

RESTRICTED

RESTRICTED

Crown Copyright Reserved

Army Code No.
61124
DSS(ARMY)44/8/210

THIS DOCUMENT IS THE PROPERTY OF HER BRITANNIC MAJESTY'S GOVERNMENT, and is issued for the information of such persons only as need to know its contents in the course of their official duties. Any person finding this document should hand it to a Military Unit or Police Station for its safe return to the MINISTRY OF DEFENCE, (DS19b), LONDON, S.W.1, with particulars of how and where found. THE UNAUTHORISED RETENTION OR DESTRUCTION OF THE DOCUMENT IS AN OFFENCE UNDER THE OFFICIAL SECRETS ACTS OF 1911-39.

USER HANDBOOK
for
RADIO STATION UK/PRC-350

Published under the authority of:-
THE SIGNAL OFFICER IN CHIEF (ARMY)
Ministry of Defence

Printed for M.O.D. (P.E.), R.S.R.E. (C).

MAY 1977

RESTRICTED

RESTRICTED

RESTRICTED

RESTRICTED

Crown Copyright Reserved

Army Code No.
61124
DSS(ARMY)44/8/210

THIS DOCUMENT IS THE PROPERTY OF HER BRITANNIC MAJESTY'S GOVERNMENT, and is issued for the information of such persons only as need to know its contents in the course of their official duties. Any person finding this document should hand it to a Military Unit or Police Station for its safe return to the MINISTRY OF DEFENCE, (DS19b), LONDON, S.W.1, with particulars of how and where found. THE UNAUTHORISED RETENTION OR DESTRUCTION OF THE DOCUMENT IS AN OFFENCE UNDER THE OFFICIAL SECRETS ACTS OF 1911-39.

USER HANDBOOK
for
RADIO STATION UK/PRC-350

Published under the authority of:—
THE SIGNAL OFFICER IN CHIEF (ARMY)
Ministry of Defence

MAY 1977

RESTRICTED

RESTRICTED

PREFACE

This User Handbook has been produced in accordance with SRDE TS1530 which is the specification for conventional User Handbooks except that the title and order of the Chapters has been arranged, where appropriate, to conform to the Joint Service Specification JSP182, as shown below.

CHAPTER 1	Purpose and Planning Information (CAT.1)
CHAPTER 2	Operating Information (CAT.2)
CHAPTER 3	Installation and Preparation (CAT.4)
CHAPTER 4	Maintenance Information (Fault Location) (CAT.5)
CHAPTER 5	Work (Maintenance) Schedules (CAT.6)

5.4 RECORDS

The purpose of this Record page is to provide evidence that maintenance has been done before REME inspection. The User MUST adhere to the requirements of this Record page.

<u>Date of Check</u>	<u>Radio Serial No.</u>	<u>User's Name</u>	<u>Faults Found</u>	<u>Action Taken</u>
----------------------	-------------------------	--------------------	---------------------	---------------------

5.2 DETAILED TROOP INSPECTION (DTI)

The following checks are to be applied at least once per month. In addition to the actions required in the Standard Troop Inspection, the following shall also be performed:-

Connect the 50 ohm Antenna socket of the radio under test to the Condition Test Set which, in turn, is connected to a known good PRC-350. The setting of the attenuators on the CTS at which the received signal is just intelligible (QRK 3), are compared with the settings advised. If the settings are different, the radio under test should be sent to the Workshop.

5.3 REMEDIAL ACTION

1. Transmitter-Receiver RT-350.

Replace the protective covers for the Audio and RF sockets in the event of damage or loss (CHAP. 1, Table 1).

2. Antenna, Trailing-Wire

Replace the 1.2 metre wire (CHAP. 1, Table 1). In emergency, any copper or aluminium wire is satisfactory; iron or steel wire is not satisfactory.

3. Selective Unit RF (SURF 2W)

If the Meter Cover becomes damaged so that it cannot be closed, it is permissible to remove it. However, after tuning, tape should be applied to obscure the illuminated scale and protect the glass.

CONTENTS

CHAPTER 1	PURPOSE AND PLANNING INFORMATION	Page
1.1	Role	1
1.2	Frequency Coverage	2
1.3	Power Supply	2
1.4	Types of Antenna	2
1.5	Carrying Harness	2
1.6	Working Range	3
1.7	Mutual Interference	3
1.8	RF Power Output	3
1.9	Weight and Dimensions	3
CHAPTER 2	OPERATING INFORMATION	
2.1	Manpack Operation	5
2.1.1	Basic Station Contents	5
2.1.2	Assembly of Station	8
2.1.3	Frequency Setting Method	10
2.1.4	System Setting	11
2.1.5	Audio Gear Fitting	12
2.1.6	Carrying Positions	13
2.1.7	Battery	14
2.1.8	Operating Information and Techniques	15
2.1.9	Cable/Antenna Connecting Notes	17
2.2	Ancillary Items and their Use	19
2.2.1	Audio Extension Lead	20
2.2.2	Battery Extension Lead	20
2.2.3	Ground-Spike Antenna	21
CHAPTER 3	VEHICLE INSTALLATION AND PREPARATION	
3.1	Bracket Mounting	25
3.2	Vehicle Operation	26
3.3	Vehicle Working Range	26

CONTENTS (cont'd)

CHAPTER 4	MAINTENANCE INFORMATION AND INSTRUCTIONS	Page
4.1	Receiver Fault Location	27
4.2	Transmitter Fault Location	28
CHAPTER 5	WORK (MAINTENANCE) SCHEDULES	
5.1	Standard Troop Inspection (STI)	29
5.2	Detailed Troop Inspection (DTI)	30
5.3	Remedial Action	30
5.4	Records	31

WORK (MAINTENANCE) SCHEDULES

5.1 STANDARD TROOP INSPECTION (STI).

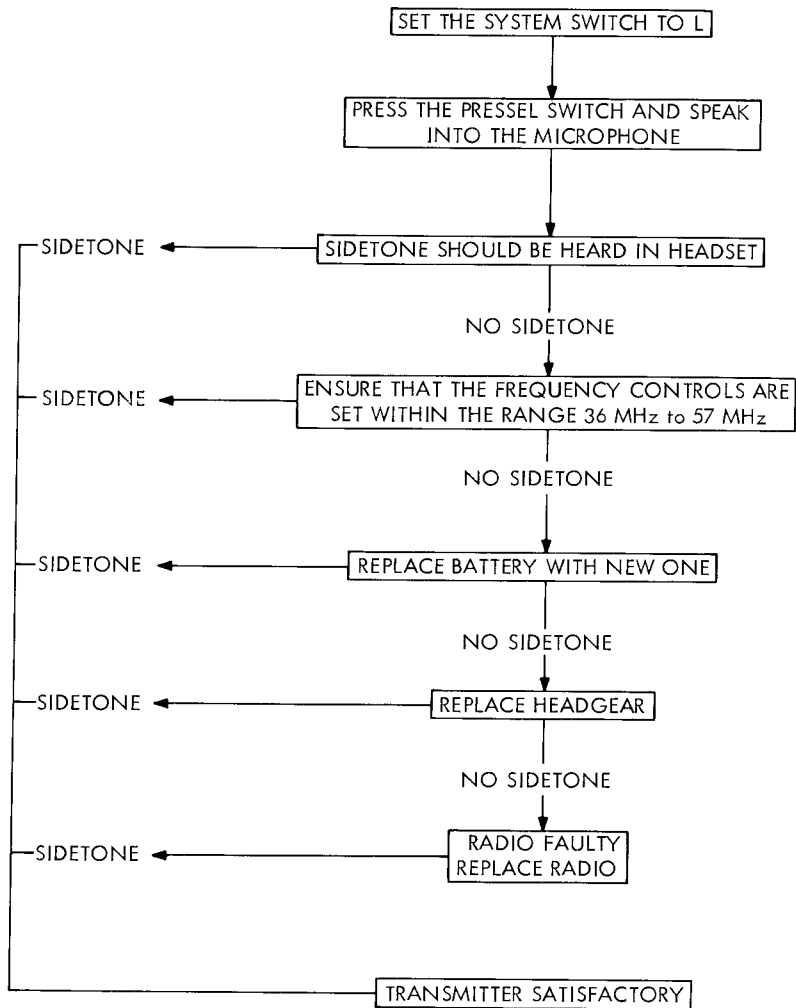
The following checks are to be applied daily when the radio is in frequent use, or weekly when used infrequently.

1. Check that the equipment is complete against the CES.
2. The UK/PRC-350 is a sealed set; the USER should NOT attempt to open it.
3. Clean and dry the equipment, particularly around the battery terminals on the radio.
4. Remove any dirt from plugs, sockets and control knobs.
5. Check all switches and controls and ensure that they turn easily and perform their functions.
6. Check that the battery contact springs are not broken; after cleaning the springs they are to be coated with petroleum jelly.
7. If possible check with a voltmeter and 10 ohms load that the battery is in good condition; the meter should read 14-18V approx. depending on state of discharge.
8. Examine all the CES items for physical damage, frayed ends or damaged insulation on the headset/handset.
9. Check serviceability of antennas - 1.2m whip, trailing-wire and ground-spike. If necessary, clean the electrical contacts on the ground spike antenna elements using emery cloth.
10. Connect the battery, manpack whip and audio gear to the radio; set up the test frequency.
11. Switch the radio to * (noise-on) and ensure that a loud hiss can be heard. This is the receiver checked.
12. Switch to 'L' (Loud), operate the pressel switch and speak; sidetone should be heard. This is the transmitter checked.
13. Fit and check the SURF 2W in accordance with page 16.
14. Always ensure that the System switch is set to the '0' (off) position when the radio is not in use.

4.2 TRANSMITTER FAULT LOCATION

Connect the Battery and Headset to the Radio

CONTENTS (cont'd)



Repeat with System switch at 'W'.

TABLES

CHAPTER 1

Page

1	Radio Station UK/PRC-350 Items	1
2	Mutual Interference	3

- (c) Connect the passive audio lead to one of the two coax audio sockets on the radio.
- (d) Carry out frequency setting (page 10) and system setting (page 11).
- (e) Lower the hinged clamping plate and secure with two spring latches. If required, fit a padlock.

3.2 VEHICLE OPERATION

- (a) Tilt the whip antenna towards the centre of the vehicle.
- (b) Connect headset or handset to the outlet box which is fixed, within the cab., to the top of the windscreen.
- (c) Operate the radio in the normal manner.

3.3 VEHICLE WORKING RANGE

This is dependent on siting, terrain and frequency. Approximate ranges using the 1.2 metre whip antenna fixed directly to the radio (as in Trucks $\frac{1}{2}$ and $\frac{3}{4}$ ton Rover) are as follows:-

Rolling countryside - good site	4 km
Rolling countryside - bad site	2 km
Built-up area	3 km

Using a longer antenna fitted to the Vehicle frame e.g. 3 metre whip in Truck 1 Tonne, the above ranges are approximately doubled.

LIST OF ASSOCIATED PUBLICATIONS

	Army Code
Radio Station UK/PRC-320	61123
Radio Station UK/VRC-321	61253
Radio Station UK/VRC-322	61255
Radio Station UK/PRC-349	61646
Radio Station UK/PRC-351 and UK/PRC-352	61128
Radio Station UK/VRC-353	61393
Clansman Radio Control Harness	61172
Clansman Secondary Batteries, Battery Charging and Testing	61395
Clansman VHF Antennas	61388
Test Set Audio, Radio Audio Accessories	61656
Test Set, Harness Connectors, 'Clansman'	61657
Condition Test Set for Clansman Radio	61655



Fig. 1 The UK/PRC-350 Manpack

VEHICLE INSTALLATION AND PREPARATION

3.1 BRACKET MOUNTING

The PRC-350 radio can be installed in vehicles and operated on the move using vehicle ancillary equipment and a 1.2 metre whip fitted to the radio; the radio is powered by its own dry battery. (A 3 metre whip, fitted to the vehicle frame, is used in Truck 1 Tonne).

The vehicle ancillary equipment consists of a passive audio extension lead and two-outlet box. A mounting bracket (Bracket mounting assembly 5820-99-620-9618) will be fitted to one of two wing positions; the method of fitting the radio to the mounting bracket is the same for both positions. To fit the radio, refer to diagram and proceed as follows:-

- (a) Release the two spring latches and raise the hinged clamping plate.
- (b) Place the radio, fitted with its dry battery and 1.2 metre whip, into the mounting bracket. SURF 2W can be fitted, if required.

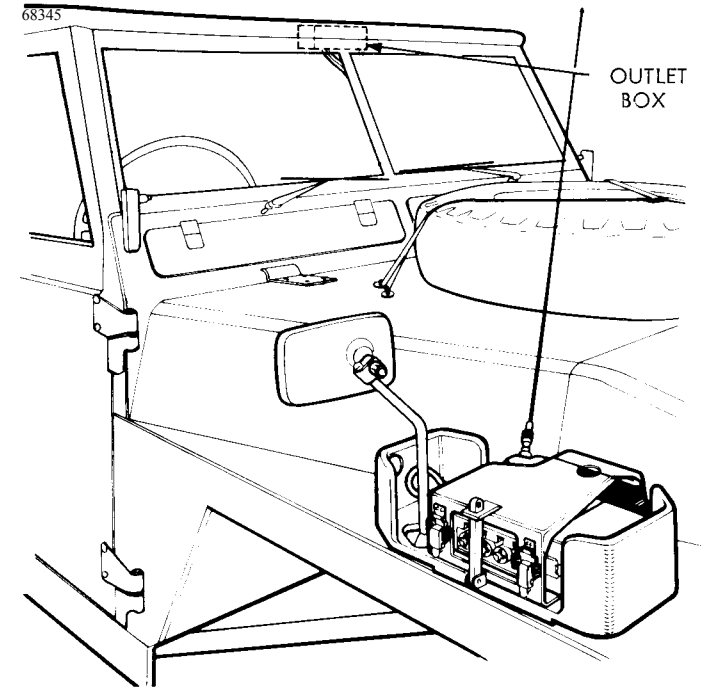


Fig. 19 Typical Vehicle Bracket Mount

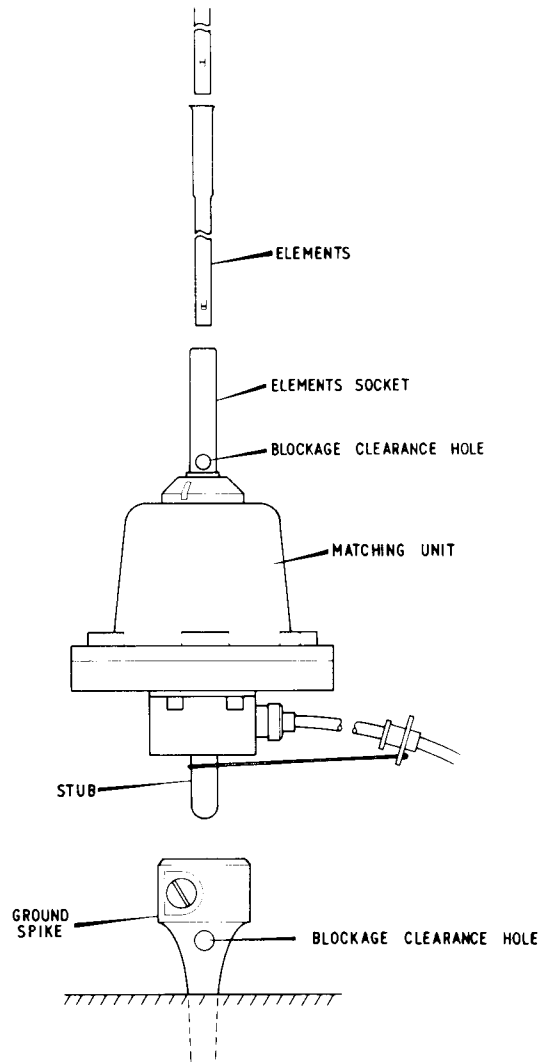


Fig. 18 Assembly of Ground-Spike Antenna

PURPOSE AND PLANNING INFORMATION

ROLE

1.1 The Radio Station UK/PRC-350 is based on the UK/RT-350 which is a VHF/FM manpack radio for use at Section/Platoon level. It is designed to inter-operate, within the restrictions of frequency range, with the UK/PRC-349, UK/PRC-351/2 and the UK/VRC-353. Although the UK/PRC-350 can not be used as a part of a rebroadcast station it will initiate a UK/PRC-351/2 or a UK/VRC-353 rebroadcast station. The UK/PRC-350 has remote audio facilities when used with the 10 metre audio extension lead. The UK/PRC-350 may be bracket-mounted in certain vehicles by using the appropriate installation kit. All items which may be used in a manpack station are shown in Table 1.

TABLE 1
RADIO STATION UK/PRC-350 ITEMS

Item	NATO No.	Common Name	Qty
Transmitter-Receiver Radio RT-350, includes:-	5820-99-114-3638	Radio RT-350	1
Cover, Electrical, Plug-Socket	5935-99-626-4256	Dust Cap AF (Pattern 105)	2
Cover, Electrical, Plug-Socket	5340-99-626-2750	Dust Cap RF (MB)	1
Battery, Dry (15V Socket Type)	6135-99-620-5515	Battery for RT-350	3
Antenna	5820-99-620-8025	Whip, 1.2 metre	2
Antenna, Trailing-Wire 1.2m, consisting of:-	5820-99-620-8345	Trailing-Wire	1
Plug, Assembly, Antenna, Trailing-Wire	5935-99-622-5099	Bayonet Plug	1
Antenna Element	5820-99-620-8346	Braid (cut to 1.2m)	reel
Audio Lead, Extension	5820-99-117-6142	Audio Extension Lead	1
Bag, Ancillaries	5820-99-621-9028	General Purpose Bag	1
Cable Assembly, Switch Electrical	5965-99-620-5667	Clansman Headset Pressel Unit	1
Cable Assembly, Special Purpose LT	6145-99-622-5098	Battery Extension Lead	1

TABLE 1 (Continued)

Item	NATO No.	Common Name	Qty
Handset	5965-99-620-5669	Clansman Handset, General Purpose	1
Headset, Microphone	5965-99-620-8320	Clansman Headset, Infantry	1
Kit, Antenna, Ground-Spike	5820-99-620-5950	Ground-Spike Antenna	1
Pouch, Handset	5965-99-620-8031	Pouch (Normally fitted to Harness)	1
Selective Unit RF, 2W, includes:-	5820-99-630-6154	SURF 2W	1
Cover, Electrical, Plug-Socket	5340-99-626-2750	Dust Cap RF (MB)	2
Strap Assembly, Webbing	5999-99-620-8028	Harness	2
User Handbook	Code No. 61124		1

FREQUENCY COVERAGE

1.2 36 MHz to 57 MHz in steps of 25 kHz, providing 841 channels for communication. The mode of operation is F3 narrow-band FM, with a deviation of ± 5 kHz.

POWER SUPPLY

1.3 From a 15-volt primary battery (catalogue No. 6135-99-620-5515) which will supply the radio for approximately 12 hours on a 1:9 send/receive ratio.

Input Volts	12V to 21V	
Input Power (max)	Transmitter	12.3W at 15V (820 mA max.)
	Receiver	2.7W at 15V (180 mA max.)

TYPES OF ANTENNA

1.4 Principally, a 1.2 metre whip fitting into a bayonet antenna socket; a 1.2 metre trailing-wire antenna is also supplied. An additional coaxial socket (50-ohm impedance, Type MB) is provided to enable the radio to be connected to any Clansman VHF antenna e.g. ground-spike.

CARRYING HARNESS

1.5 A lightweight webbing harness is provided which is independent of the normal webbing equipment and enables the radio to be carried on the back; the radio can also be hip slung. A Handset pouch is attached to the webbing harness.

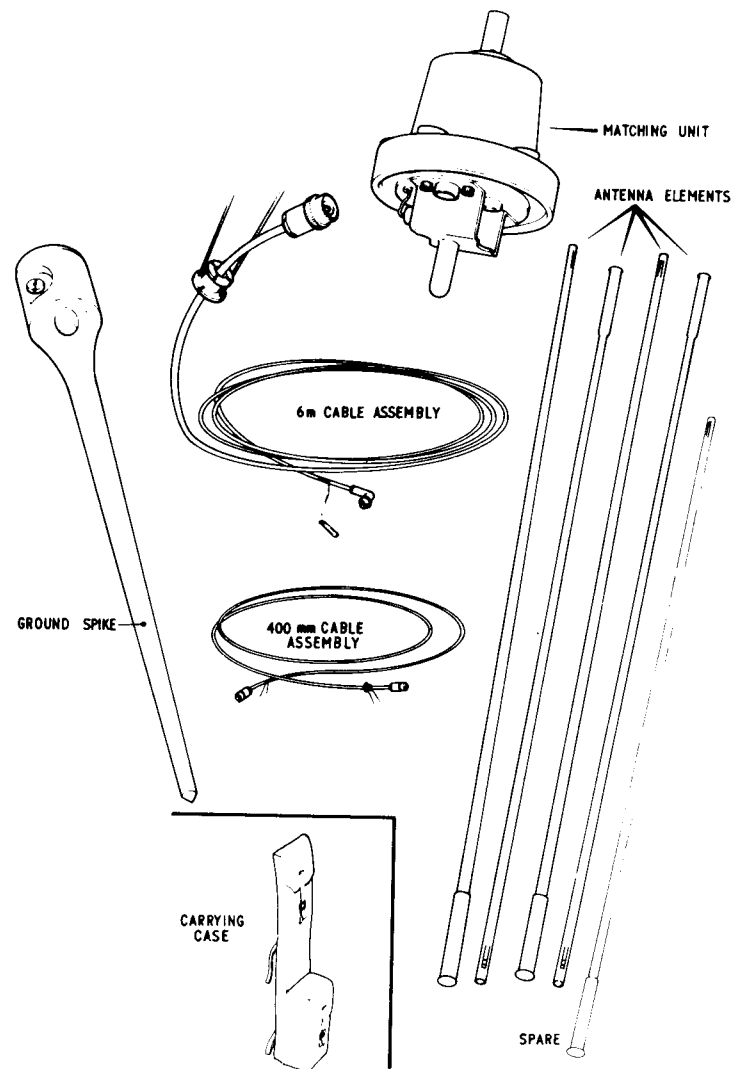


Fig. 17 Items Forming VHF Ground-Spike Antenna Assembly

Frequency band	Number of Elements
30-53 MHz	4
52-71 MHz	3

- Plug the selected elements into each other, plugging the first element into the socket on top of the matching unit. In each case, press the element firmly home into the receiving socket.

CAUTION: The elements must not be bent over but must be withdrawn from the matching unit in order to add or remove sections.

- Connect the socket at one end of the 400mm cable to the right-angle plug on the 6m cable after passing this end of the 400mm cable through the loop of the cable strainer on the 6m cable; clip the cable strainer to the collar on the 400mm cable.
- Connect the MB plug on the 400mm cable to the antenna socket on the radio and attach the cable strainer to the nearest suitable part of the radio.
- The antenna is now ready for use.

Dismantling of the antenna is carried out in the reverse order to that described for assembly. In particular:

- Every item should be wiped clean of mud and debris before it is stowed in the carrying case. Pay particular attention to cleaning the blockage clearance hole in the matching unit and the ground-spike.
- Fit the protective dust cap to the coaxial connector on the matching unit.
- Check that all items are present before closing the carrying case.

WORKING RANGE

1.6 This is dependent on siting, terrain and frequency; approximate ranges using the 1.2 metre whip antenna are as follows:-

	Manpack	Vehicle
Rolling countryside - good site:	5 to 7 km	4 km
Rolling countryside - bad site:	3 to 5 km	2 km
Built-up area:	4 km	3 km

Using a longer antenna fitted to the vehicle frame e.g. 3 metre whip in Truck 1 Tonne, the above vehicle ranges are approximately doubled.

MUTUAL INTERFERENCE

1.7 The co-location of two or more radios requires the addition of a Selective Unit RF (SURF) to each VHF radio (except PRC-349) in order to achieve minimum distance spacing.

- For PRC-350 use SURF 2W
- For PRC-351 use SURF 4W
- For PRC-352 use SURF 4W
- For PRC-320, SURF not needed on PRC-320 or PRC-350

TABLE 2
MUTUAL INTERFERENCE

PRC-350 (Ant. Whip 1.2m) co-located with:-	Approx. minimum distance between antennas (metres) (frequency difference in %)							
	Radios on ground				Radios on men			
	Without SURF's		With SURF's		Without SURF's		With SURF's	
	m.	%	m.	%	m.	%	m.	%
PRC-350 (Ant. Whip 1.2m)	15	5	5	5	2-5	5	2	5
PRC-351 (Ant. Whip 1.2m)	5	10	2	10	-	-	-	-
PRC-352 (Ant. Ground Spike)	15	5	5	5	2-5	5	2	5
PRC-320 (Ant. Whip 2.4m)	5	10	2	10	-	-	-	-
PRC-349	50	5	15	5	50	5	15	5
PRC-320 (Ant. Whip 2.4m)	2	-	SURF's not needed		2	-	SURF's not needed	
PRC-349	-	-	-	-	2	5	2	5

SURF's must be tuned, or range will be severely reduced

RF POWER OUTPUT

1.8 1.1 watts min. (into 50 ohms) over temperature range -40°C to $+55^{\circ}\text{C}$ (with solar radiation) (0.6 watt min. at 12V battery voltage).

WEIGHT AND DIMENSIONS

1.9 Weight

Complete equipment, comprising Transmitter/Receiver (with SURF 2W), Dry Battery, Harness, Headset, Handset and Whip antenna:- 5.5 kg.

Dimensions (including Dry battery)

24 cm x 14 cm x 7 cm.

2.2.3 GROUND-SPIKE ANTENNA

This antenna is more commonly used with the UK/PRC-351 or 352 radio equipment. However, under certain circumstances, if the ground-spike antenna is available it may prove advantageous to connect it to the UK/PRC-350. The advantages to be gained by the use of this antenna are as follows:-

1. The antenna is a better radiator than a whip therefore, in general, greater range should be obtained.
2. The antenna can be placed in the open but still be relatively inconspicuous, whilst the radio and operator can occupy a sheltered position (Fig. 16). This facility has advantages over the 'audio extension' facility in so far that switching and limited frequency control of the radio may be carried out without the User leaving protective shelter.

The Ground-Spike Antenna may also be mounted on a 5.4 metre Mast, or tree, giving a further improvement in range. The Elevated Antenna Kit 5985-99-630-6499 is required; see User Handbook Army Code No. 61388 (Clansman VHF Antennas).

The Antenna (Fig. 17) consists of a rod radiator, matching unit, ground-spike and connecting cables. The rod radiator is provided by four identical elements (together with one spare element) which plug into each other and into the top of the matching unit. The number of elements used depends upon the frequency band to be covered. A fabric carrying case (page 19) is provided to house the antenna.

When erected, the distance from the top of the antenna to the ground is approximately 2.4m (4 elements) or 1.85m (3 elements).

At the chosen site, preferably an open site with damp earth, assemble and erect the antenna as follows (Fig. 18), removing each item from the carrying case only when the item is required.

1. Drive the ground-spike into the ground until the blockage clearance hole is approximately 4 cm above the surface.
 Note: A captive dust cover is fitted to the cable socket on the matching unit. To prevent ingress of dirt do not remove this cap from the socket until the instant of making a connection; the cap should then be fitted to the stowage position provided.
2. Connect the 'straight' plug at the end of the 6m cable to the socket on the matching unit. Fit the cable strainer over the matching unit base stub.
3. Fit the matching unit base stub into the hole in the head of the ground spike.
4. Select a number of antenna elements according to the frequency band thus:

2.2.1 AUDIO EXTENSION LEAD

An audio extension lead is provided to enable the radio to be operated remotely up to a distance of 10 metres. This facility is useful in circumstances where it is desirable for the radio to be operated from a good radio site whilst the operator takes advantage of local cover. The extension lead is connected as follows:-

1. Remove the Headset/Handset from one of the audio sockets on the radio.
2. Connect the plug on the extension lead to the audio socket on the radio.
3. Connect the Headset/Handset to the socket on the extension lead.
4. Site the radio in a suitable open position, and pay out the extension lead to the chosen sheltered position.

2.2.2 BATTERY EXTENSION LEAD

In cold weather e.g. below -5°C the efficiency of the battery is reduced and the output voltage will fall, therefore, a battery extension lead is provided in order that the battery may be placed inside the combat jacket, where the User's body heat will keep the battery at a working temperature. The socket at the radio end of the lead, and the plug at the battery end, can only be connected in one position; tighten the knurled screws after connection.

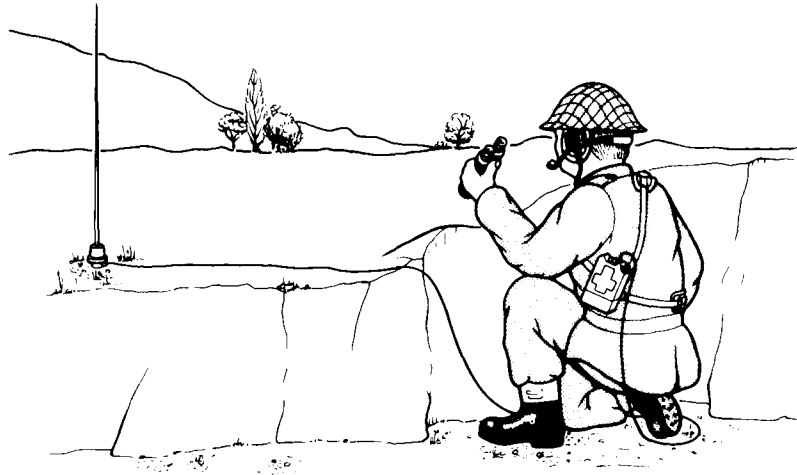


Fig.16 UK/PRC-350 used with Ground-Spike Antenna

OPERATING INFORMATION

2.1 MANPACK OPERATION

2.1.1 BASIC STATION CONTENTS

Check that you have these items before going on patrol:-		Weight (kg)
1.	RT-350 Radio	2.1
2.	Harness and Pouch (for Handset)	0.28
3.	Battery (unused)	1.13
4.	Selective Unit RF (SURF 2W) - if required (Complete with coaxial cable)	0.75
5.	Whip Antenna	0.15
6.	Trailing-Wire Antenna	0.05
7.	Headset	0.7
8.	Pressel Box for Headset	0.15
9.	Handset (General Purpose)	0.25
10.	Bag, Ancillaries	0.6
11.	Dust Cap AF (2)	-
12.	Dust Cap RF (MB) (3)	-
13.	User Handbook	-

(Refer to pages 6 and 7)

The Bag, Ancillaries is for carrying spare batteries, headset, handset and any of the ancillaries (page 19) necessary for the required operational role.

Refer to Table 1, CHAP. 1 for constituent parts of Trailing-Wire Antenna.

The Dust Caps remain attached to the radio when removed from the sockets.

RESTRICTED

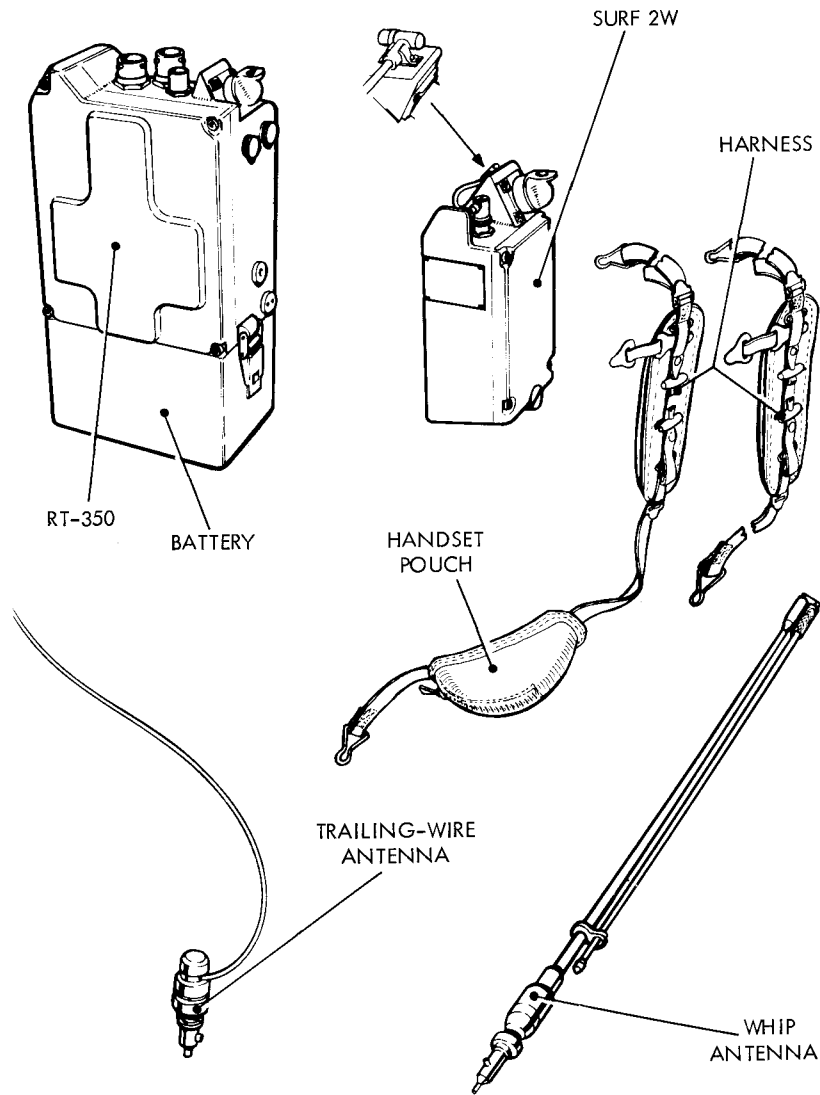


Fig.2a Basic Station Equipment

RESTRICTED

2.2 ANCILLARY ITEMS AND THEIR USE

The use of these items depends upon the operational role.

- | | |
|---|---------|
| 1. Audio extension lead. | 0.77 kg |
| 2. Battery extension lead. | 0.11 kg |
| 3. Case, antenna (containing ground-spike antenna). | 1.7 kg |

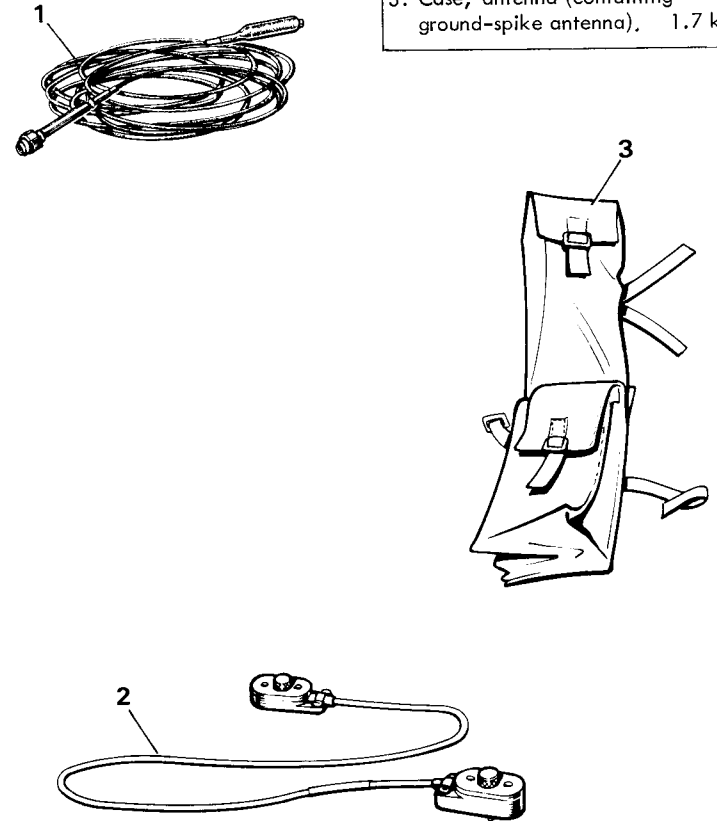
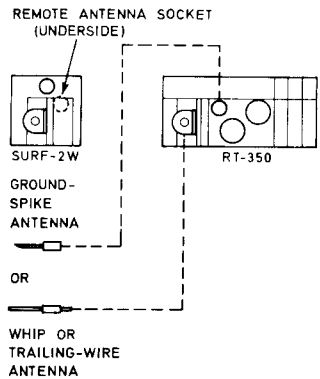
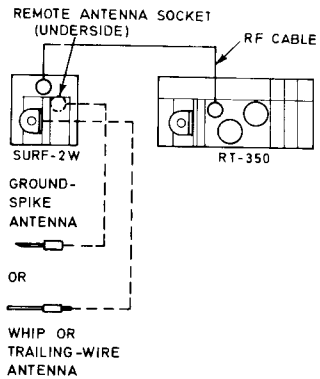


Fig.15 Ancillary Items

- (a) Whip or ground-spike antenna connected to RT-350. SURF 2W not in use.



- (b) Whip or ground-spike antenna connected to SURF 2W.



SURF 2W must be tuned, or range will be severely reduced.

Fig. 14 UK/PRC-350 and SURF 2W Connections

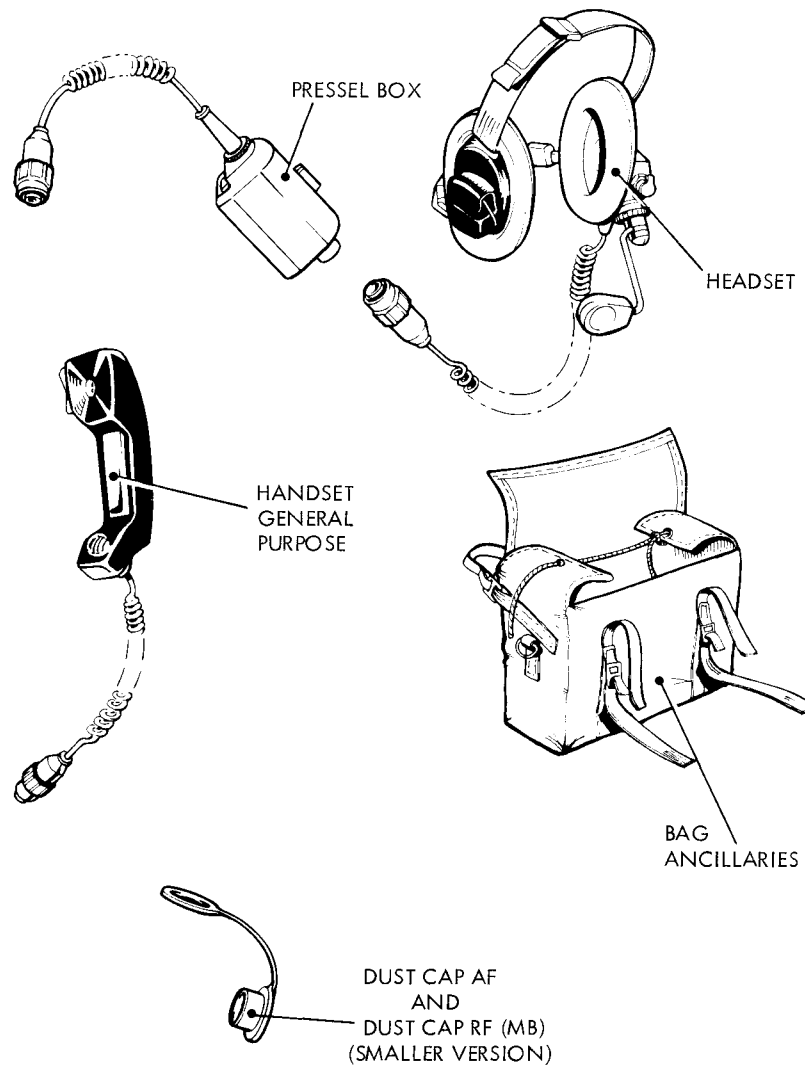
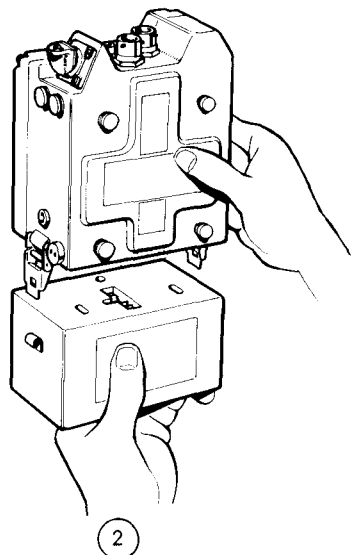


Fig.2b Basic Station Equipment

2.1.2 ASSEMBLY OF STATION



①
BATTERY
Securely fasten clips

Fig.3 Fitting Battery to Radio

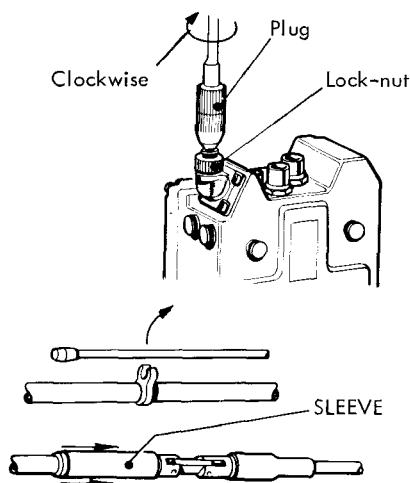


Fig.4 Connecting Whip to Radio

②
ERECT AND FIT WHIP ANTENNA
(Trailing-Wire antenna similarly fitted)

Unclip and straighten folded section of whip antenna. Push centre sleeve towards tip until sleeve locks. (see Note below). Turn knurled lock-nut to maximum counter-clockwise position. Insert antenna spigot into battle socket and twist plug clockwise until correctly located. Tighten knurled lock-nut by turning clockwise.

Note: On alternative design, there is no centre sleeve; the folded section is self-straightening and locking. When refolding the whip, pull the two sections off their taper before folding.

CAUTION: Do not connect Ground-Spike Antenna (page 21) at the same time. Range will be reduced.

CAUTION: Care must be taken to make antenna connections to the SURF 2W, as false-tune deflections may occur on the SURF meter if no antenna is connected. Check the tuning position of the thumb-wheel control occasionally; when the air temperature is very low (-30°C), this should be done half-hourly.

6. Co-Located Working

The co-location of two or more radios requires the addition of a Selective Unit RF (SURF) to each radio in order to achieve minimum distance spacing. For details see Page 3. SURF's must be tuned, or range will be severely reduced.

7. Inter-operability

Completely satisfactory with UK/PRC-349, UK/PRC-351 and 352, and UK/VRC-353 with frequency band restrictions. Inter-operability possible but never completely reliable with B.47, B.48, C.42 No.2, C.45 No.2 and AN/PRC-25. No plans should be made to inter-operate with A.41, A.42, C.42 No.1 or AN/ARC-44.

8. 'Noise-On' Setting of System Control Switch

This setting position is marked with an asterisk (*) on the switch (see page 11). It may be used:-

- (a) to confirm that the battery and receiver are satisfactory - a loud hiss will be heard in the absence of a signal. Confirmation is particularly useful when signals have not been heard for some time. There is no hindrance to receipt of signals in this position.
- (b) to confirm that signals are not being received on 'L' or 'W' because the channel is being jammed by an interfering transmitter. If so, proceed as follows: firstly, check that the battery and receiver are satisfactory by switching to 'Noise-On' and changing to a few channels in turn, say 1 MHz away. Satisfactory performance is indicated by the presence of hiss (provided there is no signal on the channels being tried). Secondly switch back to the original channel; if there is then no hiss, jamming is taking place by means of an unmodulated carrier.

2.1.9 CABLE/ANTENNA CONNECTING NOTES

The essential cable interconnections between the RT-350 and SURF 2W, when using either the ground-spike, whip or trailing-wire antenna, are shown on page 18.

CAUTION: ENSURE THAT NO INTERCONNECTING CABLES, OTHER THAN THOSE SHOWN, ARE FITTED. ALSO, ONLY THE REQUIRED ANTENNA SHOULD BE FITTED. UNUSED CABLES MUST BE SUITABLY STOWED.

4(b) Batteries - Wading in Sea Water

If sea water is allowed free access to the battery contacts, they will be eaten away and the battery will become discharged.
Keep spare batteries taped up.

BEFORE WADING with the radio ensure that:-

- (i) the mating surfaces of radio and battery are free of grit.
- (ii) the battery is properly fitted to the radio, and the spring clips are fully closed.
- (iii) when possible, the cavity around the battery contacts is packed with petroleum jelly or grease.

DURING WADING, do not meddle with the battery as this can allow sea water into the contacts.

AFTER WADING, when possible, remove the battery and wipe the contacts (unless greased) and surfaces on it and the radio dry. When possible, wash with fresh water and dry.

5. Selective Unit RF (SURF 2W)

The SURF 2W is used under conditions of co-located working of two radios (para.6). If not fitted, proceed as follows:-

- (a) Remove the antenna (if fitted) from the radio.
- (b) Fit the RF Selective Unit (page 9).
- (c) Unclip, from the SURF, the short coaxial lead and connect as shown on page 9.
- (d) Connect the required antenna as follows:-
 - (i) Whip or trailing-wire to whip antenna socket on top of SURF.
 - or (ii) Ground-Spike antenna to coaxial socket on underside of SURF.

CAUTION: Never connect more than one antenna to the radio.

- (e) Set the System Control switch to 'W'.
- (f) Select a frequency.
- (g) Depress the pressel switch on headset/handset.
- (h) Raise the meter cover on the RF Selective Unit and adjust the thumb-wheel 'tuning' control for a peak meter deflection (about $\frac{3}{4}$ full scale). (The marking 'Hi' means towards 57 MHz; the marking 'Lo' means towards 36 MHz). The meter is permanently illuminated for tuning in the dark; the meter cover should be snapped shut after tuning.

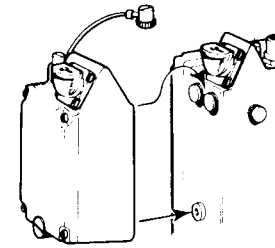


Fig.5a Fitting SURF 2W to Radio

3

ATTACH SURF 2W

Slide into position and tighten securing screw. DO NOT connect short coaxial lead before referring to page 16, para.5.

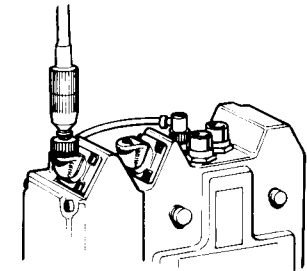


Fig.5b Fitting SURF 2W to Radio

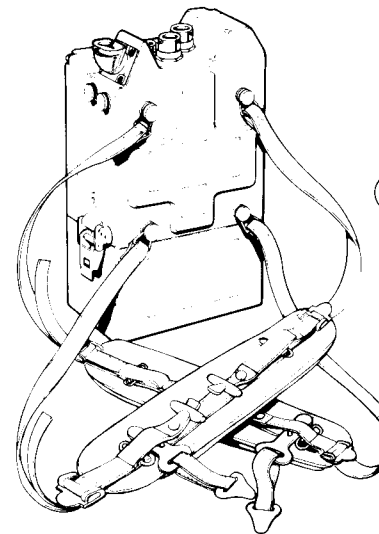


Fig.6 Fitting Harness to Radio

4

ATTACH HARNESS AND POUCH

Pouch is fitted, as appropriate, to one of the webbing straps (page 6).

5

CONNECT HEADSET/HANDSET

(Either socket)

Clip pressel box to harness webbing (page 13).

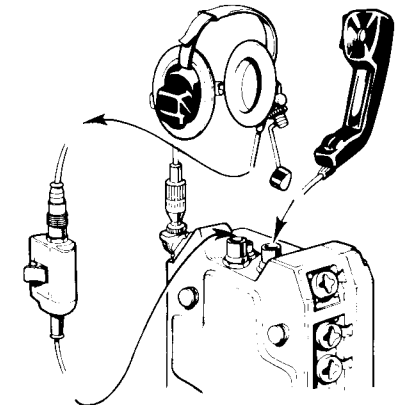


Fig.7 Connecting Headset and Handset to Radio

2.1.3 FREQUENCY SETTING METHOD

(For tuning SURF 2W - when connected - refer to page 16)

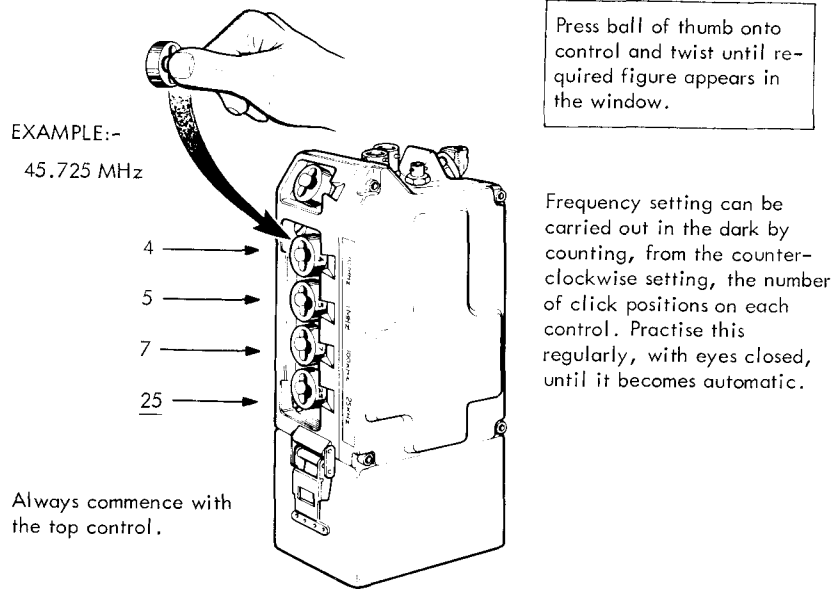


Fig.8 Frequency Setting Method

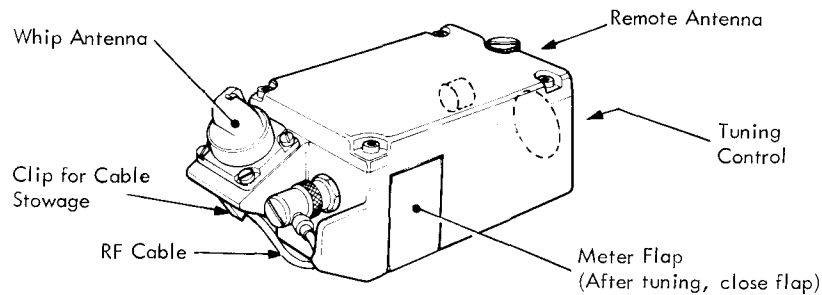


Fig.9 SURF 2W

CAUTION: If SURF 2W is in use, ensure that only one antenna is connected to the manpack.
SURF 2W must be tuned, or range will be severely reduced.

2.1.8 OPERATING INFORMATION AND TECHNIQUES

1. Transmitter Check Procedure

- Connect the battery and headset/handset to the radio.
- Connect Antenna (Whip or Trailing-Wire).
- Set frequency within band 36 to 57 MHz.
- Set the System Control switch to 'L'.
- Depress the pressel switch and speak into the microphone.
- Sidetone should be heard in the headset/handset.
- If no sidetone is heard, refer to page 28.
- Repeat with System Control switch at 'W'.

2. Receiver Check Procedure

- Connect the battery and headset/handset to the radio.
- Set the System Control switch to '*'.
- A loud continuous 'hiss' should be heard in the headset/handset.
- If no 'hiss' is heard, refer to page 27.

3. Whisper Facility

When the radio is used in close proximity to enemy positions, the System Control switch is set to 'W', microphone sensitivity is 'high' and audio output level is 'low'. The Operator's voice is thus less likely to be overheard by an enemy listener, as the operator can produce full modulation and range with an unvoiced whisper. Received signals are also less likely to be overheard. Even at low audio output, a received signal may be heard at 5 metres distance (headset worn on head) or 15 metres (headset off head). Under conditions of high ambient noise, e.g. gun-fire or in a noisy vehicle, the System switch should be set to 'L' (Loud); hold the microphone close to the mouth and speak loudly. For normal use, in reasonably quiet surroundings, set the System switch to 'W' (Whisper) as this will result in clearer speech and the best performance at limit range.

4(a) Battery 'Low' Warning

As the battery approaches exhaustion, an interrupted hiss is heard in the headset/handset when the System Control switch is set to either 'W' or 'L'. The interrupted hiss will be noticed first when the pressel switch is released following a period of transmission i.e. when the radio reverts to the 'listening-out' (receive) state; continued use will result in a persistent interrupted hiss developing. Satisfactory reception will still be obtained, but the battery should be changed as soon as possible. The main effect of a 'low' battery is to reduce range on transmit; the transmitter will eventually stop working as the battery is further discharged.

2.1.7 BATTERY

Cat No. 6135-99-620-5515, 12-hour, dry.

It is advisable not to rely on batteries where the Date of Manufacture (printed on the battery) is more than 2 years old.

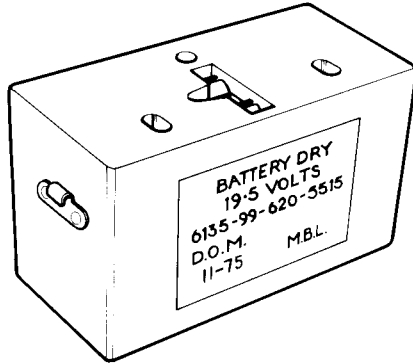


Fig.13 Battery

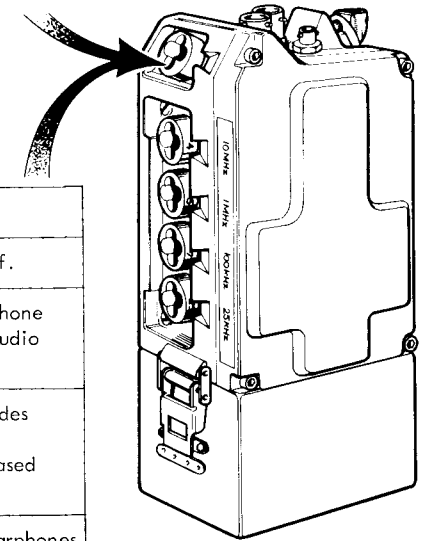
General

- (i) When the batteries are not in use they should be stored in a cool place, ideally at about 0°C.
- (ii) The battery efficiency is severely reduced at lower temperatures, therefore when operating the radio in cold conditions, 0°C and lower, the battery extension lead should be used. This will allow the operator to keep the battery warm inside his clothing.
- (iii) The tape over the spring contacts should not be removed until just before the battery is to be used.
- (iv) Some batteries will last considerably longer than the 12-hour rating; they should not be thrown away unless there are good reasons for taking a new battery e.g. at the start of a long patrol period. The radio will give warning of approaching battery exhaustion (see page 15).
- (v) If liquid is seeping out, or there is much evidence of white crystals on the outside, do not use the battery.

2.1.4 SYSTEM SETTING

Rotate the System Control - On/Off switch to the appropriate position (see Table below) i.e. until the required letter appears in the 'window'.

SYSTEM CONTROL



FOUR-POSITION SWITCH	
O - OFF	Battery supply cut off.
W - WHISPER	Provides high microphone sensitivity and low audio output level.
L - LOUD	Relative to W, provides reduced microphone sensitivity and increased audio output level.
* - NOISE ON	Background hiss in earphones provides reassurance that radio is functioning. (Incoming signals also received in this switch position).

Fig.10 System Setting

If intermittent hiss is heard in phones, when System Control switch is in position 'W' or 'L', change battery (see page 15).

ALWAYS SWITCH OFF AFTER USE.

2.1.5 AUDIO GEAR FITTING



The headset must be worn correctly with the microphone approximately 1.0 cm in front of the mouth.

In cold conditions, if the microphone grille becomes iced up by breath, blow hard on it to clear the ice and shake off water.



When using respirator, the headset must be worn as shown. Special points to note:-

The headset must be put on after the respirator has been fitted correctly in order not to interfere with the straps holding it in position. Connect respirator microphone to socket on headset and swing boom upwards as shown.

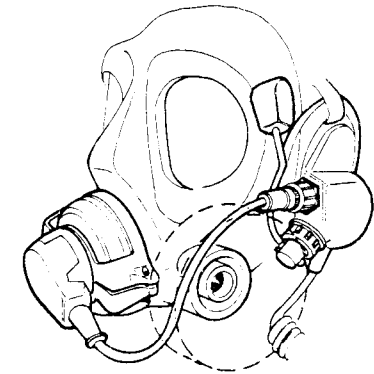
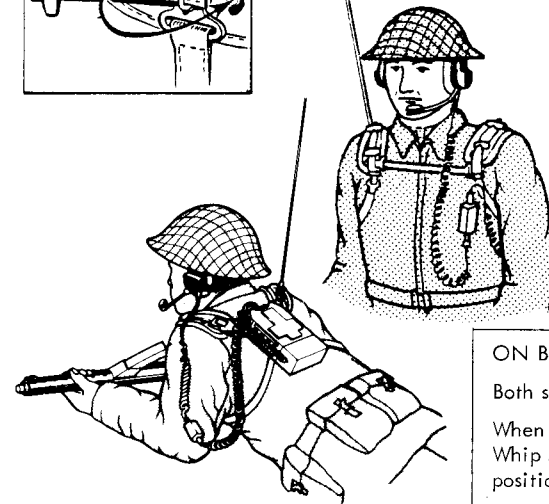
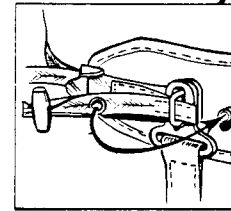


Fig.11 Audio Gear Fitting

2.1.6 CARRYING POSITIONS

ON HIP - SHOULDER SLUNG

Use one strap to suspend from shoulder, use other strap around waist. Attach Handset Pouch to either strap. Radio above left hip, with antenna pointing rear of left shoulder. If trailing-wire antenna is used, sling over shoulder.



NOTE: When using the Trailing-Wire Antenna, straighten the wire out and wear as high as possible on the shoulder for best range.

ON BACK

Both straps used.

When lying prone, crank the Whip Antenna to the vertical position for best range.

Fig.12 Carrying Positions