

## WIRELESS SET No. 38 Mk. II and II\*

*General Description and  
Working Instructions*

Das Kurzwellen-Kleinfunksprech-  
gerät WS No. 38 Mk. II wurde u.a.  
für Agentenlandoperationen der  
SOE in Jugoslawien und Norwegen  
verwendet. Hauptsächlich für den  
Funksprechverkehr zwischen heim-  
lich landenden U-Booten und Agen-  
tengruppen an der Festlandküste.  
(Nach Angaben von John Brown)

## CONTENTS—(Continued)

ILLUSTRATIONS		PAGE
Fig. 1	How to wear the set—Method 1 ... ..	11
Fig. 2	“ “ “ “ ... ..	12
Fig. 3	How to wear the set—Method 2 ... ..	13
Fig. 4	“ “ “ “ ... ..	14
Fig. 5	How to connect the set, battery and A.F. gear to the junction box ... ..	15
Fig. 6	How to connect the set, Power Supply Unit No. 5 and A.F. gear to the junction box... ..	16
Fig. 7	Valve positions 38 set, Mk. II and Mk. II* ... ..	17
Fig. 8	How to connect 38 set headphones for use as a sound-powered telephone ... ..	18
Fig. 9	How to connect 19 and 38 sets for retransmission	19

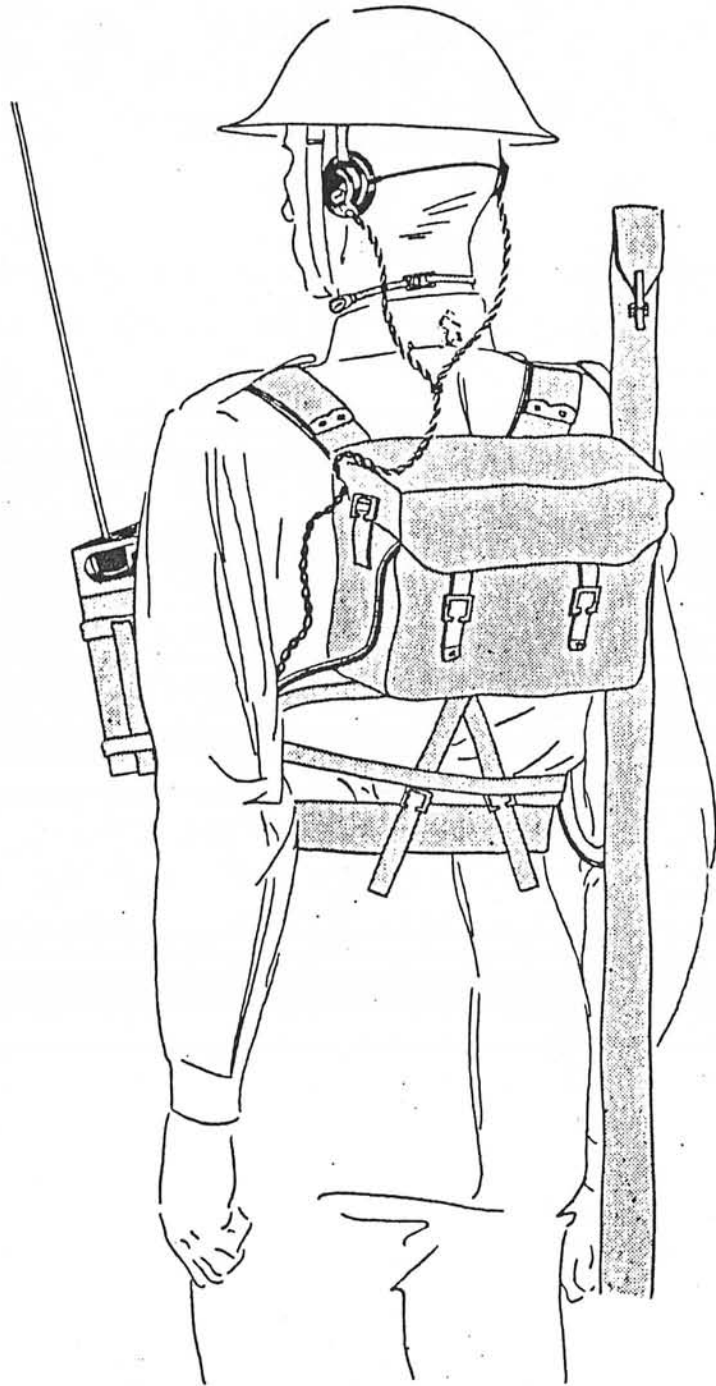


Fig. 2—How to wear the set—Method 1



Fig. 3—How to wear the set—Method 2



Fig. 4—How to wear the set—Method 2

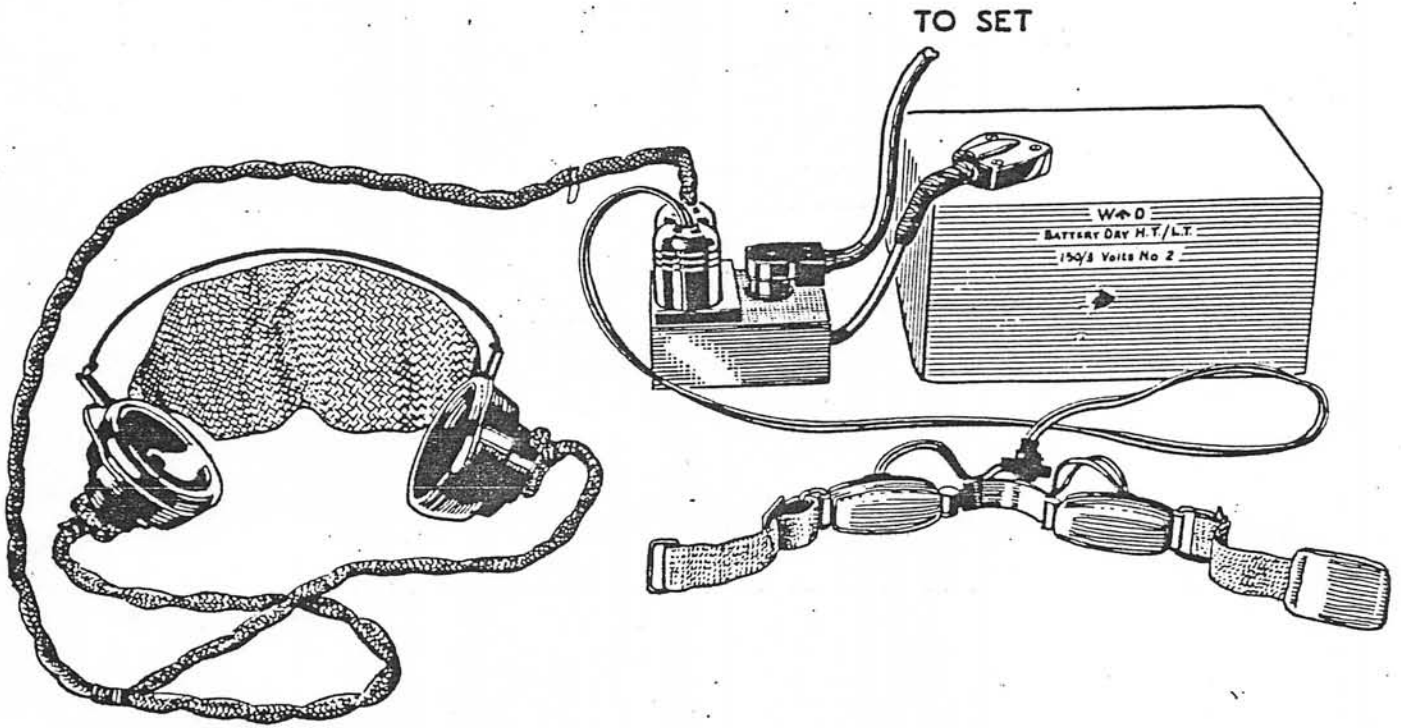


Fig. 5—How to connect the set, Power supply and A.F. gear to the junction box

# WIRELESS SET No. 38 Mk. II and II\*

## *General Description and Working Instructions*

### CHAPTER I . . . . GENERAL DESCRIPTION

#### 1. General

The Wireless Set No. 38, Mk. II or Mk. II\*, is a light man-pack RT set, simple to operate and carried in three portions, the set itself, the satchels signal and the carrier's aerial case containing rod aeri-als. It has a frequency band from 7.4 Mc/s. to 9 Mc/s. and an effective range up to half-a-mile with the 4 ft rod aerial and up to two miles with the 12 ft rod. The complete station, including spare battery, weighs 27½ lb. The Mk. II and Mk. II\* models are externally similar except that the rubber test button and aerial current indicating lamp provided on the Mk. II are not present in the Mk. II\*. Internally the Mk. II oscillator send-receive tracking circuit is modified to the Mk. II\* circuit to produce a reduced difference between send and receive frequencies with change of temperature.

#### 2. List of kit

Microphones, throat, No. 2 ...	2	Satchels, signal ...	1
Phones, D.L.R., No. 2 (with canvas headband)...	2	Adapter plugs for ground aeri-als ...	1
Batteries, dry, H.T./L.T., Nos. 1 or 2 ...	2	Wireless set web carriers, No. 2	1
Cases, aerial, No. 3 ...	1	Wireless sets, No. 38, Mk. II or Mk. II*...	1
Aerial rods F, Section 1 ...	1	Working instructions card ...	1
Aerial rods F, Section 2 ...	1	Cases, spare valve, No. 2 ...	1
Aerial rods F, Section 3 ...	2	Cases, containing valves WT. A.R.P. 12 ...	4
Hooks, brace ...	2 (1 spare)	Cases, containing valves WT, A.T.P. 4 ...	1
Junction boxes, No. 2 ...	1		

#### 3. Aerials

Rod aeri-als—Four aerial rods F sections are provided, one being spare. When using a 4-ft rod aerial, place the thinnest section in the small aerial socket. When using a 12-ft aerial, fit three sections together and place the thickest section in the large aerial socket. The aerial circuit is automatically tuned either for a 12-ft rod in the large socket or a 4-ft rod in the small socket; an 8-ft rod should, therefore, not normally be employed.

#### 4. Ground aeri-als

When in close contact with the enemy, the rod aerial is much too conspicuous and therefore a ground aerial should be used. For most wireless working it is just as satisfactory as a rod aerial. A ground aerial consists of a length of insulated wire laid out in a straight line, one end being attached to the adapter plug, which should be fitted into the large aerial socket. The other end of the aerial is left free, and

# WIRELESS SET No. 38 Mk. II or Mk. II\* IN CHURCHILL I, II, III AND IV TANKS.

## CHAPTER I.—GENERAL DESCRIPTION.

### I. General.

The Wireless Set No. 38 Mk. II or Mk. II\* fitted in infantry tanks provides short range communication between the tanks and supporting infantry.

The complete 38 Set installation is mounted in the turret and provides facilities for transmission and reception by the commander and gunner separately, and for reception by the whole crew. Reception is carried out via the Wireless Set No. 19 Intercommunication Amplifier.

The 38 Set is connected in the existing intercommunication circuit by means of a Control Unit No. 12 (W.S. No. 19/No. 38 Control Unit), having a switch giving the above facilities.

The microphone and headphones used are the Microphone and Receiver Headgear Assembly No. 1 normally used with the Wireless Set. No. 19.

The aerial is an external vertical rod, 8 ft. long.

The single tuning dial on the 38 Set may be locked on any desired frequency within the range.

The power in the aerial circuit when the set is transmitting is of the order of 0.02 watt.

A view of the complete apparatus is shown in Fig. 7.

### 2. Frequency Range.

The Wireless Sets No. 38 Mk. II and Mk. II\* have a frequency range of 7.3 Mc/s to 8.8 Mc/s when sending or receiving.

### 3. Valves.

Four A.R.P. 12 and one A.T.P. 4 are used.

### 4. Controls.

#### (1) Wireless Set No. 38.

The two controls, situated on the top panel of the set are as follows :

TUNING M.c/s control.

OFF-RECEIVE-SEND switch.

A button is fitted which when pressed on SEND causes a pilot lamp to light when the set is radiating. This lamp flickers when modulation is applied to the set.

#### (2) The Control Unit.

The Control Unit has the following controls :—

VOLUME control.

This controls the gain of the 38 Set receiver.

A-KC-B switch (19 set control switch).

APPENDIX II (continued).

7	ZAI7195	Aerial leads 3 ft. No. 6.		—	1	—	—	—
8	ZAI1800	Antennae Rods F Cases, Carrying No. 3		—			—	
9	ZA 0895	Antennae Rods F Sections No. 2.		—			—	
10	ZA 0896	Antennae Rods F Sections No. 3.		—			—	
11	ZAI2971	Cases, spare valve No. 2.		—	1		—	
12	ZAI6867	Carriers, primary battery No. 1.		—	1		—	
13	ZAI7202	Carriers, primary battery No. 2.		—		—	—	—
14	ZAI0600	Clips, cable fixing. $\frac{7}{16}$ "	4	2	6	4	2	6
15	ZAI6869	Control Unit, No. 12.		—			—	
16	ZAI6868	Connectors, 6 point No. 20.		—	1		—	
17	ZA 7023	Valves W.T. type ARP12.	4	4	8	4	4	8
18	ZA 5502	" " " ATP4.			2			2
19	ZAI3280	Wireless Sets No. 38 Mk. II or Mk. II*		—			—	
20	ZAI6870	Wireless Sets No. 38 Mk. II or Mk. II* Carriers No. 4.	—	—	—		—	
21	ZAI7203	Wireless Sets No. 38 Mk. II Carriers No. 5.		—		—	—	—
22	ZAI4284	Wireless Sets No. 38 Mk. II Working Instructions.		—			—	
23	ZA							

## DIAGRAMS.

- Fig. 1. W S No. 38 Mk. II or Mk. II\* Circuit Diagram.
- Fig. 2. W S No. 38 Mk. II—Valve base and switch connections.
- Fig. 3. W S No. 38 Mk. II or Mk. II\* Connections between Set and 6-point socket.
- Fig. 4. Connections between Control Unit No. 12 and 38 Set battery plug.
- Fig. 5. Control Unit No. 12—Circuit diagram.
- Fig. 6. Control Unit No. 12—Simplified circuit diagrams.
- Fig. 7. Schematic Layout of equipment.
- Fig. 8A Churchill I and II, Tank Driver's compartment (R.H. side).
- Fig. 8B Churchill I and II Tank—Turret and hull (L.H. side).
- Fig. 9. Churchill I and II Tank—External view of turret nearside.
- Fig. 10. Churchill I and II Tank—Internal view of forward nearside turret wall.
- Fig. 11. Churchill III and IV Tank—AERIAL base location.
- Fig. 11A Churchill IV—6-pdr. Cast Turret.
- Fig. 12. Churchill III and IV Tank—Internal view of forward nearside turret wall.
- Fig. 13. Churchill III and IV Tank—Internal view of rear nearside of hull
- Fig. 14. Churchill III and IV Tank—Internal view turret rear.

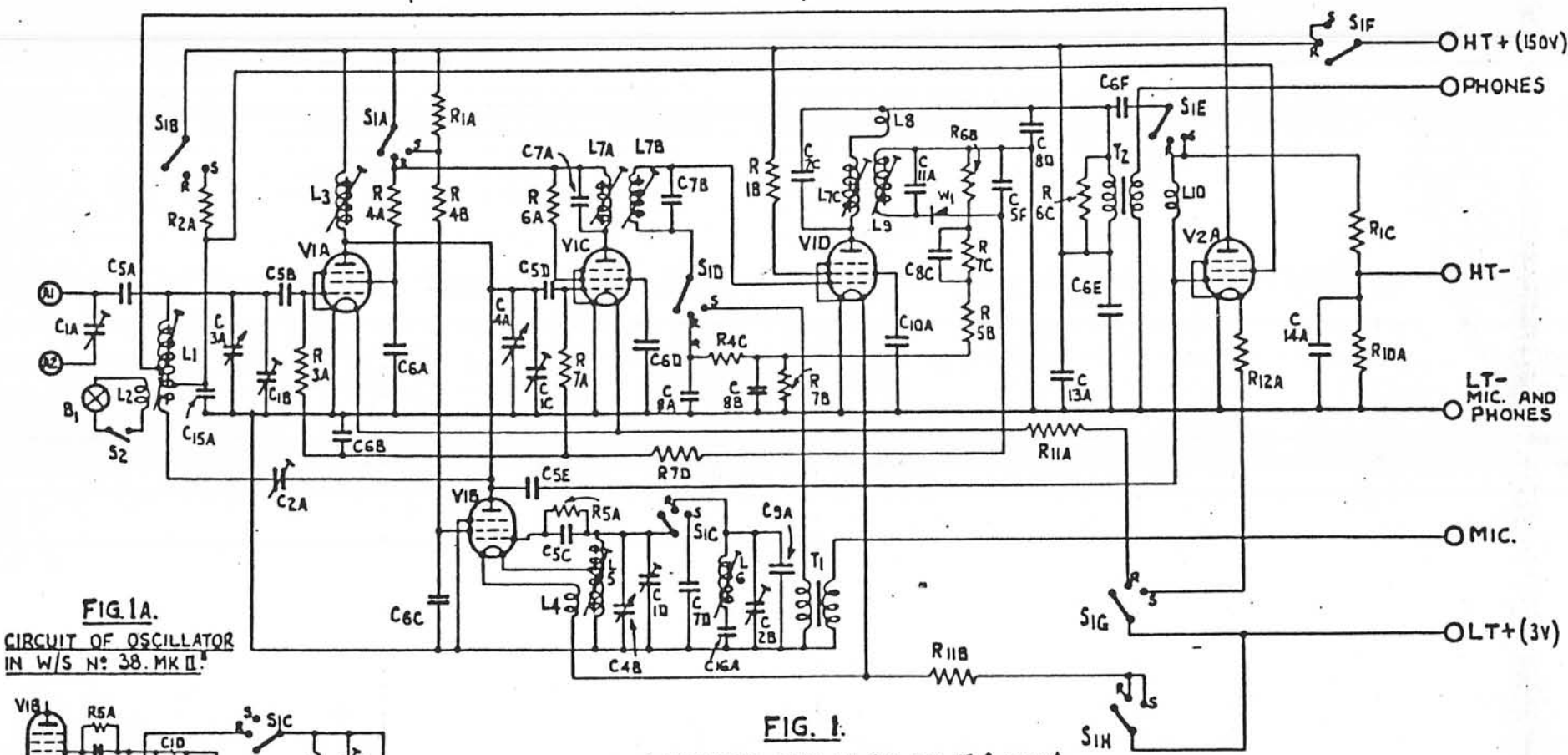
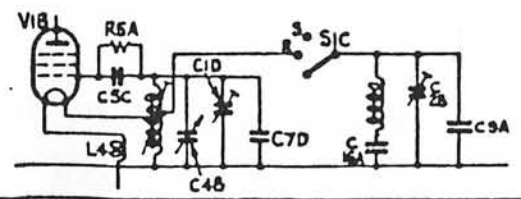


FIG. 1A.  
CIRCUIT OF OSCILLATOR  
IN W/S N° 38. MK II.

FIG. 1.  
WIRELESS SET N° 38. MK. II & MK II\*  
CIRCUIT DIAGRAMS.

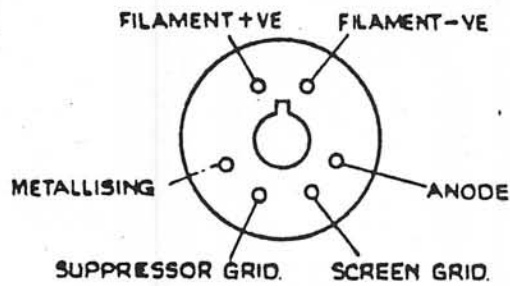


ISSUE I  
3. 1. 42.  
CHANGES

VALVE BASES-LOOKING ON PINS

CIRCUIT SYMBOLS.

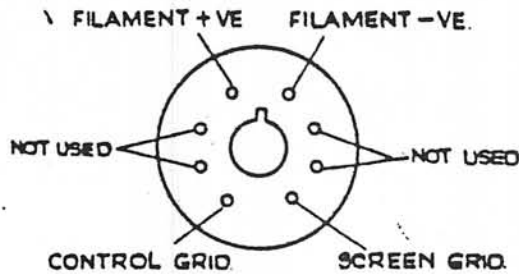
ARP. 12.



VIA, VIB, VIC, VID.

TOP CAP - CONTROL GRID.  
BRITISH OCTAL BASE.

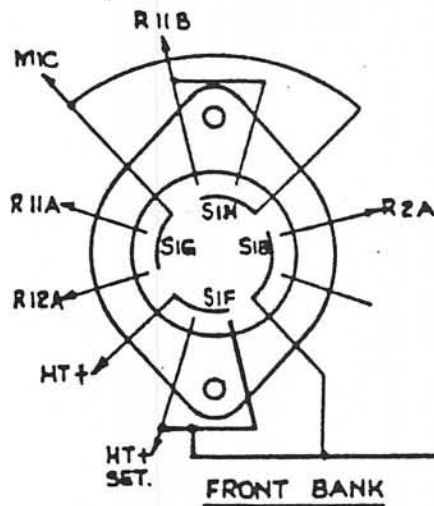
ATP. 4.



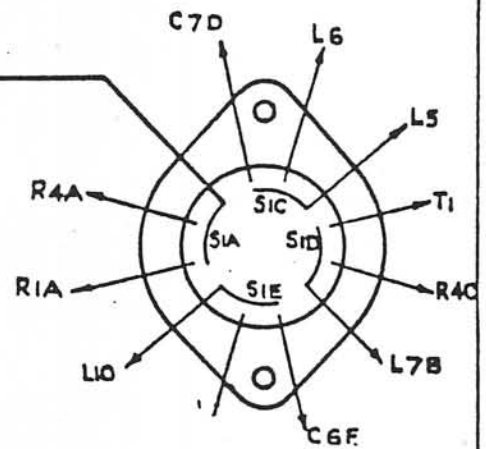
V2A

TOP CAP - ANODE  
BRITISH OCTAL BASE.

OFF-RECEIVE-SEND SWITCH, SIA-H - REAR VIEW.



FRONT BANK



REAR BANK.

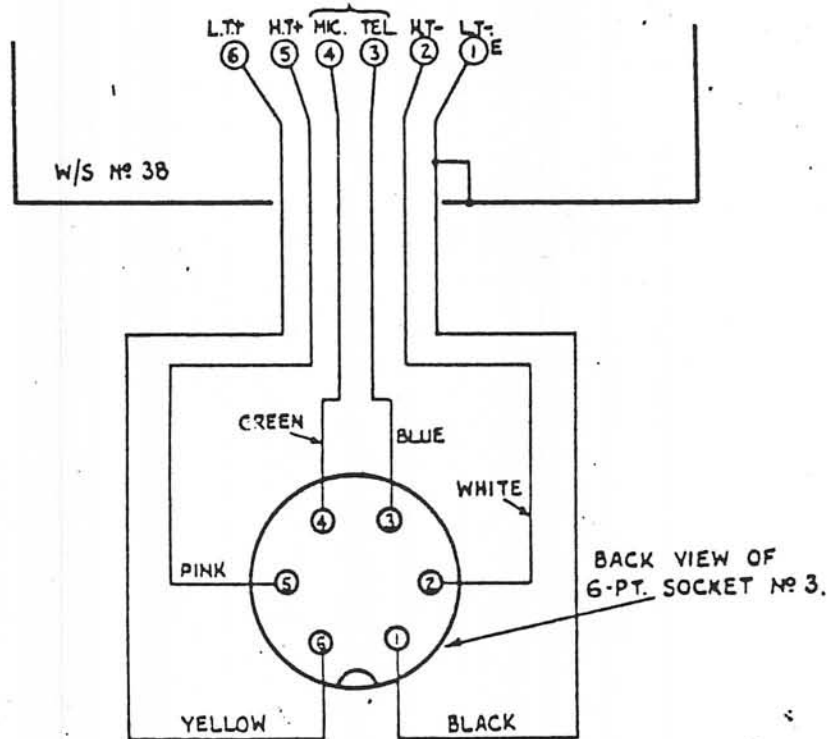
FIG. 2

WIRELESS SET N° 38 MK II AND MK II\*  
VALVE BASE AND SWITCH CONNECTIONS.

ISSUE I  
 18. 9. 42.  
 CHANGES.

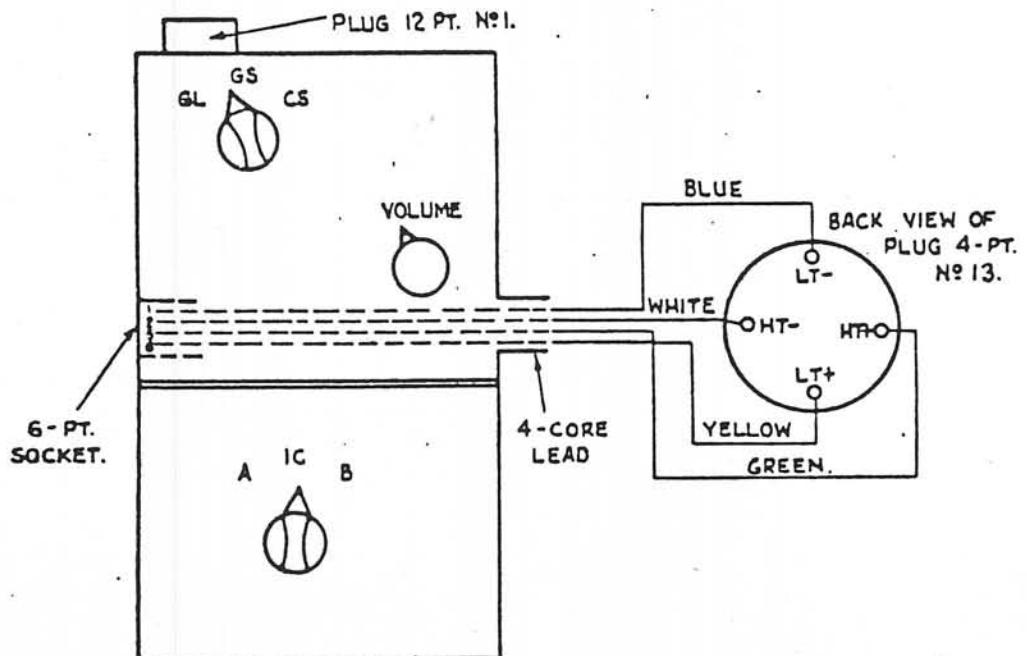
**FIG. 3.**

CONNECTIONS BETWEEN 3B SET AND 6-POINT SOCKET.



**FIG. 4.**

CONNECTIONS BETWEEN CONTROL UNIT & 3B SET BATTERY PLUG.



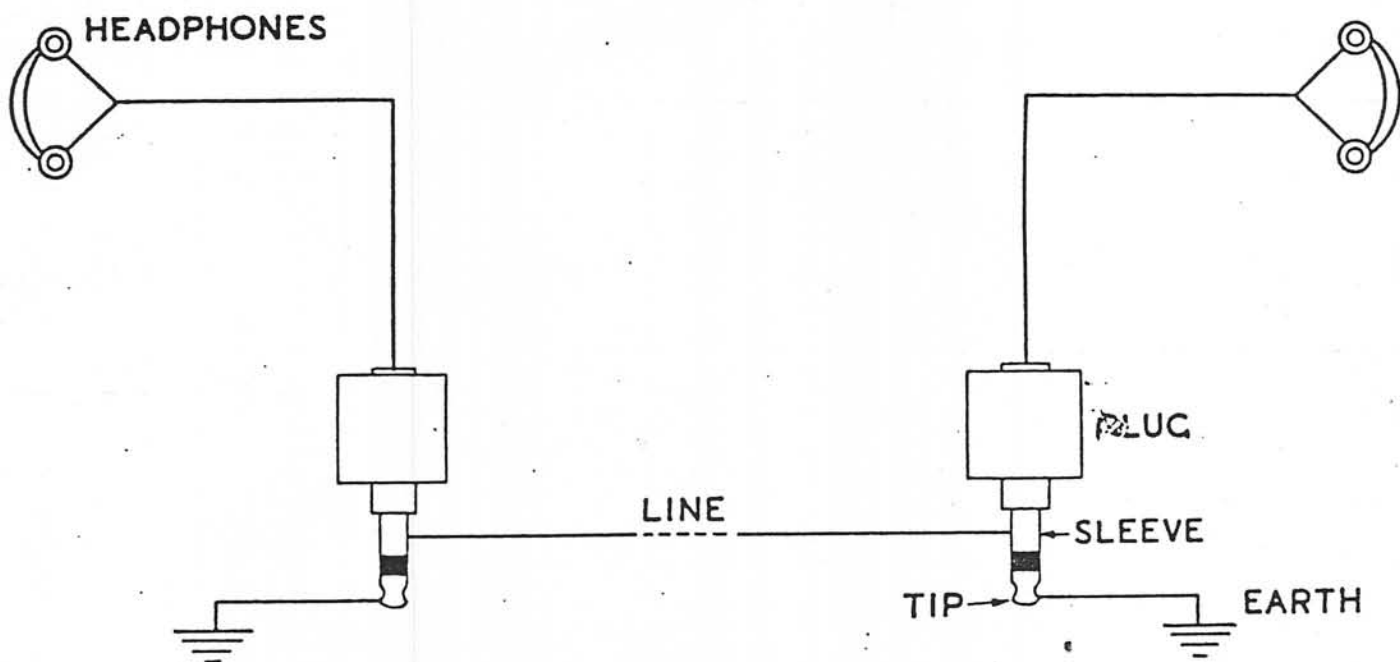


Fig. 8—How to connect 38 set headphones for use as a sound-powered telephone

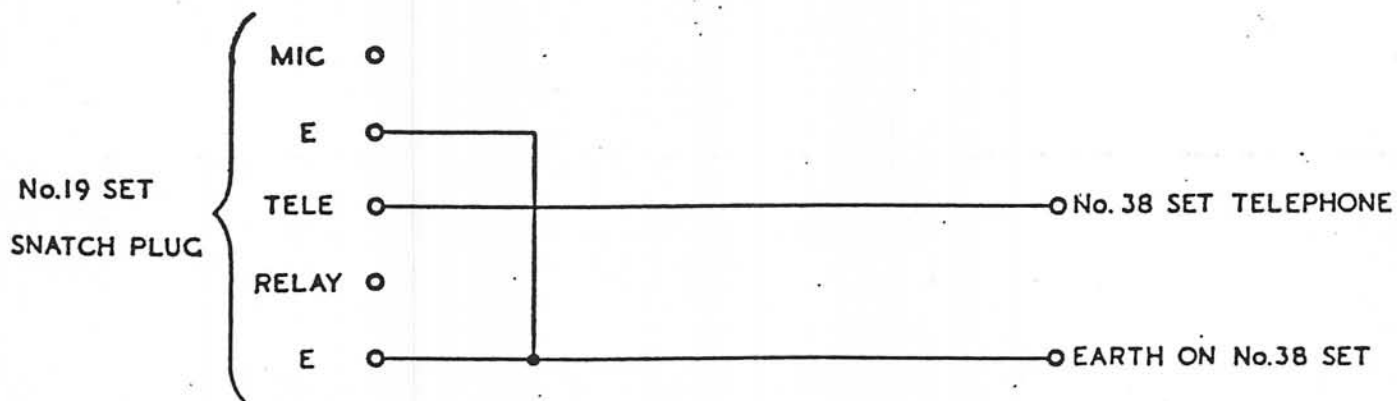


Fig. 9—How to connect 19 and 38 sets for retransmission

Data för sändare - mottagare MS-30, MK 2.

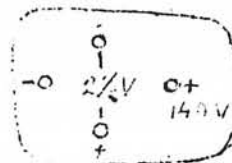
Frekvensområde 7300 kc/s - 9000 kc/s alltså c:a 33 - 41 meter.

Erforderliga batterier:

Anodspänning max. 140 V. (Förbrukning vid mottagning några mA och vid sändning c:a 45 mA.)

Glödström 2,5 V (Förbrukning: mottagning 0,2 A, sändning 0,3 A)

Batterianslutningen:



Batterier medfölja ej.

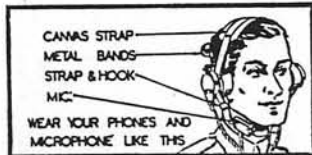
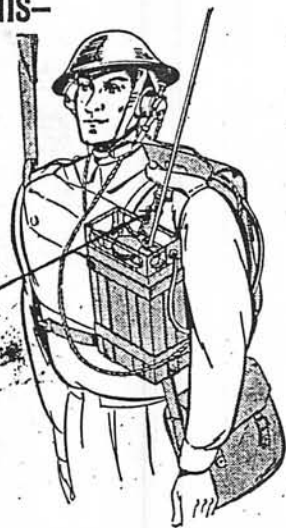
Apparaterna äro fabriksnya och har levererats i originallådor direkt från England. Då de i katalogen omnämnda reservrören icke skickats med, varför notsevarande sänkning av priset gjorts, till kr 133:-.

CLAS OHLSON & Co AB INSJÖN

# WEAR THE MK. 2. LIKE THIS—

[ AND WEAR YOUR RESPIRATOR AND HAVERSACK AS USUAL ]

- CHECK YOUR KIT WITH THIS LIST**
- W.S. Set 38 Mk. 2 .. 1
  - S. Set Carriers No. 2 .. 1
  - c., Throat, Nos. 1 or 2 .. 2
  - Phones, D.L.R., Nos. 1 or 2 (with canvas headband and mic. support strap.) .. 2
  - Batteries, dry, HT/LT Nos. 1 or 2 .. 2
  - Aerial Rods F, Section 1 .. 1
  - Do. Section 2 .. 1
  - Do. Section 3 .. 2
  - Cases, Aerial No. 3 .. 1
  - Hooks, brace (1 spare) .. 2
  - Satchel, Signals .. 1
  - Junction Boxes No. 2 .. 1
  - Working Instructions card .. 1

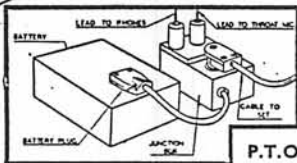


CARRY IT AS UNDER WHEN NOT IN USE

**1. IN AERIAL CASE**  
The 4 aerial rods.

**2. IN YOUR HAVERSACK**  
In place of water bottle:  
batteries, dry (in use)  
Junction Box.

**3. IN SATCHEL SIGNALS**  
2 mics. and 2 phones. (1 set for officer)  
1 Batteries, dry (spare)  
1 Hooks, brace (spare).  
AND THIS CARD.



W.S. No. 38. Mk 2.

# AIRBORNE STATION

(FOR (1) PARACHUTES and (2) GLIDERS)

## WORKING INSTRUCTIONS No. 2

(1) PARACHUTE STATION. Put on your kit as follows:—(1) Set, (2) Left-hand Satchel, (3) Right-hand Satchel, (4) Aerial Case. Only use Mk. 1 Set if Mk. 2 is unavailable. When using Mk. 1, do NOT carry Left-hand Satchel. Stow its contents in the Set.

WEAR KIT AS SHOWN

CHECK KIT BY GREEN ★ ONLY

Phones, D.L.R., Nos. 1 or 2, with canvas headband and mic. support strap.

Mic. throat, Nos. 1 or 2

Sling No. 1 (See diagram opposite)

★ W.S. No. 38 Mk. 2  
W.S. Carrier No. 2  
Slings No. 1  
(ZA16915)  
or  
W.S. No. 38, Mk. 1  
W.S. Carrier No. 1  
Slings No. 1



Aerial. Use the full 12-ft. rod OR the single 4-ft. rod.

★ Cases, Aerial, No. 3  
Stow:—  
1 Thick F Section No. 1  
1 Med. F Section No. 2  
2 Thin F Sections No. 3



Sling No. 1 holds the Set in centre of chest. Loop it, as shown here, round the body strap of carrier.

★ Satchel, Signal, No. 2 (worn on Right).  
Remove centre partition and stow:—  
3 Batteries, Dry H.T./L.T. 150v./3v.  
(Nom. 1 or 2 for Mk. II Sets)  
(No. 1 only for Mk. I Sets)

★ Satchel, Signal, No. 2 (worn on Left)  
Stow:—  
1 Battery, Dry (in use), 1 Junction Box,  
This Card, & Working Instructions Card.  
Adaptor, wired Wireless, No. 1.  
1 Phones, 1 Throat Mic.



WIRED WIRELESS WORKING. Use Adaptor, Wired Wireless, No. 1 (see Fig.), as follows: (1) Insert single pin plug into LARGE Aerial Socket. (2) Connect terminal on top of Adaptor to Assault Cable. (3) Two Sets connected by Cable may now be "netted" and worked as in W.S. No. 38 Working Instructions. Note.—Assault Cable for this system is carried in Unit Store.

(2) GLIDER STATION. The same as for Parachute Station, with one exception, viz.: carry two spare batteries ONLY in Right-hand Satchel (do not remove centre partition).

REMEMBER—No. 2 BATTERIES DO NOT FIT MK. 1 SETS

## W.S. NO. 38 MK. 2. WORKING INSTRUCTIONS

1. IMPORTANT—See that 'phones, microphone, and battery are plugged into their proper sockets in the Junction Box in the Back Haversack.
2. AERIALS (Rotate socket cover to select desired socket).
  - (a) Normal Signals. Use thin 4 ft. section inserted in small aerial socket.
  - (b) Weak Signals. Use 12 ft. rod (3 sections) in large aerial socket. Never use fewer than 3 sections.
3. CHECK
  - (a) Put on 'phones and microphone.
  - (b) Switch to "Send," and press rubber test button.
  - (c) Lamp should light and flicker when you speak.
  - (d) Your voice should be heard in the 'phones.
4. TO SET UP A "NET." In most operations a group of sets will be used, one as the "Control" and two or more as "Out Stations." All stations in one "net" must be tuned to the same frequency, and the "net" is set up in the following way:—
  - (1) CONTROL
    - (a) Set TUNING Mc/s dial to allotted frequency and lock.
    - (b) Send tuning call for specified time so that out stations can identify you and tune their sets accurately. Then announce termination of call.
    - (c) One minute after termination call group.
  - (2) OUT STATIONS
    - (a) Set TUNING Mc/s dial to allotted frequency. Switch to "Receive" and tune-in tuning signal. Adjust TUNING Mc/s dial as accurately as possible to centre of signal and lock. After locking, rock dial slightly to see that tuning is accurate. If it is not, readjust without unlocking.
    - (b) Await call from Control to check "net."

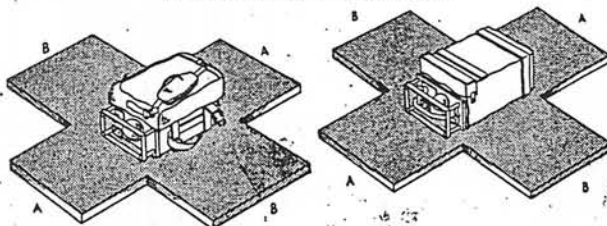
**IMPORTANT NOTE.**—If the "net" is set up with the stations close to each other the out stations must remove their aerial rods while setting up.
5. BATTERY REPLACEMENT. When the indicator lamp ceases to glow while you are speaking, with the set switched to "Send" and the test button pressed, the battery may need replacement. Switch off before replacing.
6. DO'S AND DONT'S
  - (a) ALWAYS wait at least 3 seconds after switching to "Send" before speaking.
  - (b) ALWAYS end each message with the word "OVER," and switch to "Receive" immediately.
  - (c) ALWAYS switch the set to "OFF" when not in use.
  - (d) ALWAYS keep the set clean—particularly the aerial connecting ends and sockets.
  - (e) NEVER touch the dial while locking it.
  - (f) NEVER overtighten the dial lock.

P.T.O.

## PACKING AND UNPACKING

(1) PARACHUTE STATION. The packing (Packing strips No. 13, ZA. 16587, and Straps, securing, No. 6, ZA. 16588) is a Unit Store, drawn on A.F.—G. 1098. The packed Set is stowed in an Arms Container AT THE PARACHUTE END. The Aerial rods, in Cases Carrying No. 3, are stowed separately with no special packing. The Right-hand Satchel, carrying spare Batteries, is also stowed in an Arms Container, with no special packing

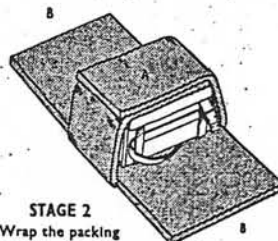
PACK IN STAGES AS FOLLOWS:—



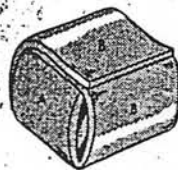
STAGE 1

MK. 2 SETS. Place the Set and Satchel on strip, as shown.

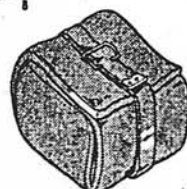
MK. 1 SETS. Place the Set on strip as shown.



STAGE 2  
Wrap the packing ends A—A tightly round Set.



STAGE 3  
Wrap the packing ends B—B tightly over the ends A—A.



STAGE 4

Fasten with Straps, securing, No. 6, as Shown.

(2) GLIDER STATION. The equipment may be worn by the operator, or stowed in the wicker baskets provided. No special packing is necessary.

ZA 16666

ZA. 14284