)
V11	R2	CV 140 (6AL5)
V12	T2	CV 138 (8D3)
V13	F5	CV 492 (12AX7)
V14	H5	CV 511 (6V6 GT)
V15	H4	CV 511 (6V6 GT)
V16	N5	CV 138 (8D3)
V17	O5	CV 138 (8D3)
V18	P5	CV 138 (8D3)

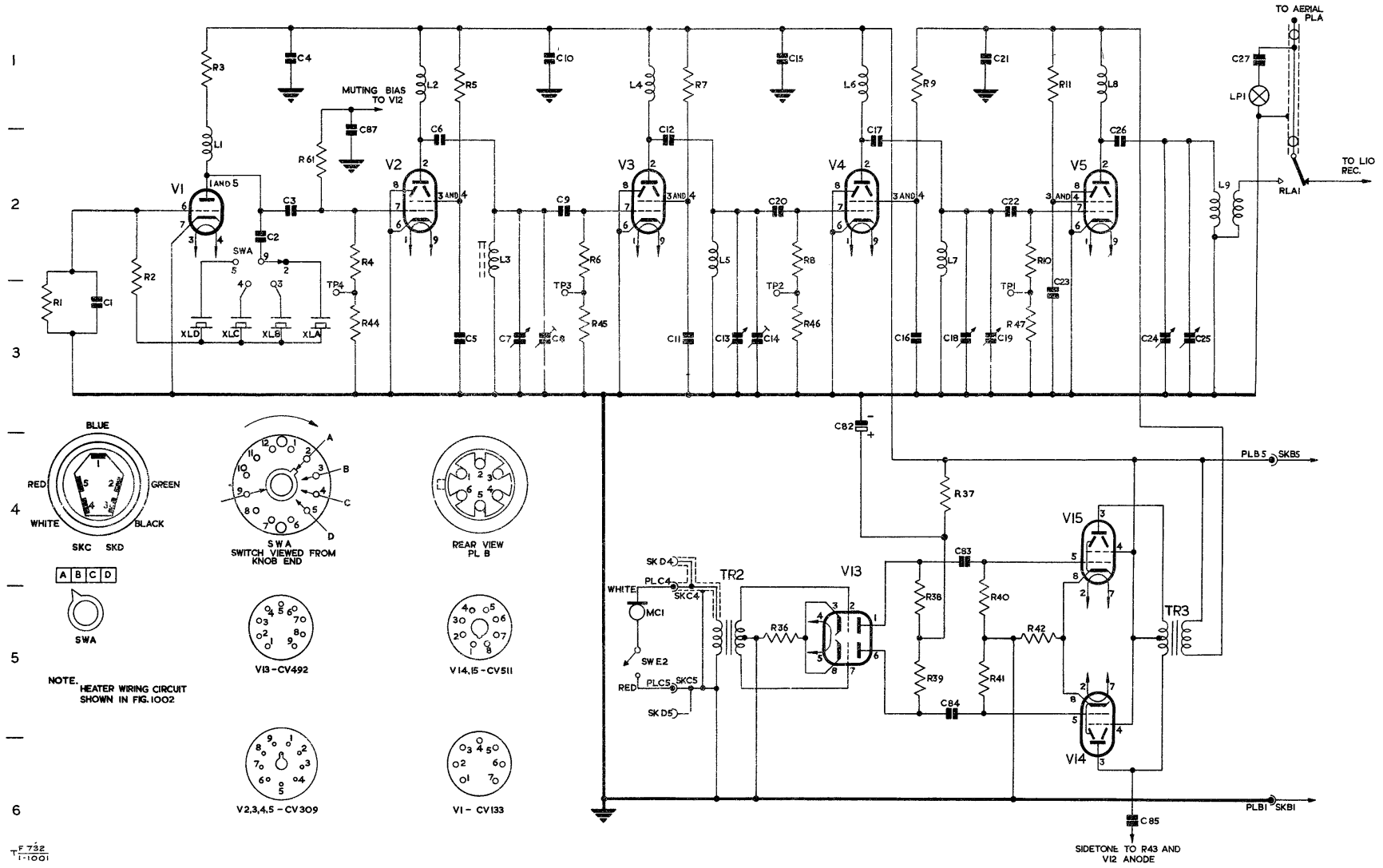

Fig. 1001 - Sender - circuit diagram

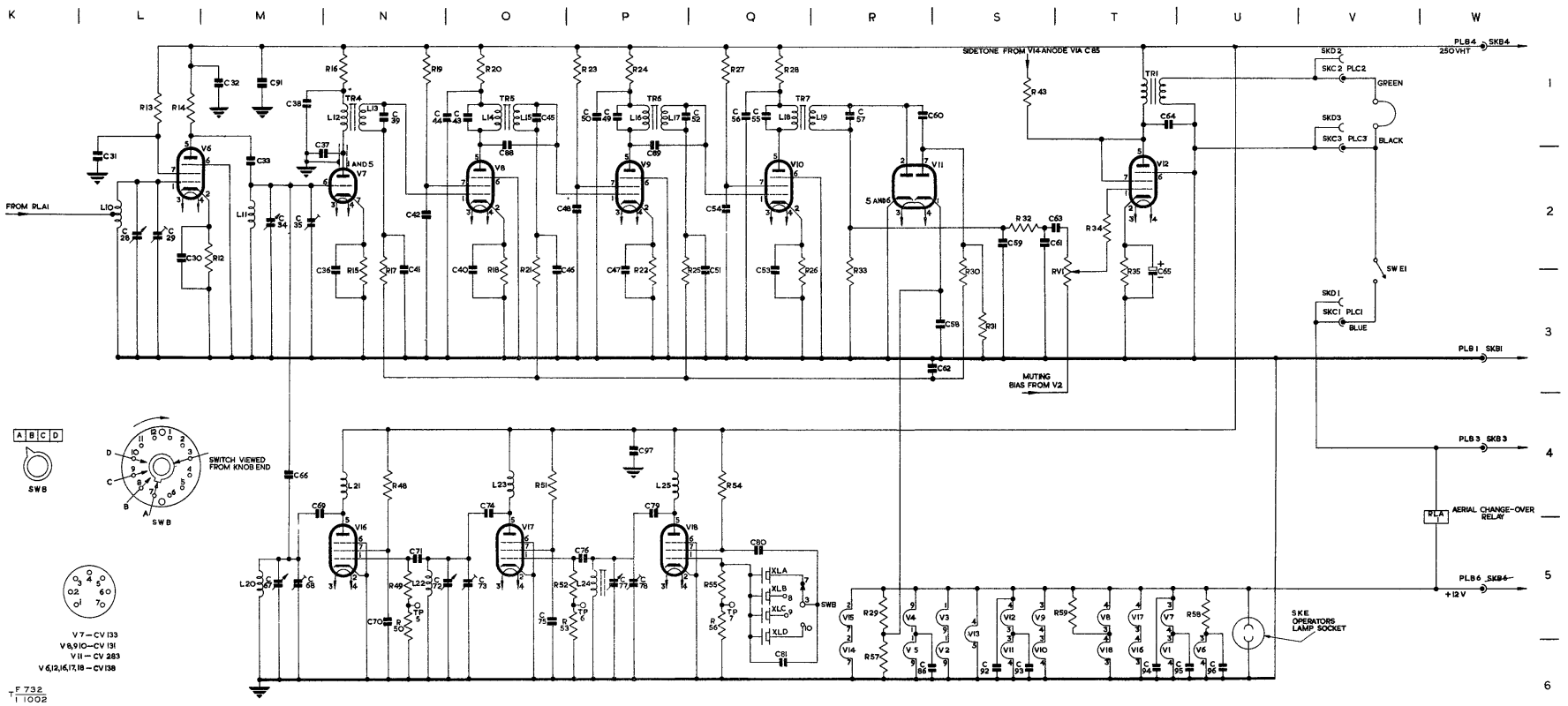

Fig. 1002 - Receiver - circuit diagram

Table 1002 - Power supply unit - components

Circuit reference	Circuit location	Value	Rating	Tolerance	Type
			RESISTORS		
R1	C2	0.095Ω	18W		Wire-wound
R2	C3	0.86Ω	9W		Wire-wound
R3	B4	0.66Ω	7W		Wire-wound
R4	B3	22Ω	¾W	±20%	Insulated carbon
			CAPACITORS		
C1	D2	0.1μF	350V	±20%	Tubular paper
C2	D4	0.1μF	350V	±20%	Tubular paper
C3	C5	0.1μF	350V	±20%	Tubular paper
C4	F2	0.1μF	500V	±20%	Tubular paper
C5	H2	32μF	500V		Electrolytic
C6	H5	32μF	350V		Electrolytic
C7	G5	0.1μF	350V	±20%	Tubular paper
C8	A4	330pF	350V	±10%	Silver mica

Circuit reference	Circuit location	Type or function
		INDUCTORS
L1	C1	Sender L.T. H.F. choke
L2	D4	L.T. H.F. choke
L4	G5	Receiver H.T. H.F. choke
L5	D5	L.T. H.F. choke
L6	F5	Receiver H.T. V.H.F. choke
L7	D4	L.T. V.H.F. choke
L8	D5	L.T. V.H.F. choke
		TRANSFORMERS
X1	E2	Rotary transformer, 50W Input: 11.5V D.C. Output: 300V.D.C. 200mA
X2	E5	Rotary transformer midget Input: 11.5V D.C. Output: 250V D.C. 40mA
		SWITCHES
SWC	B2	2-pole, On-Off
SWD	C2	3-pole, On-Off
		RELAY
RLB11	B2	Relay 100Ω coil, single-pole change over 25A
		LAMP
LP1	B4	Bulb 12V, type F
		METERS
M1	B3	15V D.C. moving coil
		FUSES
FS1	G1	Cartridge fuse 500mA
FS2	H5	Cartridge fuse 150mA

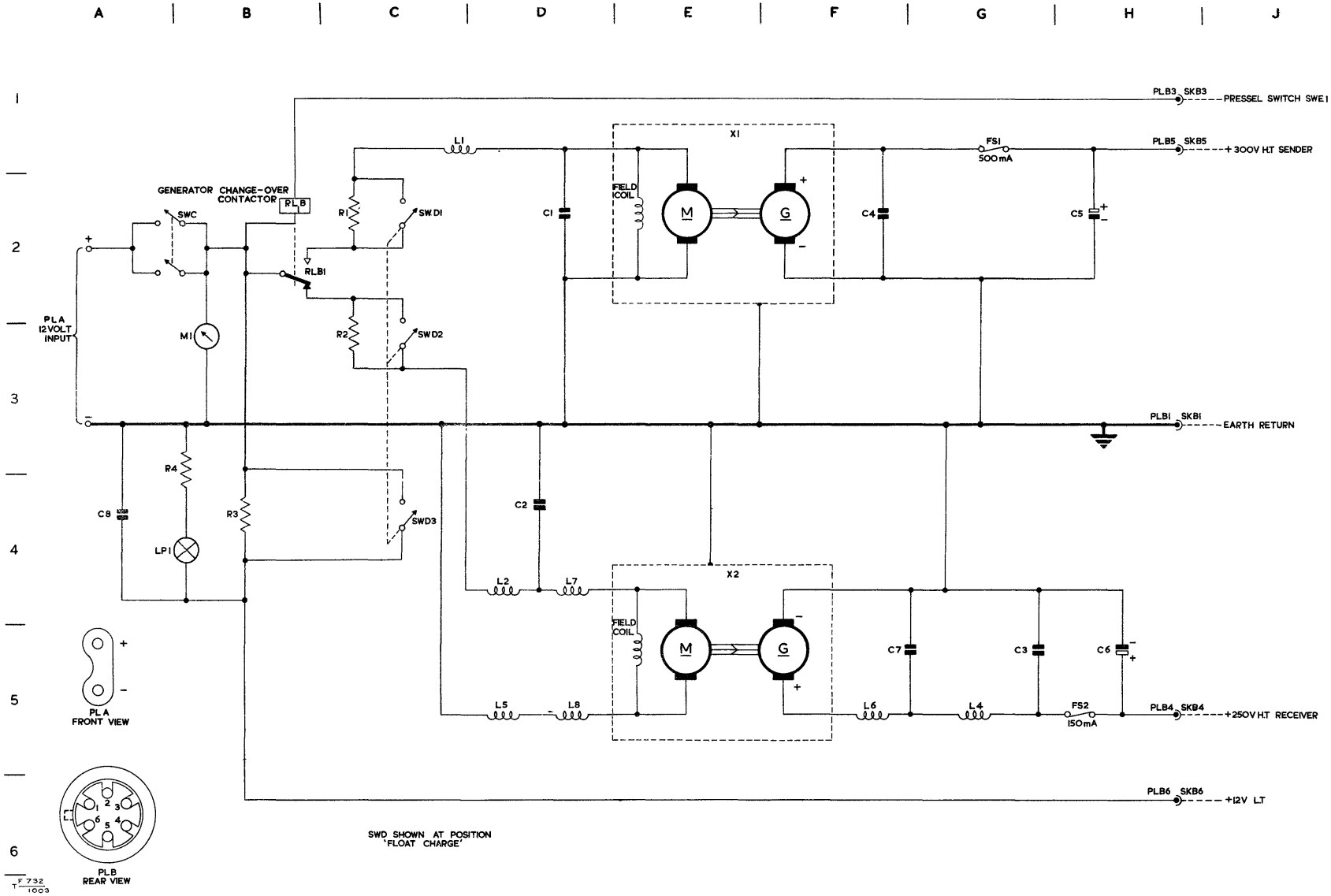

Fig. 1003 - Power supply unit - circuit diagram

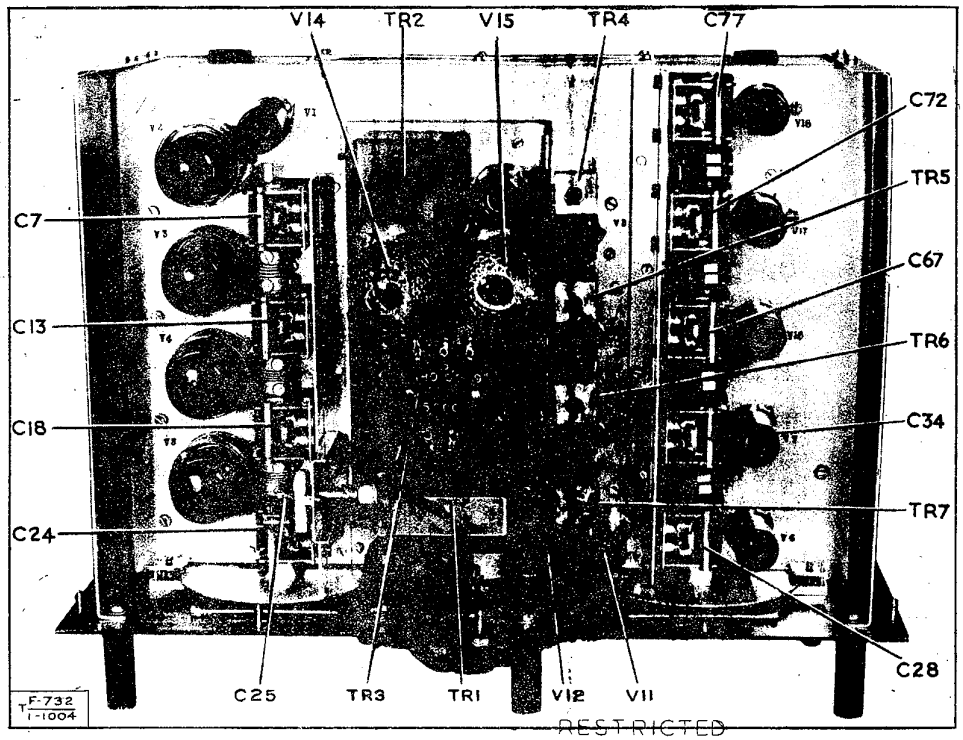

Fig. 1004 - Sender-receiver - top view

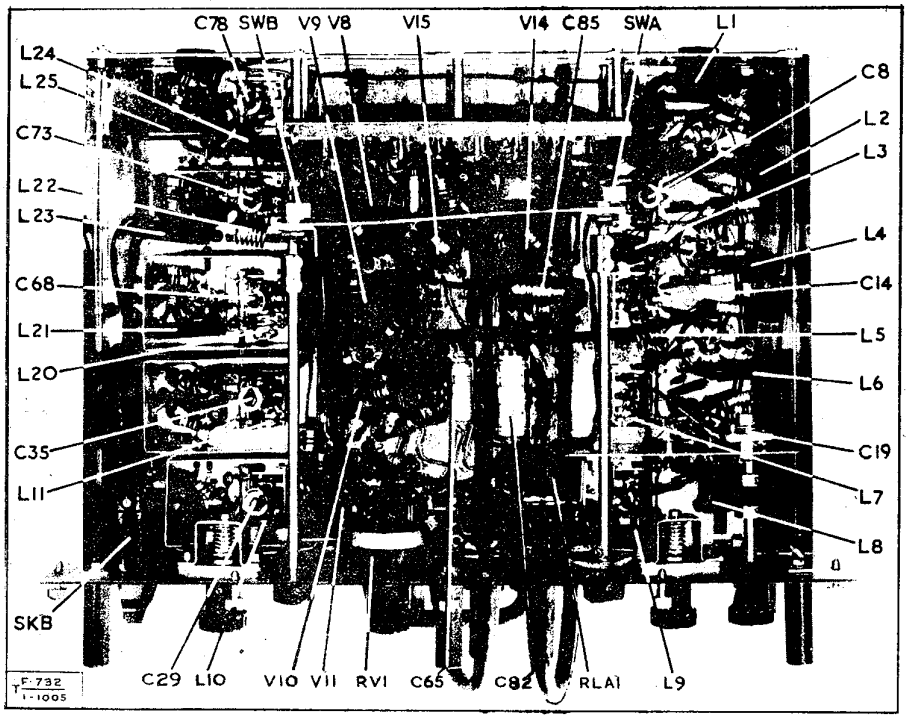

Fig. 1005 - Sender-receiver - bottom view

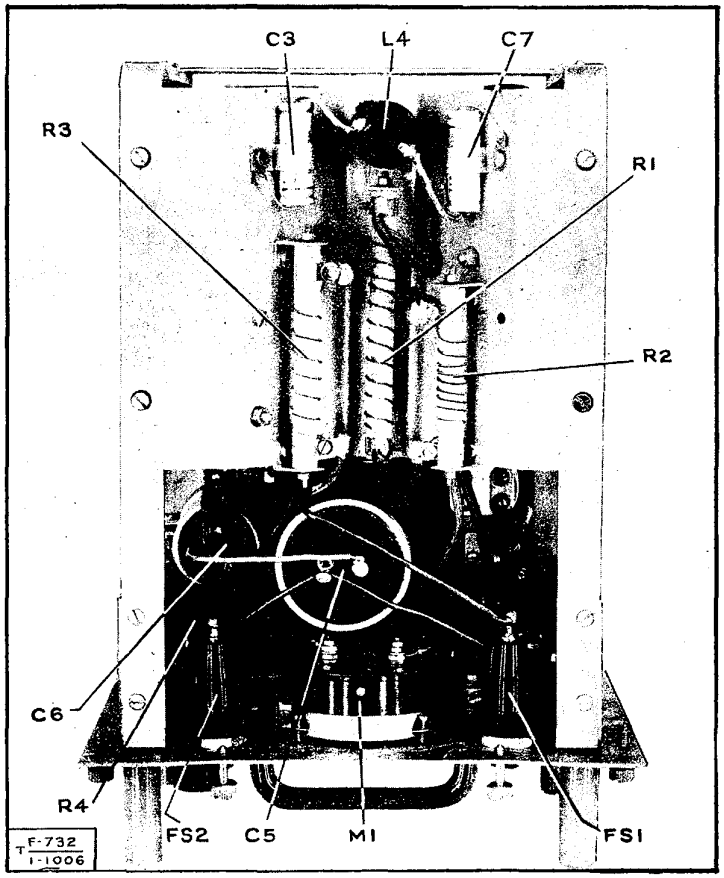

Fig. 1006 - Power supply unit - top view

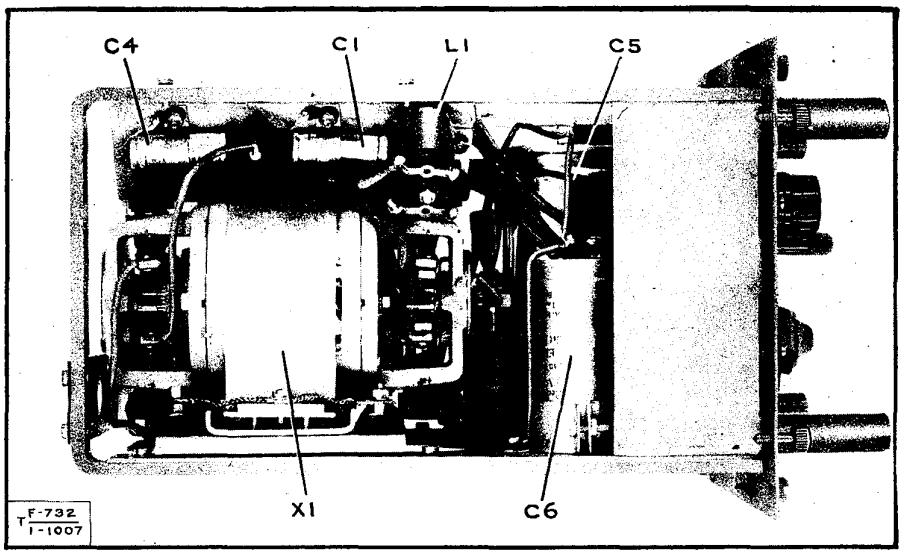

Fig. 1007 - Power supply unit - left-hand view

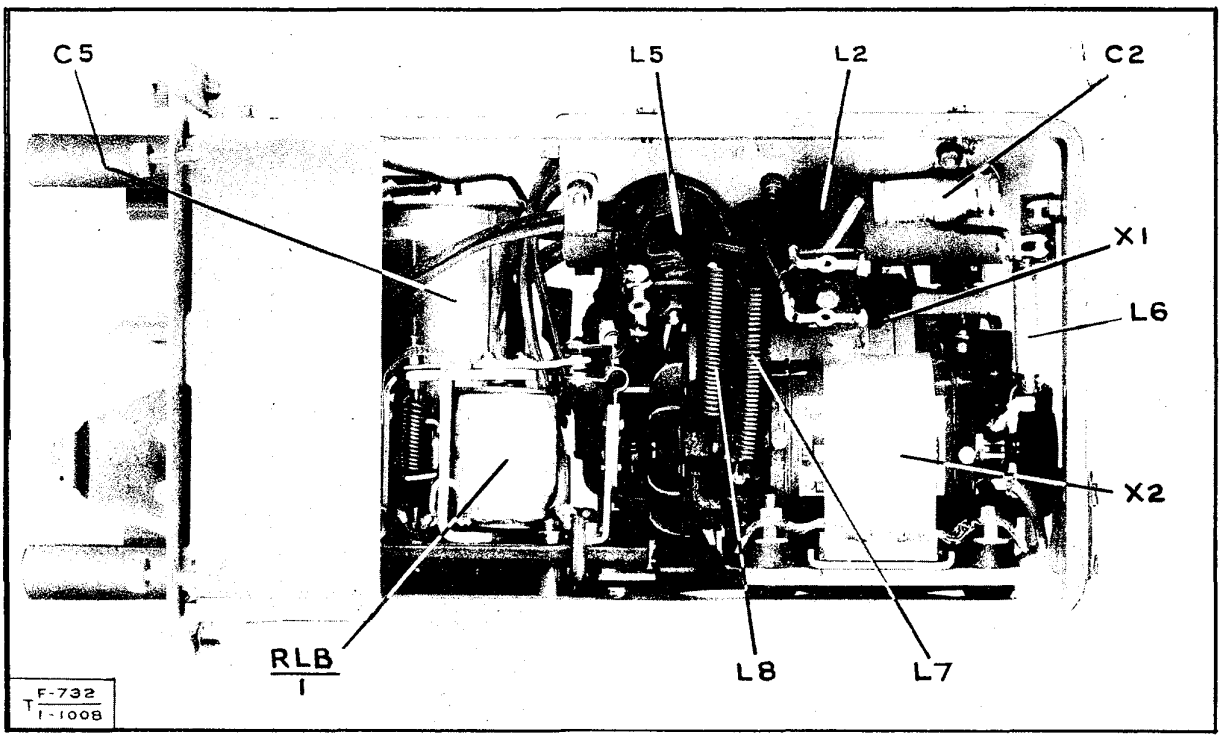

Fig. 1008 - Power supply unit - right-hand view

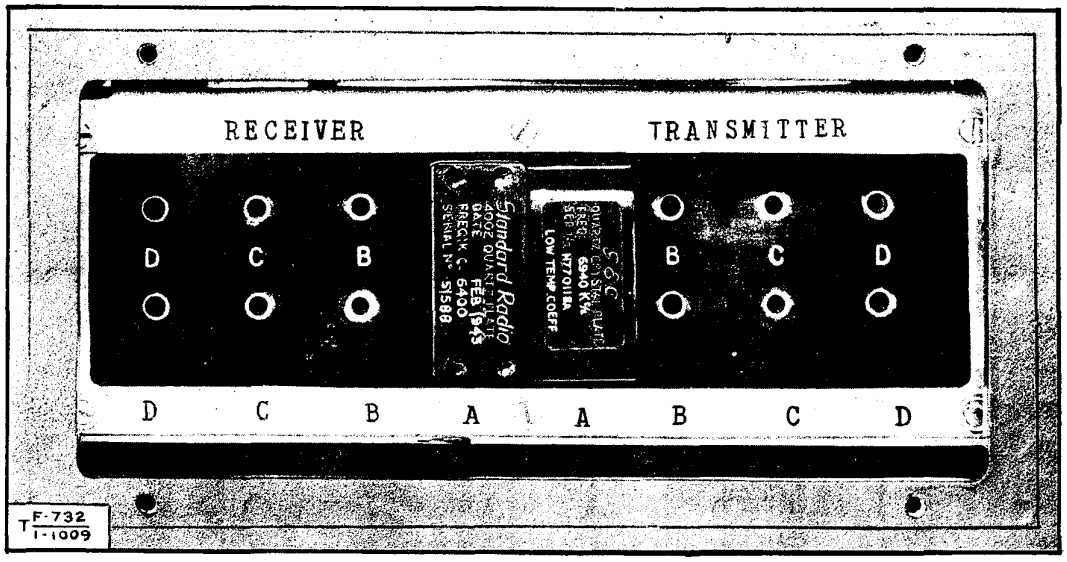

Fig. 1009 - View of crystal compartment

STATION, RADIO, BURNDEPT, BE201

FORWARD CODING

Note: The following list of Assembly Codes must be used in conjunction with EMER Mgmt J 021 Part 4.

Assembly code	Designation
0001	Transmitter-receiver, radio, BE201
0002	Power supply unit, No 42
0003	Microphone and headgear assembly
0004	Antenna and antenna feeders/connectors
0005	Inter unit connecting cables

END