W.O.
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WIRELESS SET No. 88
TYPES A & B

WORKING INSTRUCTIONS

Admiralty Reference :— B.R. 1826. Operators Instruction Book for Type 615.

2959/R (S) 12/63

The War Office,
Whitehall.
***August*, 1948**

SYNOPSIS

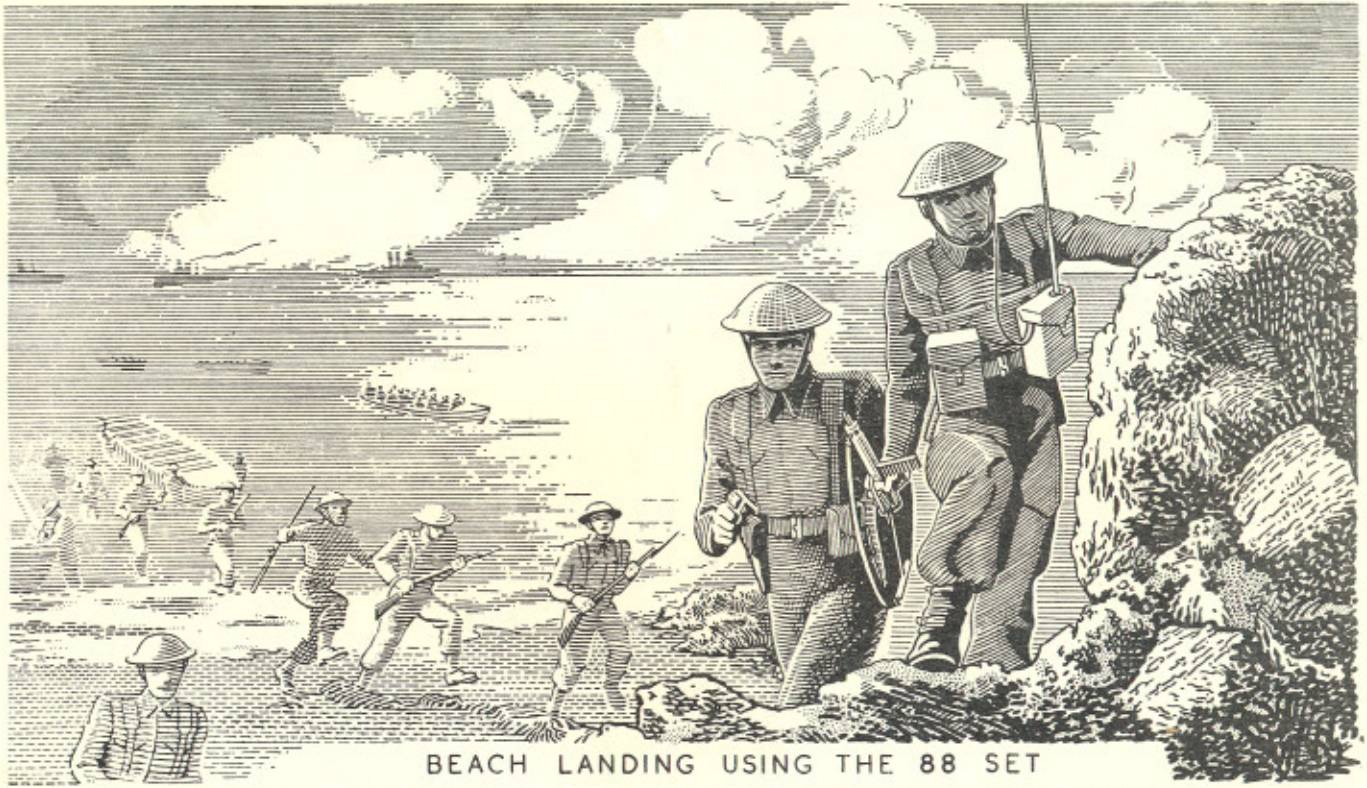
The Wireless Set No. 88 *is a tropicalised V.H.F. RT sender-receiver suitable for infantry use. It is very light, inconspicuous and simple to operate.*

Frequency modulation is employed. The receiver is crystal controlled, while the sender is automatically maintained on frequency by crystal reference, and may be switched to one of four spot frequencies in the frequency range.

Two types of set are to be made—

Type A, frequency range 40–43 *Mc/s, has an olive drab control panel.*

Type B, frequency range 38–40 *Mc/s, has a black control panel.*



BEACH LANDING USING THE 88 SET

Frontispiece.

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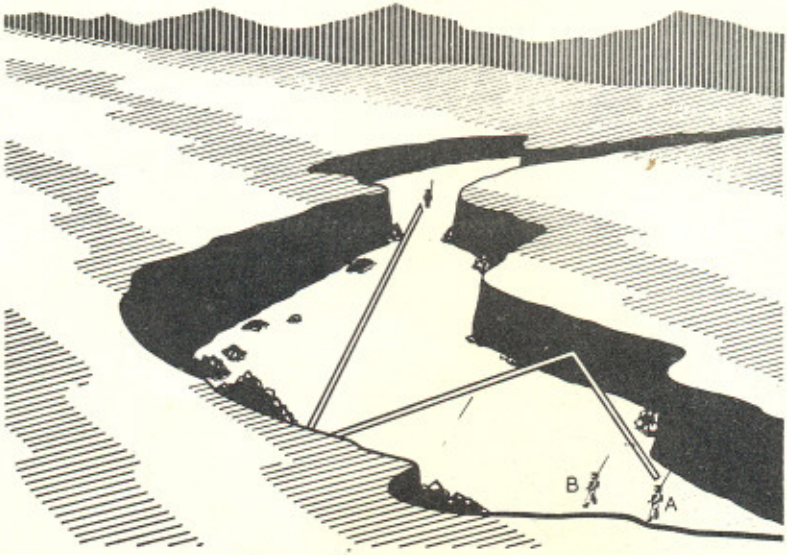
CONTENTS

ILLUSTRATIONS



COMMUNICATION IN A GORGE.

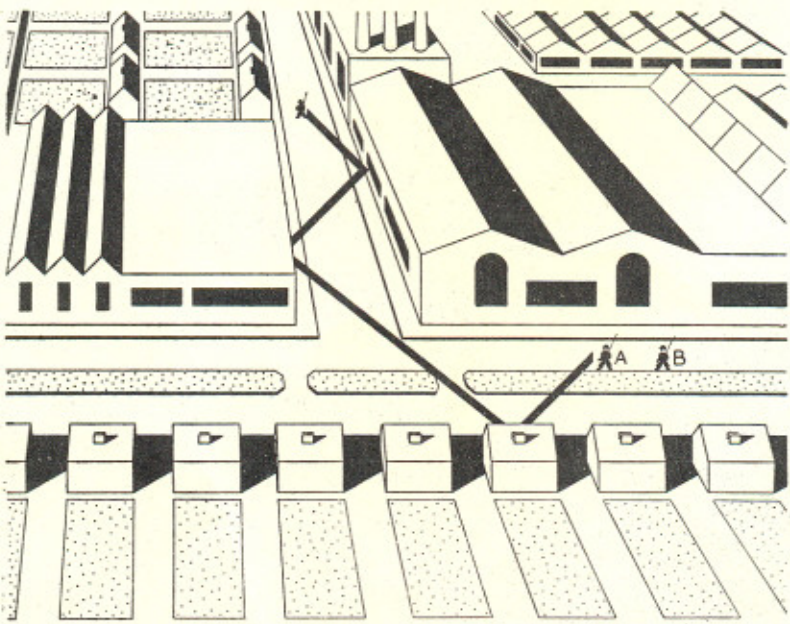


FIG. I COMMUNICATION BETWEEN STREETS.

WIRELESS SET No. 88

TYPES A & B

Working Instructions

CHAPTER 1 . . . . GENERAL DESCRIPTION

1. Purpose and facilities

The Wireless Set No. 88 is a small lightweight man-pack RT set for short range communication. It may also be used as a ground station and for working from vehicles at rest or on the move. Working Instructions for these roles will be issued as a separate User handbook. There are two versions of the set—Type A with an olive drab control panel and Type B with a black control panel. The difference lies in their frequency ranges (see Section 2 below).

As a man-pack, the set and battery are carried in two pouches similar to the normal Bren ammunition pouches.

The set is frequency modulated, the maximum deviation being ± 15 kc/s. Sidetone is provided. The complete equipment, including the battery, is fully tropical and can withstand immersion in salt water.

The set is carried in the operator's left-hand pouch (Pouches, Set $9\frac{5}{8}'' \times 6'' \times 3\frac{1}{8}''$) which also provides stowage for a collapsible rod aerial and an instructional card (ZA.32991 Wireless Set No. 88, Instructions Working No. 2, Metal). The battery and microphones, receivers, etc., are carried in the right-hand pouch. A short wire " invisible " aerial is also carried in this pouch (see Section 7 (2)).

2. Frequency

Type A and Type B sets both work on four spot frequencies, viz. :—

Wireless Set No. 88 Type A		Wireless Set No. 88 Type B	
Channel A	42·15 Mc/s.	Channel E	39·70 Mc/s.
Channel B	41·40 Mc/s.	Channel F	39·30 Mc/s.
Channel C	40·90 Mc/s.	Channel G	38·60 Mc/s.
Channel D	40·20 Mc/s.	Channel H	38·01 Mc/s.

3. Range of working

A range of up to 1½ miles may be expected using the 4 ft. rod aerial, but this will vary considerably with the nature of the terrain and the climate. The range with the " invisible " wire aerial compares quite favourably with the 4 ft. rod.

One consequence of the frequencies in the V.H.F. (Very High Frequency) band employed in the 88 set is that the range, as compared with the range of previous infantry sets under similar circumstances, is extended in some particular cases.

This does not mean, however, that ordinary precautions need be disregarded (see Figs. 8 and 9). The operator should avoid obstacles

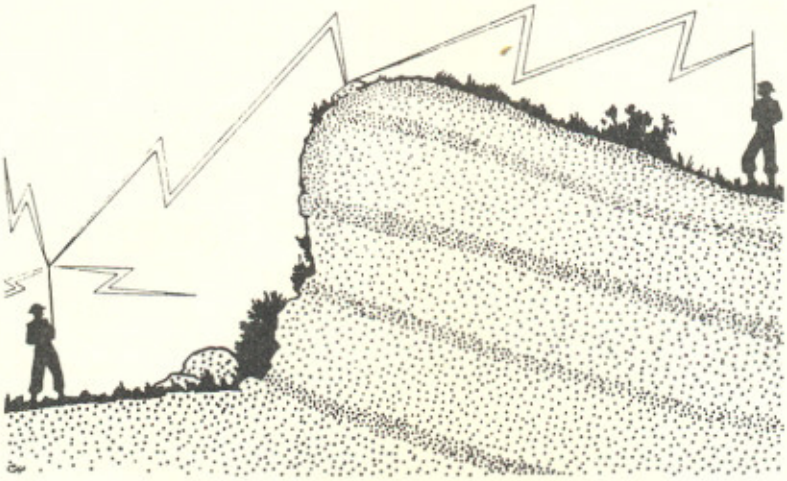


FIG. 2 REFRACTION OR BENDING OF WIRELESS WAVES AT THE CREST OF A HILL.

FIG. 3 IF YOU CAN'T RECEIVE IN ONE POSITION, WALK AROUND - YOU WILL PROBABLY FIND ANOTHER POSITION WHERE YOU CAN HEAR QUITE CLEARLY. IF YOU CAN HEAR CLEARLY YOUR CONTROL STATION WILL ALSO RECEIVE YOU CLEARLY.

between himself and the sets to which he is working as far as possible. If this cannot be done he should contrive to keep at a distance from any obstacle of at least twice the height of the obstacle.

However, if it is not possible to observe any of the above conditions the operator can get through in certain circumstances, as the following paragraphs are intended to show. While it is not possible to predict accurately what will happen in a given locality some general indications are given, based on trials with the set.

It has been found possible for example, to work through the length of a gorge or narrow valley, up to a distance of a mile or a mile and a half, even though the gorge has one or two sharp turnings. It is believed that this is possible owing to reflections of the waves from the sides of the gorge. Communication between adjoining streets is also possible by this means, but communication between parallel streets is not normally possible unless there are one or more connecting streets. This effect is illustrated in Fig. 1.

It has also been found possible to communicate from one side of a hill to another, especially if the hill has a sharp crest. A part of the signal is bent round the crest and, provided that the distance between the stations is not too great, say up to ½ mile, can be used for communication.

Because of the foregoing, the operator should not despair if he cannot "get through" in a given position. He should walk round in the vicinity of his position (as shown in Fig. 3) until he comes to a spot where communication is possible. More detailed instructions for this are given in Chapter II—Operator's Instructions.

It is also possible sometimes to increase the range by inclining the aerial as shown in Fig. 7.

4. Controls

It will be seen from Fig. 4 that the controls are few and very simple to operate. The purpose of the controls is explained in the illustration.

5. Power supply

The power supply is provided by a dry battery in the second pouch. Two types are being manufactured. An interim layer type Leclanché battery will be used until a Ruben Mallory battery comes into full supply.

Interim Battery .. Battery, Dry H.T./L.T. 90/1·5V No. 2.

Average current consumption is :

	L.T.	H.T.
Send	1·05 amp	40 mA
Receive	·77 amp	13·5 mA

Life on intermittent drain—over 20 hours.
Life on continuous drain—about 12 hours.

Final Battery .. Battery, Dry H.T./L.T. 94/1·3V No. 1.
Average current consumption as for interim battery.
Expected life on intermittent drain—approx. 30 hours.

The exact voltage of the final battery may be slightly altered as a result of development.

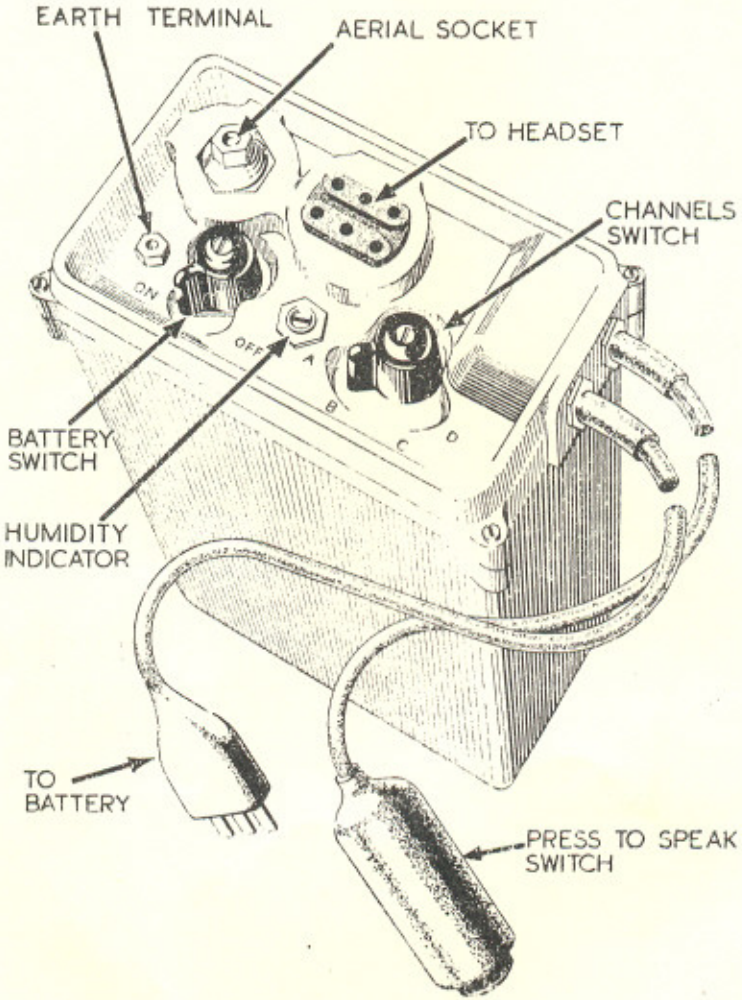


FIG. 4 — 88 SET SHOWING CONTROLS

6. Carriage

A protective transit case (see Fig. 5) is used for housing two complete man-pack stations when large consignments are required to be delivered from one place to another.

7. Aerials

1) *Aerials Vertical* 4 *ft. No.* 3.

This consists of three tapered tubular sections which push together and are held captive by a steel wire. The thick end of the aerial is inserted into a flexible " swan neck " holder which in turn fits into the set aerial socket.

(2) *Aerial* 4 *ft.* 2 *in. No.* 1

This is a length of flexible wire terminating at one end in a plug for insertion in the set aerial socket, and at the other in a clip for attaching to the operator's clothing. The aerial hangs vertically from the set and cannot be seen at distances greater than a few yards.

8. Accessories

(1) *Microphone and Receiver Headgear Assembly No.* 15.

This assembly consists of a lightweight wishbone microphone and headphones. The microphone is supported in front of the operator's mouth thus avoiding the necessity for him to hold it in one hand.

(2) *Telephone Hand No.* 11 (*Officer's Handset*).

The lightweight handset plugs into a second socket on the set panel and can be used at the same time as the operator's assembly. This is normally stowed in the battery pouch when not in use. This stowage space is not available when the interim type battery is used.

(3) *Humidity Indicator.*

A window in the top panel of the set shows when the interior is damp. The indicator is blue when dry and pink when damp. A blue matching strip across the window serves as a standard of comparison and is useful in detecting the initial stages of moisture penetration.

NOTE :—A quantity of the first sets off production have no humidity indicator, but are fitted with a solid brass plug in its place. Instructions for the modification of these sets to include the correct indicator will be issued.

9. General construction

The set is contained in a strong light alloy metal case. The top control panel, to which is attached the set chassis, is secured to the case with screws and ingress of moisture is prevented by means o f a rubber sealing gasket.

IMPORTANT—This Set should not be opened except by authorised persons.

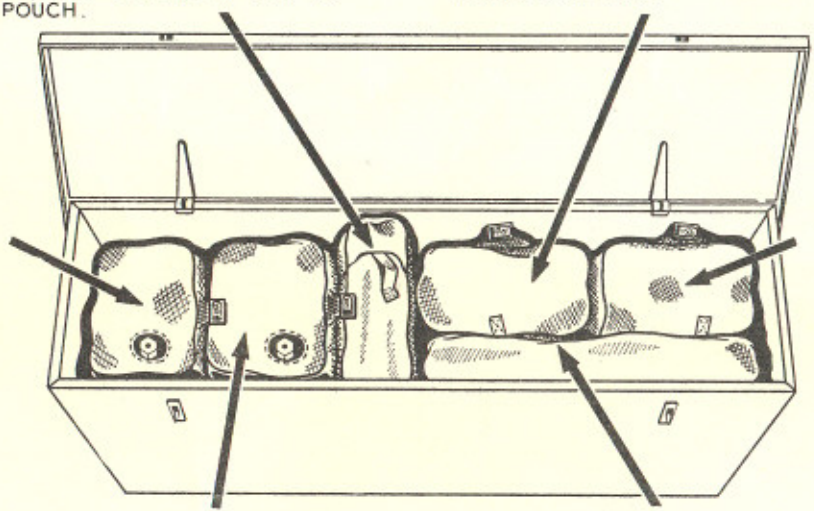


FIG. 5 CASES STOWAGE Nº 3 WITH TWO MANPACK STATIONS STOWED

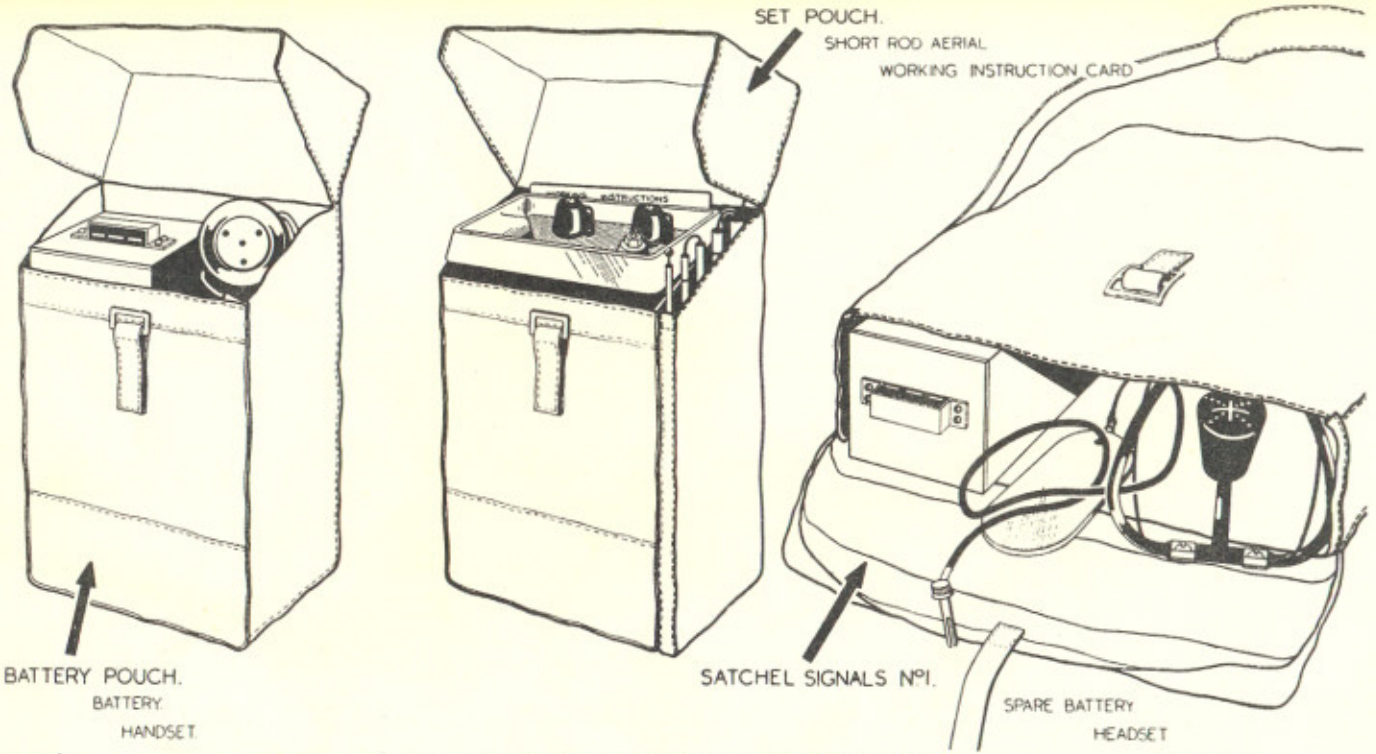
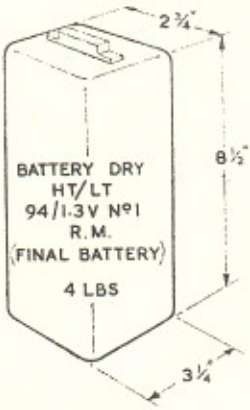
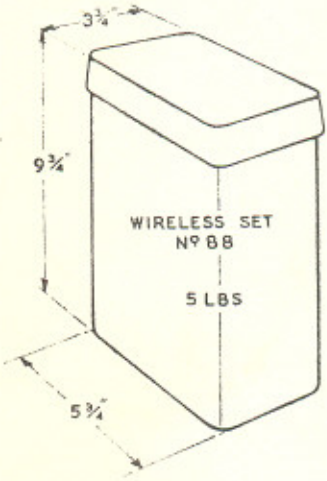


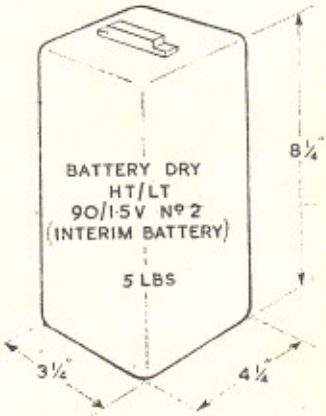
FIG. 6

88 SET STOWAGE OF MAN PACK STATION.

10. Weights and dimensions

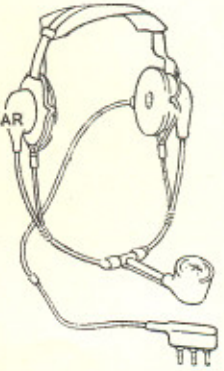


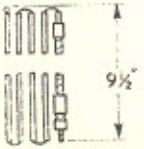




MICROPHONE & RECEIVERS HEADGEAR ASSEMBLY Nº 15

14 OZS.



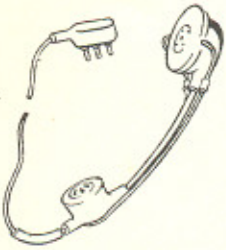


AERIALS VERTICAL 4 FT. Nº 3

5¼OZS.

TELEPHONE, HAND Nº 11

12 OZS



4'·2" WIRE AERIAL 1½"OZS.

CHAPTER II...OPERATOR'S INSTRUCTIONS

11. How to wear the set

1. PUT ON INFANTRY BELT AND BRACES AND FIX THE TWO POUCHES IN FRONT

2. INSERT BATTERY INTO RIGHT HAND POUCH AND SET INTO LEFT HAND POUCH LEADS ON RIGHT

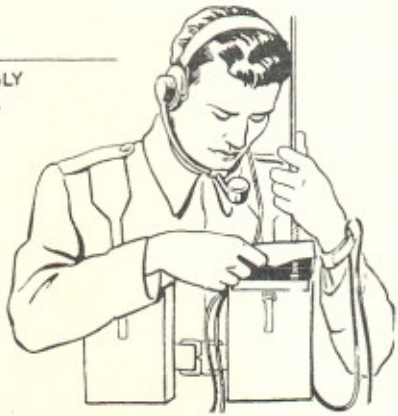
3. PUT ON HEADSET WITH WEBBING STRAP ON TOP PUT ON WRIST STRAP AND FASTEN PRESSEL SWITCH LEAD WITH WEB BAND AND PRESS STUD

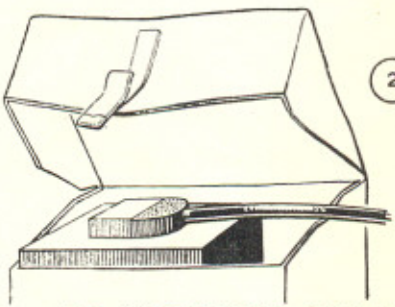
NOTE :—When the normal Infantry pack is not worn, both a web strap and a piece of whipcord are provided with these stations and either may be passed round the body above the pouches and over the infantry braces. This prevents the pouches sagging away from the body.

12. Connecting up

1

CONNECT HEADGEAR ASSEMBLY TO TOP PANEL INSERT AERIAL THROUGH HOLE IN CANVAS COVER INTO SOCKET ON TOP PANEL





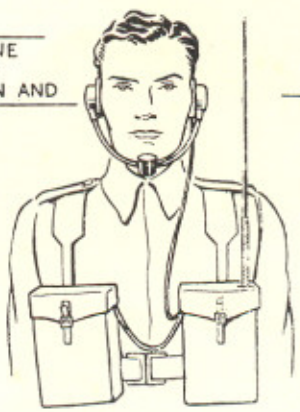
DO NOT REMOVE THIS PLUG OR BATTERY MAY GET DAMP

2

PLUG BATTERY LEAD FROM SET INTO BATTERY WITH CABLE IN DIRECTION SHOWN

3

ADJUST WISHBONE MICROPHONE TO SUITABLE POSITION AND



SEE THAT ALL CONNECTIONS ARE MADE

13. Testing

To check that the set is in good order :—

(1) Disconnect the aerial.

(2) Switch ON-OFF switch on top of panel to ON. The set is now receiving. Normal background noise should be audible when no other station is on.

(3) Switch to " send " by pressing pressel switch at the end of the lead. Your own voice should be heard clearly in the phones.

14. Operation

(1) Re-connect the aerial.

(2) There are no adjustments, apart from channel selection and the power switching to be made by the operator. The required frequency channel is selected by means of the CHANNELS switch.

(3) To send, depress the pressel switch at the end of the lead from the set and speak into the microphone.

(4) To receive, release the pressel switch and listen in the headphones.

(5) **Special note to outstations :** If you cannot receive your control station try :—

(a) Walking about in the vicinity of where you are standing. It is possible that you can receive well (at A Fig.1) quite near a spot where reception is impossible (at B Fig. 1.). See also Figs. 2 and 3.

(b) Bending the short rod aerial as shown in Fig. 7. You will probably find you will have to do this if you are trying to get through in hilly country or in streets of a town.

The above notes do not normally apply to the control station as he usually selects a good position from which to reach his outstations. However, this is not always possible and it may be necessary for him to walk about or incline the aerial in order that the outstations should receive him at all.

15. When to change the battery

All operators must keep, on the battery itself, a record of the number of hours it has been in use (with the set switched on).

One way in which this can be done is indicated by the following example :

The operator instals a fresh battery and uses it for approximately two hours. On switching off, he writes the figure 2 on the battery. A second operator uses the set for three hours. On switching off, he deletes the figure 2 and substitutes 5 and so on. Thus the record of hours worked takes the form :—

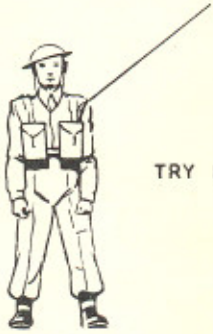
2 5 7 11 12

and the last figure in the series represents the total time the battery has been in use.

The battery must be changed when the number of hours it has worked exceeds the working life (see Section 5 above) or before an operation if it appears from the battery record that the battery is likely to fail during the operation.

IF YOU FIND DIFFICULTY IN RECEIVING WITH THE AERIAL

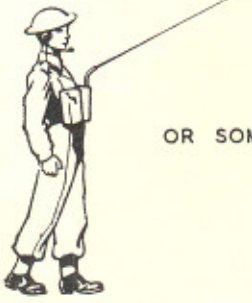
LIKE THIS



LIKE THIS

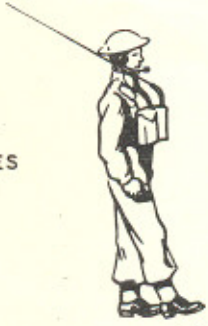
TRY BENDING IT

OR LIKE THIS



LIKE THIS

OR SOMETIMES



OR LIKE THIS

FIG. 7.

IF YOU CAN HEAR CONTROL CLEARLY HE WILL HEAR YOU CLEARLY

GOOD SITES

FIG.8

DOUBTFUL SITES

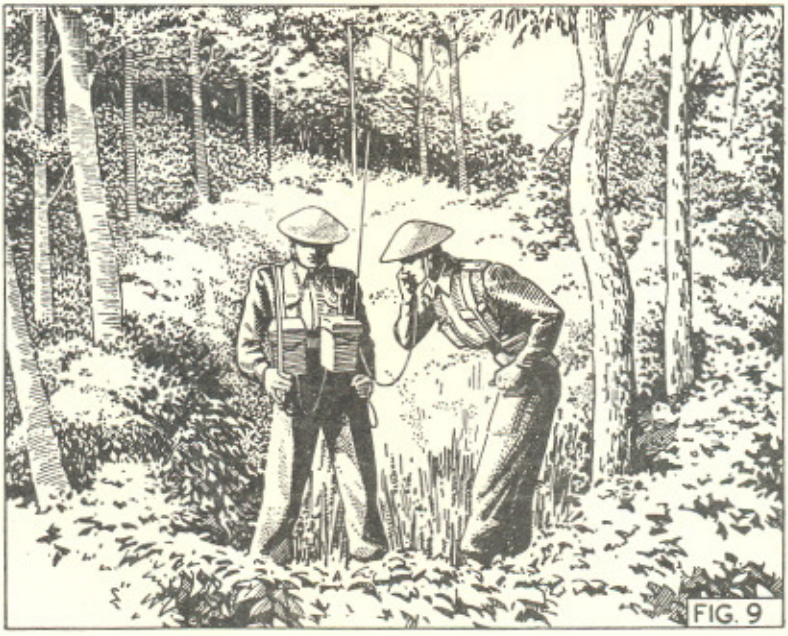


FIG. 9

FIG. 10 STOW THE LEADS NEATLY

CHAPTER III...OPERATOR'S MAINTENANCE

16. Maintenance Tasks

Appendix I has been designed as a means of recording completion of maintenance tasks, repairs and inspections. It has been produced separately as Army Form B2661—Unit Maintenance Log and covers a period of 24 weeks. The completed and current sheets will be kept in the pocket provided in the back cover of this publication. The form has been promulgated in Army Orders and may be obtained on indent in the normal manner.

The completion of maintenance tasks will be recorded by initialling in the space provided. Minor repairs and replacements will be recorded on the reverse of Army Form B2661.

Further instructions for the Unit Commander are promulgated in A.C.I. 1076 of 1945.

The following is a list of maintenance tasks to be carried out by the operator. The frequency with which they will be carried out will be detailed by the Unit Commander. The tasks are laid down as suggestions to the Unit Commander and he may omit or add to them at his discretion. It is advised, however, that all these tasks be carried out.

(1) Clean and dust the outside of the apparatus. The set may be removed from the canvas pouch for cleaning, but the battery plug should not be removed.

(2) See that the aerial is making good contact in its socket and that the base is free from dirt.

(3) Inspect battery connector and lead to pressel switch for fraying or breaks. Keep battery plug pins clean and dry or they will quickly corrode, also the headset and handset plugs.

(4) Inspect the humidity indicator on the front panel of the set to check that the inside of the set is dry. This indicator is blue when dry and pink when wet.

(5) Work to another set at some distance away, sending and receiving a message on each channel in turn. Check that sending and reception are good and clear.

(6) Still working to another set, send and receive a message using the officer's handset, thereby checking its operation.

(7) The battery should be changed in accordance with Section 15 above.

(8) Always keep the set, battery and pouches dry. If they become wet due to immersion or from any other cause they should be thoroughly dried at the first opportunity. If the pouches have been immersed in salt water a thorough wash with fresh water should be given if possible before drying.

After drying the set, the case should be lightly rubbed with thin oil or vaseline to prevent corrosion. Do not, however, put oil in the aerial socket or the sockets for the Headgear Assemblies.


Dont Open
THE SET!

17. Fault location

TABLE I—FAULT LOCATION

Symptom	Possible Fault	Action
(1)	(2)	(3)
1. Humidity indicator appears pink.	Interior of set is moist.	Return set to base.
2. Set appears dead.	(a) Battery. (b) Headset or handset faulty. (c) Leads to battery.	(a) Change battery. (b) Change headset or handset. (c) Report.
3. Receiver noise heard but no signals sent or received	(a) Faulty aerial connection. (b) Internal fault.	(a) Inspect aerial connection, clean socket. (b) Report.
4. Set not sending on any channel but O.K. on receive.	(a) Microphone. (b) Pressel switch. (c) Internal fault.	(a) Change microphone. (b) Report. (c) Report.
5. Set defective on certain channels but O.K. on others.	Internal fault.	Report.

APPENDIX 1

TYPE OF EQUIPMENT .....

SERIAL Nº OF EQUIPMENT .....

NOTE- UNIT TASKS ARE DETAILED IN WORKING INSTRUCTIONS

UNIT MAINTENANCE LOG.

DATE (WEEK ENDING)	1 DAY	2 DAY	3 DAY	4 DAY	5 DAY	6 DAY	7 DAY

1ST ECHELON MAINTENANCE LOG.

INITIAL	DATE

NOTE – 1ST ECHELON TASKS ARE DETAILED IN RELEVANT EMER

INITIAL	DATE.

INITIAL	DATE.

INITIAL	DATE

INITIAL	DATE.

INITIAL	DATE.

REPAIR RECORD.

(E.G. VALVE REPLACEMENTS, MAJOR REPAIRS R.E.M.E. INSPECTIONS, ETC)

DATE	REMARKS.

APPENDIX II

COMPONENTS LIST

Circuit Reference	Value	Tolerance	Rating	Type
		RESISTORS		
R1	120K	± 5%	¼W	Tubular insulated.
R2	120K	± 5%	¼W	Tubular insulated.
R3	1·5M	±10%	¼W	Tubular insulated.
R4	1·5M	±10%	¼W	Tubular insulated.
R5	560K	± 5%	¼W	Tubular insulated.
R7	2·2K	± 5%	¼W	Tubular insulated.
R8	68K	± 5%	¼W	Tubular insulated.
R9	22K	± 5%	¼W	Tubular insulated.
R10	8·2K	± 5%	¼W	Tubular insulated.
R11	220K	±10%	¼W	Tubular insulated.
R12	6·8K	± 5%	¼W	Tubular insulated.
R13	1K	± 5%	¼W	Tubular insulated.
R14	22K	± 5%	¼W	Tubular insulated.
R15	1M	±10%	¼W	Tubular insulated.
R16	2·2K	± 5%	¼W	Tubular insulated.
R17	33K	± 5%	¼W	Tubular insulated.
R19	2·2K	± 5%	¼W	Tubular insulated.
R20	1M	±10%	¼W	Tubular insulated.
R21	33K	± 5%	¼W	Tubular insulated.
R23	120K	± 5%	¼W	Tubular insulated.
R24	1M	±10%	¼W	Tubular insulated.
R25	33K	± 5%	¼W	Tubular insulated.
R26	6·8	± 5%	1W	Tubular.
R28	1M	±10%	¼W	Tubular insulated.
R29	82K	± 5%	¼W	Tubular insulated.
R30	12K	± 5%	¼W	Tubular insulated.
R31	47K	± 5%	¼W	Tubular insulated.
R32	680K	± 5%	¼W	Tubular insulated.
R33	680K	± 5%	¼W	Tubular insulated.
R35	120K	± 5%	¼W	Tubular insulated.
R36	680K	± 5%	¼W	Tubular insulated.
R37	220K	±10%	¼W	Tubular insulated.
R38	1·5M	±10%	¼W	Tubular insulated.
R39	12K	± 5%	¼W	Tubular insulated.
R40	2·2K	± 5%	¼W	Tubular insulated.
		CONDENSERS		
C1	0·001μF	±25%	350V DC	Moulded Mica.
C2	3–30pF	+15% −0% at Max.	150V DC	Variable.
C3	3–30pF	,,	,,	Variable.
C4	3–30pF	,,	,,	Variable.
C5	3–30pF	,,	,,	Variable.
C6	33pF	± 2½%	500V DC	Silvered ceramic tubular.
C7	0·01μF	± 25%	200V DC	Paper insulated tubular.
C8	0·002μF	± 20%	350V DC	Moulded mica.
C9	33pF	± 2½%	500V DC	Silvered ceramic tubular.
C10	33pF	± 2½%	500V DC	Silvered ceramic tubular.

(Continued next page)

COMPONENTS LIST (Contd.)

Circuit Reference	Value	Tolerance	Rating	Type
C11	3–30pF	+15% − 0% at Max.	150V DC	Variable.
C12	3–30pF	,,	,,	Variable.
C13	3–30pF	,,	,,	Variable.
C14	3–30pF	,,	,,	Variable.
C15	0·1μF	±25%	150V DC	Paper insulated tubular.
C16	33pF	± 2½%	500V DC	Silvered ceramic tubular.
C17	3–30pF	+15% − 0% at Max.	150V DC	Variable.
C18	3–30pF	,,	,,	Variable.
C19	3–30pF	,,	,,	Variable.
C20	3–30pF	,,	,,	Variable.
C21	0·1μF	±25%	150V DC	Paper insulated tubular.
C22	0·002μF	±20%	350V DC	Moulded mica.
C23	100pF	±10%	500V DC	Silvered ceramic tubular.
C24	3–30pF	+15% − 0% at Max.	150V DC	Variable.
C25	2–8pF	,,	,,	Variable.
C26	2–8pF	,,	,,	Variable.
C27	2–8pF	,,	,,	Variable.
C28	0·002μF	±20%	350V DC	Moulded mica.
C29	6·8pF	±10%	500V DC	Ceramic non-insulated.
C30	0·01μF	±25%	200V DC	Paper insulated tubular.
C31	33pF	± 2½%	500V DC	Silvered ceramic tubular.
C32	0·1μF	±25%	150V DC	Paper insulated tubular.
C33	0·002μF	±20%	350V DC	Moulded mica.
C34	100pF	±10%	500V DC	Silvered ceramic tubular.
C35	100pF	±10%	500V DC	Silvered ceramic tubular.
C36	0·1μF	±25%	150V DC	Paper insulated tubular.
C37	33pF	± 2½%	500V DC	Silvered ceramic tubular.
C38	33pF	± 2½%	500V DC	Silvered ceramic tubular.
C39	0·1μF	±25%	150V DC	Paper insulated tubular.
C40	0·01μF	±25%	200V DC	Paper insulated tubular.
C41	33pF	± 2½%	500V DC	Silvered ceramic tubular.
C42	33pF	± 2½%	500V DC	Silvered ceramic tubular.
C43	0·002μF	±25%	200V DC	Paper insulated tubular.
C44	0·1μF	±25%	150V DC	Paper insulated tubular.
C45	33pF	± 2½%	500V DC	Silvered ceramic tubular.
C46	33pF	± 2½%	500V DC	Silvered ceramic tubular.
C47	0·1μF	±25%	150V DC	Paper insulated tubular.
C48	0·01μF	±25%	200V DC	Paper insulated tubular.
C49	25pF	± 2½%	500V DC	Silvered ceramic tubular.
C50	47pF	± 2%	500V DC	Silvered ceramic tubular.
C51	47pF	± 2%	500V DC	Silvered ceramic tubular.
C52	200pF	±20%	350V DC	Moulded mica foil.
C53	0·01μF	±25%	200V DC	Paper insulated tubular.
C54	0.002μF	±25%	200V DC	Paper insulated tubular.
C55	0·001μF	±25%	350V DC	Moulded mica.

(Continued next page)

COMPONENTS LIST (Contd)

Circuit Reference	Value	Tolerance	Rating	Type
C56	0·1μF	±25%	150V DC	Paper insulated tubular.
C57	300pF	±20%	350V DC	Moulded mica foil.
C58	0·001μF	±25%	350V DC	Moulded mica.
C59	4·7pF	±0·5pF	500V DC	Ceramic non-insulated.
C60	180pF	± 2%	500V DC	Silvered ceramic tubular.
C61	25pF	± 2½%	500V DC	Silvered ceramic tubular.
C62	0·1μF	±25%	150V DC	Paper insulated tubular.
C63	4·7pF	± 0·5pF	500V DC	Ceramic non-insulated.
C64	56pF	± 5%	500V DC	Silvered ceramic tubular.
C65	1pF	±20%	500V DC	Silvered ceramic bead.
C66	1pF	±20%	500V DC	Silvered ceramic bead.
*C67	10pF	± ·5%	500V DC	Silvered ceramic.

* Not in early models.

Circuit Reference	Value or Function
	INDUCTORS
L1	V1 anode choke.
L2	V1 anode tapped.
L3	Mixer Fil. choke.
L4	Mixer anode.
L6	XTL. Oscillator anode.
L7	1st I.F. Amp. anode.
L8	2nd I.F. Amp. anode.
L9	Filament circuit choke.
L10	3rd I.F. Amp. anode.
L11	Limiter anode.
L12	Discriminator anode.
L13	V3 anode-grid (M.O.)
	TRANSFORMERS
T1	Oscillator-Mixer.
T3	Microphone transformer
T4	Headphones transformer.
T5	Doubler coil assembly.
	SWITCHES
S1A	On-off.
S1B	On-off.
S2A–B	Pressel switch.
S3A, S3B, S3C, S3D, S3E	Part of 5-pole, 4-position, channel Selector switch

(Continued next page)

APPENDIX II. (Contd.)

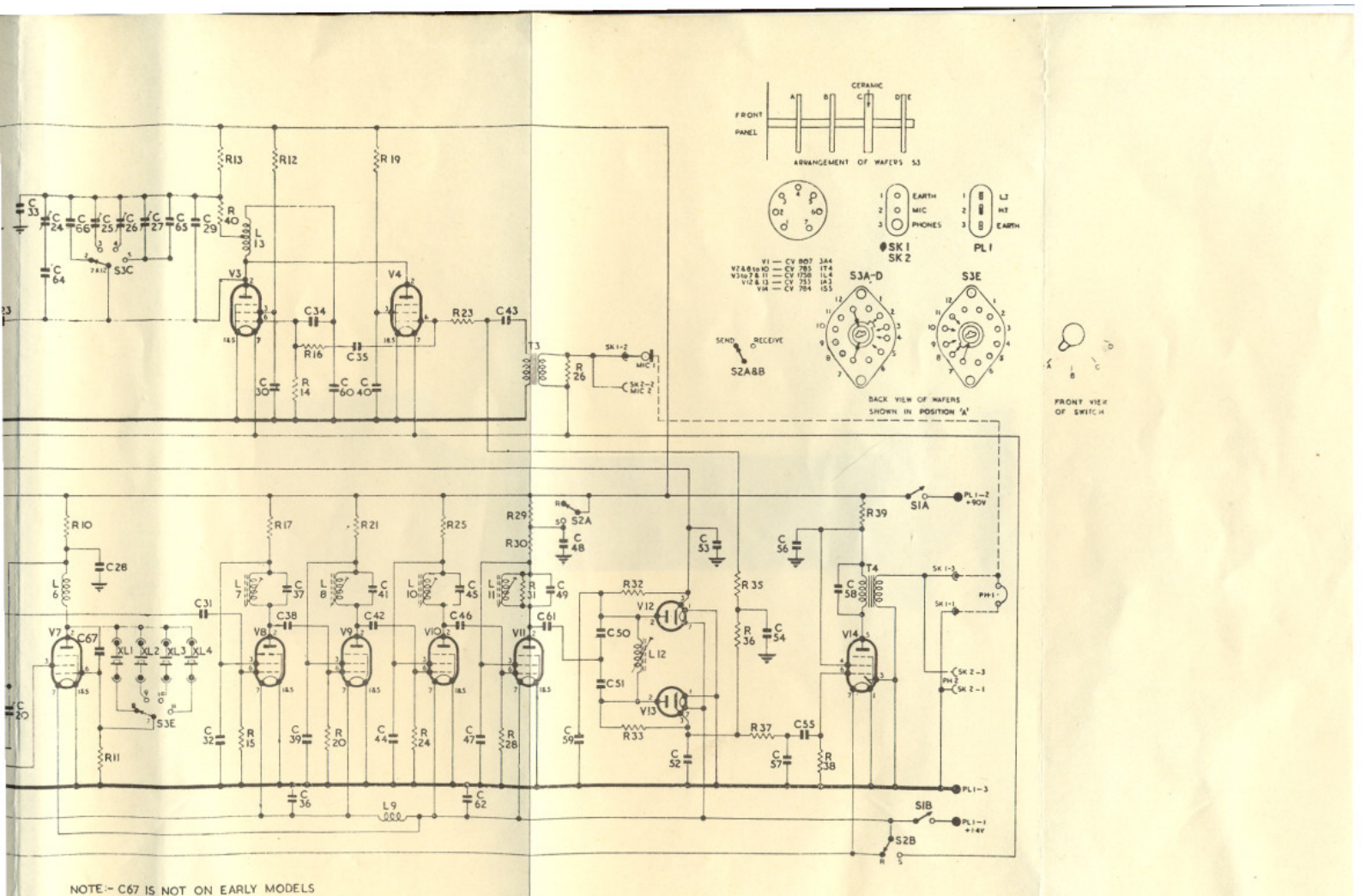
COMPONENTS LIST (Contd).

Circuit Reference	Value or Function
	VALVES
V1	CV 807 (3A4)
V2	CV 785 (1T4)
V3	CV 1758 (1L4)
V4	CV 1758 (1L4)
V5	CV 1758 (1L4)
V6	CV 1758 (1L4)
V7	CV 1758 (1L4)
V8	CV 785 (1T4)
V9	CV 785 (1T4)
V10	CV 785 (1T4)
V11	CV 1758 (1L4)
V12	CV 753 (1A3)
V13	CV 753 (1A3)
V14	CV 784 (1S5)

CRYSTALS

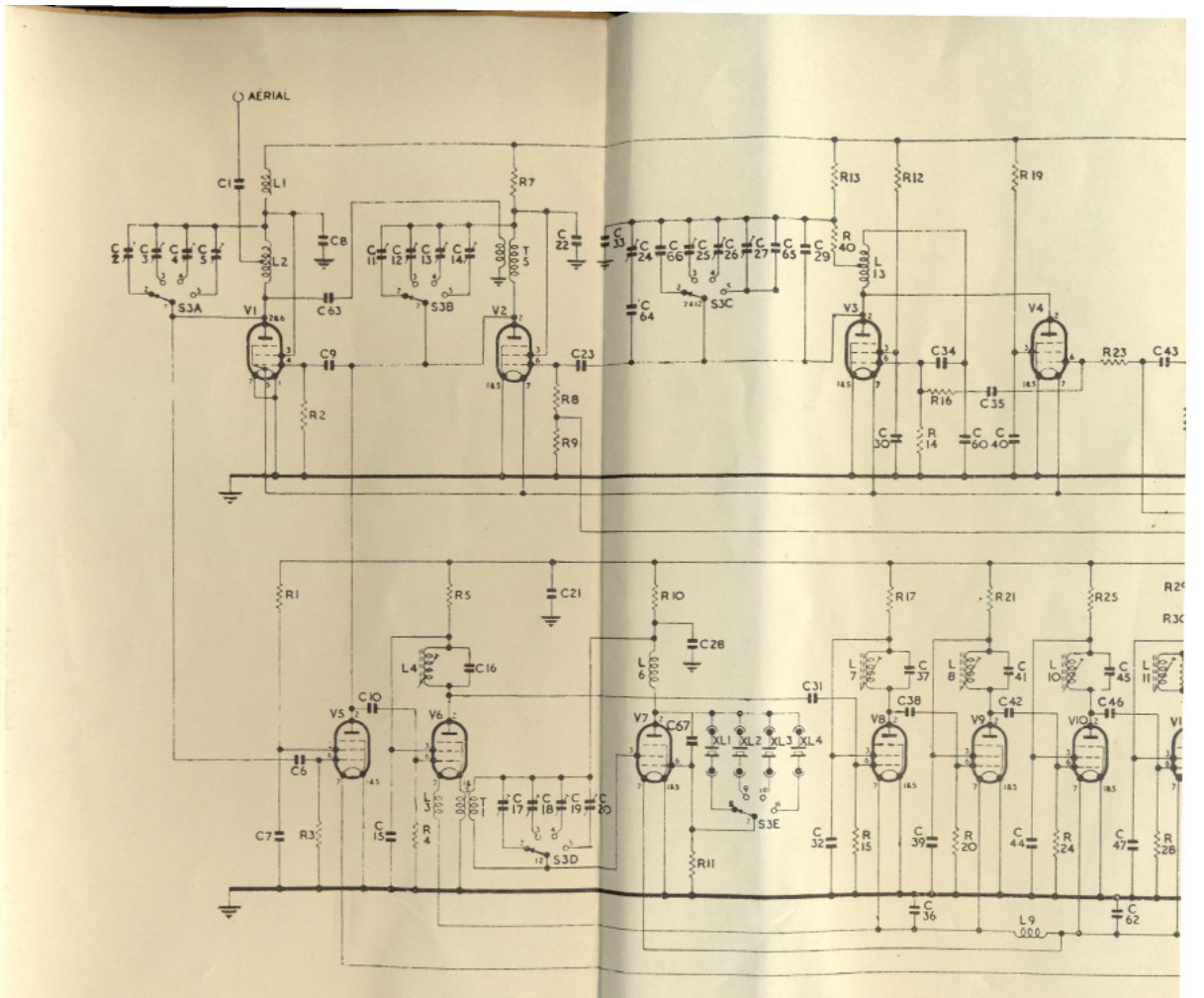
		Channel		Crystal Frequency	
		Type A	Type B	Type A	Type B
XL1	Receiver.	A	E	6525 Kc/s.	6117 Kc/s.
XL2	Oscillator (V7).	B	F	6400 Kc/s.	6050 Kc/s.
XL3	Anode–Grid.	C	G	6317 Kc/s.	5933 Kc/s.
XL4		D	H	6200 Kc/s.	5835 Kc/s.

(4429.) 76241. Wt. 14966-2203. 14½M. 11/48. A., P. & S., Ltd. 428.



NOTE:- C67 IS NOT ON EARLY MODELS

FIG. 11. WIRELESS SET No. 88 CIRCUIT DIAGRAM.



NOTE - C67 IS NOT ON EARLY MODELS

FIG. 11. WIRELESS SET No. 88 CIRCUIT DIAGR