CHAPTER FIVE

BASIC RADIO MAINTENANCE

It is recommended that radio communications equipment be installed and serviced by qualified technical personnel

OPERATOR MAINTENANCE

5.01 Operators should carry out regular maintenance as follows:

a. Visual check of all connections.

b. Regular 'On air' testing.

c. Keep batteries charged and ensure that dry cells are removed from equipment in storage.

d. Keep the radio clean, dry and dust free.

e. Check all accessories.

5.02 **FAULTS**

Should a fault be found label the radio and describe the fault with as much information as possible to aid repair Include name, contact number and all accessory items prior to dispatch for servicing.

FAULT FINDING PROCEDURE

5.03 **TOTAL FAILURE**

Should the radio totally fail (nil transmit nil receive), carry out the following fault finding procedures:

a. Ensure the radio is switched on and indicator lamps are glowing.

b. Ensure power leads to battery or power supply are properly connected to the appropriate terminals.

c. Check fuses in power leads and power supply unit. If replacement is required ensure that the same value fuse is used.

d. Check antenna and microphone connections. If an external loud speaker is being used ensure it is plugged in.

e. Ensure the radio is switched to an operational frequency.

f. Check remote head connections, if fitted.

5.04 **RECEIVER FAILURE**

a. Check volume control setting

b Check microphone loud speaker connections, or external speaker.

c. Ensure radio is set to an operational frequency.

d. Check mute control setting.

e. Check antenna is connected and erected.

5.05 TRANSMITTER FAILURE (ASSUMING RADIO IS RECEIVING)

a. Ensure microphone is connected and the 'Push to Talk' button is working.

b Ensure the transmit lamp is glowing.

c. Check power lead connections from power source to radio.

RADIO BATTERIES - CARE AND USE

5.06 The very nature of counter disaster operations demands that they be conducted in adverse conditions and as a result heavy reliance is placed upon battery operated communication equipment. The proper care of batteries is essential if reliable communications using portable radio equipment is to be maintained. Three main types of batteries in general use are; Dry Cells, Gel Cells (Lead Acid) and Nickel Cadmium cells.

5.07 DRY CELLS

a. Dry cells are commonly used in a variety of battery powered consumer equipment such as torches, transistor radios and children's toys.

b. The only type of dry cells that should be used in portable radio equipment are the alkaline type. Alkaline cells have a useful shelf life of about 12 months and should be kept in cool storage. Alkaline cells are not rechargeable.

c. All types of dry cells should be removed from of equipment before it is placed in storage to avoid damage by leaking batteries. Always follow the manufacturer's instructions when replacing batteries because incorrect installation can damage the equipment.

5.08 GEL CELLS

a. Gel Cells are also known as sealed lead acid batteries and are used in most manpack portable radios. These batteries are rechargeable but charging is relatively slow with recharging times in the order of 8 hours.

b. It is essential that this type of battery be charged with the specific charger supplied, otherwise severe damage to the equipment can occur

c. Gel Cell batteries have good endurance and are normally capable of operation for about 8 hours before recharging becomes necessary Most manpack portable transceivers can be left on charge permanently without causing any damage It is imperative that radios with flat batteries be placed on charge without delay as leaving Gel Cells in a discharged state will destroy them. The replacement of Gel Cells should only be carried out by qualified technical personnel under workshop conditions. The major disadvantage of Gel Cells is their excessive weight.

5.09 NICKEL CADMIUM CELLS

a. Nickel Cadmium batteries or NICADs are a type of rechargeable battery that is used on virtually all hand-held portable radios. NICADS have the advantage that they are compact, relatively light weight and can be fast charged in about 1 hour with a suitable battery charger

b. To maintain optimum performance these batteries should not be subjected to :

(1) continual overcharging;

(2) complete discharging;

(3) reduced cycle charging; and

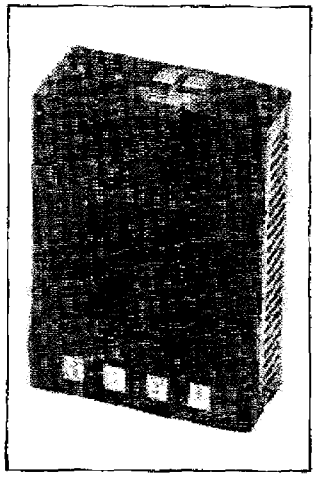
(4) storage in excessively hot or cold locations.

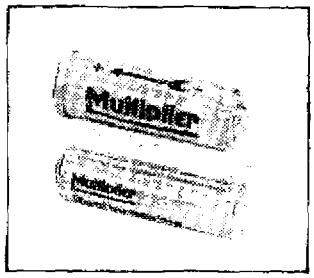
c. Because the output voltage remains virtually constant until the batteries are almost discharged, little warning of battery failure is given.

d. When a NICAD battery is partially discharged and recharged for a number of cycles, the battery's charged capacity is severely reduced in direct relation to the number of charge discharge cycles. For example, if a 10 hour battery is only discharged for 1 hour and then recharged for a significant number of cycles, the battery will develop a shortened full charged capacity of only one hour. This is called 'memory effect' and can be overcome by almost fully discharging the battery and recharging it for a number of cycles. The latest manufacturing processes have almost eliminated 'memory effect'.

NOTE: TO MAINTAIN MAXIMUM BATTERY LIFE IT IS ESSENTIAL THAT THE MANUFACTURER'S CHARGING AND DISCHARGING INSTRUCTIONS BE FOLLOWED.

NICKEL CADMIUM BATTERY PACK





NICKEL CADMIUM CELLS

Figure 5:1

CHAPTER SIX

RADIO OPERATING PROCEDURE

INTRODUCTION

6.01 While the basic radio operating procedure detailed in Section One, Chapter Four would normally be adequate for efficient message passing over good quality radio circuits, additional standard procedures are necessary for the efficient exchange of messages over poor quality radio networks.

6.02 A full understanding of the information contained in Section One is necessary before reading this Chapter. Some subjects have been briefly covered in Section One, and are covered again in more detail here for the benefit of the advanced radio operator.

RADIO NETWORKS

6.03 A typical radio net diagram appears below. Note that.

a. VZ6DG is the Net Call Sign.

b only the station call sign is to be shown inside the circle:

c. curtin base is the control station· and

d. the net control station is always shown at the bottom of the 'fan'

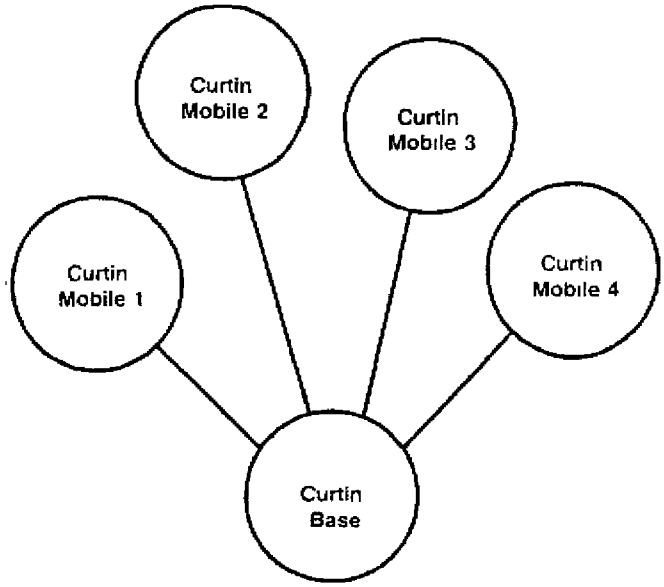


Figure 6 1
Radio Network

6.04 NETWORK DISCIPLINE

To function effectively, radio networks need to be operated in a disciplined manner. Good network discipline requires that correct operating procedures be used so that control is maintained. Networks that suffer a loss of discipline degenerate to the point where they are unable to carry useful message traffic. Where network discipline has failed, **the control station must intervene** and instruct all stations to cease transmission until called. The control station then re-establishes the network ensuring that the previous improper procedures are eliminated.

6.05 TRAFFIC

This consists of all communications handled on a net. There are two types of traffic.

6.06 FORMAL TRAFFIC

This consists of traffic which is written, released by an authorised officer. and is recorded by the communications centre (COMMCEN). It includes:

a. registered messages, including Situation Reports and Monitor Reports.

b. facsimile messages; and

c telex messages.

6.07 INFORMAL TRAFFIC

This consists of traffic which does not require recording by the COMMCEN and is not traceable. Informal traffic consists of:

a conversations; and

b. unregistered messages.

6.08 CALLING AND ANSWERING

a **Prowords Used:** THIS IS
OVER
OUT
WAIT
WAIT OUT
WILCO
ROGER

b. **Parts of a Call** - A call consists of the following parts:

(1) NET CALL SIGN - Identifies the net.

(2) STATION CALL SIGN - Identifies the station(s) being called.

(3) THIS IS - Proword. Preceding calling station s call sign.

(4) STATION CALL SIGN - Identifies the calling station.

(5) TEXT - The message itself.

(6) ENDING SIGN - 'OVER' - Proword used to indicate that the transmission has ended, but further transmissions are required from other station(s)

Example of a Call:

'VZ6DG Curtin 1, THIS IS Curtin Base, move now, OVER.'

c. **Parts of an Answer** - The answer consists of the following parts:

(1) STATION CALL SIGN - Identifies station answering.

(2) TEXT - Answer, or receipt.

(3) ENDING SIGN - OVER - End of my transmission - I expect a reply, **or**

OUT - Proword to indicate that the station expects no further involvement in that call.

(4) WAIT - Proword indicating that receiving operator must delay transmission for more than five seconds and will resume later with an initiating call.

(5) WAIT OUT - Proword indicating that the receiving operator must delay transmission for more than five seconds and will resume later with an initiating call.

Example of an answer:

'Curtin 1, WILCO, OUT.'

d. The above procedures are known as Abbreviated Procedures and are used in good working conditions. Full Procedures are used in difficult working conditions and are explained later in this Manual.

TYPES OF CALLS

6.09 SINGLE CALL

This is a call between any two stations on the net. With a single call all call signs may be omitted after the initial call and reply.

Example:

Curtin Base says: 'VZ6DG Curtin 1, THIS IS Curtin Base, have your ropes arrived? OVER.'

Curtin 1 says: 'Curtin 1, no, when did they leave? OVER.'

Curtin Base says: 'Figures 20 minutes ago, OVER.'

Curtin 1 says: 'ROGER, OUT.'

6.10 MULTIPLE CALL

a. This call is used when one station wishes to call two or more stations on the net, but not all stations.

b. Stations are called in alpha-numeric order and answer in the same order. Should a station fail to answer, the next station in sequential order shall pause five seconds and then reply as normal. After the last station has replied, the station which previously failed to answer may reply.

Example: (Base calling four sub-stations of a seven station net).

Curtin Base says: 'VZ6DG Curtin 1, Curtin 2, Curtin 3, Curtin 4, THIS IS Curtin Base, fresh batteries are available at figures 0900 hours OVER'

Curtin 1 says: 'Curtin 1, ROGER, OUT.'

Curtin 2 says: 'Curtin 2, ROGER, OUT.'

Curtin 3 says: 'Curtin 3, ROGER, OUT.'

Curtin 4 says: 'Curtin 4, ROGER, OUT.'

NOTE: As this is a Multiple Call, call signs must continue to be used after the initial call and reply.

6.11 NET CALL or ALL STATIONS CALL

This call is used to call all stations on the net stations reply in alpha-numeric order. The same rules apply as with multiple calls.

Example: (The net consists of four stations).

Curtin Base says: 'VZ6DG all Stations, THIS IS Curtin Base, tarpaulins are now available, OVER'.

Curtin 1 says: 'Curtin 1, ROGER, OUT.'

Curtin 2 says: 'Curtin 2, ROGER, OUT '

Curtin 3 says: 'Curtin 3, ROGER, OUT.'

Curtin 4 says: 'Curtin 4, ROGER, OUT.'

Curtin Base says: 'Curtin BASE, ROGER, OUT.'

6.12 'ALL STATIONS EXCEPT' CALL

If only the majority of Stations are to be called the Curtin Base may use 'all Stations except ....' procedure.

Example:

Curtin Base says: 'VZ6DG all Stations except Curtin 4, THIS IS Curtin Base, tarpaulins are now available, OVER.'

Curtin 1, Curtin 2, etc, then reply in sequence.

6.13 RADIO CHECK AND SIGNAL STRENGTHS CALL

Prowords Used:

RADIO CHECK
NOTHING HEARD
ROGER
LOUD
GOOD
WEAK
VERY WEAK
FADING
CLEAR
READABLE
DISTORTED
INTERFERENCE
UNREADABLE
SIGNAL STRENGTHS

ESTABLISHING A RADIO NETWORK

6.14 INITIAL PROCEDURE

The procedure to establish a radio network is to ensure that all stations on the net are able to communicate with each other on the same frequency. Before any station leaves its HQ the members of that station must know:

a. primary net frequency;

b. alternative net frequency, if any;

c. organisation of the net;

d. time the net is to open;

e. net call sign:

f. station call signs; and

g. senior sub-station

NOTE: On all occasions sub-stations are to establish communications with the net control station as they leave the base.

6.15 RADIO CHECKS (SIGNAL STRENGTHS AND READABILITY)

a. The net control station establishes the net by ordering sub-stations to report the strength and readability of its signal by using the prowords 'RADIO CHECK', which means: 'What is my signal strength and readability?' The sub-stations answer the call in turn giving their report of signal strength and readability of the control station. The control station will complete the call by informing sub-stations of their signal strength and readability. If the answer is. 'LOUD AND CLEAR', the proword 'ROGER' will suffice.

b. The following prowords are for use when initiating and answering queries concerning signal strength and readability:

(1) RADIO CHECK - What is my signal strength and readability, that is, how do you hear me?

(2) ROGER - The use of the proword 'ROGER' in reply to a radio check means the transmission was satisfactory. This will save air time. 'ROGER' replaces 'LOUD AND CLEAR.'

(3) SIGNAL STRENGTHS - What is the signal strength and readability of all the other stations on the net. Each sub-station will say how it hears all the other sub-stations.

6.16 REPORT OF SIGNAL STRENGTHS

a. LOUD - Your signal is very strong.

b. GOOD - Your signal is good.

c. WEAK - Your signal is weak.

d. VERY WEAK - Your signal is very weak

e. FADING - At times your signal fades to such an extent that continuous reception cannot be relied upon.

6.17 REPORT OF READABILITY

a. CLEAR - Excellent quality.

b. READABLE - Quality is satisfactory. This proword may be used with the proword 'DISTORTED' or 'INTERFERENCE'.

c. DISTORTED - Having trouble reading you because your signal is distorted.

d. INTERFERENCE - Having trouble reading you due to interference.

e. UNREADABLE - The quality of your transmission is so poor that I cannot read you.

6.18 EXAMPLE OF TRANSMISSIONS TO ESTABLISH THE NET

a. When all stations are LOUD and CLEAR (ROGER):

Curtin Base says: 'VZ6DG all Stations, THIS IS Curtin Base, RADIO CHECK, OVER.'

Curtin 1 says: 'Curtin 1, ROGER, OVER.'

Curtin 2 says: 'Curtin 2, ROGER, OVER.'

Curtin 3 says: 'Curtin 3, ROGER, OVER.'

Curtin 4 says: 'Curtin 4, ROGER, OVER.'

Curtin 5 says: 'Curtin 5, ROGER, OVER.'

Curtin Base says: 'Curtin Base, all Stations, ROGER, OUT.'

b. When some of the stations are not receiving clearly:

Curtin Base says: 'VZ6DG all Stations, THIS IS Curtin Base, RADIO CHECK, OVER.'

Curtin 1 says: 'Curtin 1, ROGER, OVER.'

Curtin 2 says: 'Curtin 2, ROGER, OVER.'

Curtin 3 says: 'Curtin 3, WEAK BUT READABLE, OVER.'

Curtin 4 says: 'Curtin 4, ROGER, OVER.'

Curtin 5 says: 'Curtin 5, LOUD WITH INTERFERENCE, OVER.'

Curtin Base says: 'Curtin Base, all Stations. ROGER, OUT.'

c. When requesting a radio check, the originating station, after the other stations have replied, will in its reply give a radio to other stations.

6.19 SIGNAL STRENGTH REPORT REQUESTS

Signal strength reports may be requested by any station, but normally by the net control station. The signal strength report will inform each station how they are being received by all other stations on the net. The signal strength report is usually preceded by a RADIO CHECK.

Example: (After the above RADIO CHECK).

Curtin Base says: 'VZ6DG all Stations, THIS IS Curtin Base, SIGNAL STRENGTHS, OVER.'

Curtin 1 says: 'Curtin 1, all Stations ROGER, OVER.'

Curtin 2 says: 'Curtin 2, Curtain Base WEAK BUT READABLE, Curtin 1 ROGER, Curtin 3 WEAK BUT READABLE, Curtin 4 ROGER, Curtin 5 ROGER, OVER.'

Curtin 3 says: 'Curtin 3, Curtin Base WEAK AND DISTORTED, Curtin 1 GOOD AND DISTORTED, Curtin 2 WEAK WITH INTERFERENCE, Curtin 4 ROGER, Curtin 5 LOUD AND DISTORTED. OVER.'

Curtin 4 says: 'Curtin 4, all Stations ROGER. OVER.'

Curtin 5 says: 'Curtin 5, Curtin Base LOUD WITH INTERFERENCE. all other Stations ROGER, OVER.'

Curtin Base says: 'Curtin Base, all Stations ROGER, OUT.'

6.20 SIGNAL STRENGTH REPORT FORM

Signal strength reports are normally recorded on a form. an example of which is shown below. This form is particularly useful for selecting relay stations eg CURTIN 4 could be selected to relay to CURTIN BASE for CURTIN 5.

CALL SIGN	Curtin Base	Curtin 1	Curtin 2	Curtin 3	Curtin 4	Curtin 5
Curtin Base		R	R	R	R	R
Curtin 1	R		R	R	R	R
Curtin 2	W/R	R		W R	R	R
Curtin 3	W/D	G D	W/I		R	L D
Curtin 4	R	R	R	R		R
Curtin 5	L I	R	R	R	R	

Figure 6:2
Signal Strength Report
(as compiled by Curtin Base)

NOTE:

a. The station compiling the report fills in the columns horizontally.

b. The above report is for the RADIO CHECK and SIGNAL STRENGTH reports as given above.

TRANSMISSION OF INFORMATION

6.21 **Prowords Used:**

MESSAGE
LONG MESSAGE
SITREP
SEND
MORE TO FOLLOW
ALL AFTER
OUT TO YOU

6.22 UNWRITTEN INFORMATION

Information which does not have to be written down may be sent without an offer if the sending station is reasonably sure that the recipient is ready to receive it.

Example:

Curtin Base says: 'VZ6DG Curtin 1, THIS IS Curtin Base, move to airport, OVER.'

Curtin 1 says: 'Curtin 1, OVER.'

Curtin Base says. 'Your stores are at the airport. OVER.'

Curtin 1 says: 'ROGER, OUT.'

6.23 WRITTEN INFORMATION

Use of the proword 'MESSAGE' in the offer indicates that the information must be written down. This may apply to information which contains figures, unusual words, grid references etc. The information must be sent at writing speed to enable the recipient to write it down. The sending station will achieve this aim by:

a. 'ghost-writing' over the information while sending; or

b. pausing between phrases.

Example:

Curtin Base says: 'VZ6DG Curtin 1, THIS IS Curtin Base, MESSAGE. OVER.'

Curtin 1 says: 'Curtin 1, SEND, OVER.'

Curtin Base says: 'Move to Grid 242 691, OVER.'

Curtin 1 says: 'WILCO. OUT.'

6.24 LONG MESSAGE PROCEDURE

If the information will take more than thirty seconds to send, or is longer than fifteen words, the following procedure is to be used:

a. The information is offered using the proword 'LONG MESSAGE.'

b. The information is to be sent in segments, each lasting fifteen words or approximately thirty seconds. Remember 'I SPELL,' 'FIGURES' and other prowords are included in this rule.

c. Each segment, except for the last segment, is to terminate with the prowords 'MORE TO FOLLOW OVER'.

d. When segmenting a written message prior to offering, the initiating station must ensure that the end of each segment does not end with:

(1) phonetics eg 'I spell BRAVO';

(2) phonetically spelt words eg 'alloy I spell ALPHA LIMA LIMA OSCAR YANKEE alloy'; or

(3) figures or punctuation.

e. Receiving stations are to acknowledge each segment with ROGER, OVER or, if necessary, ask for repetitions.

f. After obtaining receipts for each segment from all receiving stations the sender must pause for five seconds. This will allow other stations to interject for any urgent traffic transmissions.

g. The station initiating a long message may interrupt its transmission to send a more urgent one.

h. If there is no interjection the calling station transmits the last word or phrase contained in the previous segment and proceeds immediately with the new segment.

i. When the calling station completes the last segment of the message, the proword OVER is used. Recipients who have successfully received the whole message then respond with 'ROGER, OUT.'

Example:

Curtin Base has a long message for Curtin 1 and says: 'VZ6DG Curtin 1, THIS IS Curtin Base, LONG MESSAGE, OVER'

Curtin 1 says: 'Curtin 1, SEND, OVER'

Curtin Base says: 'Blankets located in store at Grid 674 395, some are unserviceable, MORE TO FOLLOW, OVER'

Curtin 1 requires no corrections or repetitions and says: 'ROGER, OVER'

Curtin Base observes a 5 second pause to allow any urgent messages to be passed: 'Unserviceable due to water damage, full stop, transport has been arranged for good blankets tomorrow, OVER'

Curtin 1 has received the message and ends the transmission by saying: 'ROGER, OUT'

NOTE: Accuracy and speed, in that order, are the basic essentials for good communications.

CORRECTIONS AND REPETITIONS

6.25 Prowords Used:

CORRECTION
SAY AGAIN
ALL AFTER
ALL BEFORE
WORD AFTER
WORD BEFORE
FROM _____
TO _____
SPEAK SLOWER
UNKNOWN STATION

6.26 CORRECTION DURING TRANSMISSION

a. When an error is made by a transmitting operator, the proword 'CORRECTION' is to be transmitted followed by the last word, group, proword or phrase correctly transmitted, the transmission then continues. Care should be taken to avoid using words or prowords which appear more than once in the message.

Example:

Curtin Base says: 'VZ6DG Curtin 1, THIS IS Curtin Base, move to your last, CORRECTION, your first location, OVER'

Curtin 1 says: 'Curtin 1, WILCO, OUT'

b. When an error in transmission is made and is not discovered immediately, but is discovered before the ending proword 'OUT' is transmitted, a correction is to be transmitted as per the example below. When making such a correction the word, group, proword or phrase before or after the correction is to be properly identified.

Example:

Curtin Base says: 'VZ6DG Curtin 1, THIS IS Curtin Base, stores will arrive in figure 6 trucks from Carnarvon, CORRECTION, WORD BEFORE trucks, figure 7, OVER'

Curtin 1 says: 'Curtin 1, ROGER, OUT'

6.27 CORRECTION AFTER A MESSAGE HAS BEEN SENT

Used if it is necessary to make corrections after a receipt has been obtained for a message. A further message identifying the original, and the portion to be corrected, must be sent.

Example:

Curtin Base says: 'VZ6DG Curtin 1, THIS IS Curtin Base, reference my message on trucks, CORRECTION, ALL AFTER trucks, from Carnamah, OVER'

Curtin 1 says: 'Curtin 1, ROGER, OUT'

NOTE:

a. Curtin 1 must correct the original message and ensure that the correction is passed to all personnel to which the station is responsible.

b. When the text of a MESSAGE to a number of stations (multiple and net calls) is found to be incorrect, all stations must be called and the corrections transmitted.

6 28 REPETITIONS

a. When words are missed or are in doubt, repetitions are to be requested and given to the affected receiving station before receiving the message. The proword 'SAY AGAIN' can be used alone or in conjunction with others.

b. **Prowords Used:** ALL BEFORE
ALL AFTER
FROM _____
TO _____
WORD BEFORE
WORD AFTER

c. In complying with requests for repetitions, the initiating (sending) station is to identify that portion which is being repeated and sent using the prowords 'I SAY AGAIN'. With messages less than ten words, it is quicker to send the whole message than part of it.

Example:

Curtin Base says: 'VZ6DG Curtin 1, THIS IS Curtin Base, stores will arrive in figures 7 trucks from Carnamah at noon on Monday, OVER'

Curtin 1 says: 'Curtin 1, SAY AGAIN ALL AFTER noon, OVER'

Curtin Base says: 'I SAY AGAIN, WORDS AFTER noon, on Monday, OVER'

Curtin 1 says: 'ROGER, OUT'

6.29 SPEED OF TRANSMISSION

When a receiving station has difficulty in recording a written message because the sending operator is speaking too rapidly, the receiving operator must request a reduction in the speed of transmission by the use of the prowords - 'SPEAK SLOWER'.

6.30 UNKNOWN STATION

When a station hears a call for itself, but has missed the call sign, it may ask for a repetition of the call sign.

Example:

Curtin Base says: 'VZ6DG Curtin 1, THIS IS _____, OVER'

Curtin 1 says: 'UNKNOWN STATION, THIS IS Curtin 1, SAY AGAIN call sign, OVER'

Curtin Base says: 'Curtin 1, THIS IS Curtin Base, I SAY AGAIN call sign Curtin Base, OVER'

Curtin 1 says: 'ROGER, OVER'

Curtin Base will now send the message as normal.

VERIFICATIONS AND CANCELLATIONS

6.31 **Prowords Used:** VERIFY
I VERIFY
WAIT OUT
DISREGARD
CANCEL

6.32 VERIFICATIONS

When a station receives a message from another station, which it has reason to doubt or suspect may be incorrect, the receiving station will ask for a verification of the message. When a verification has been requested the sending station must take the message to be verified to the originator (author) of the message for that person to authenticate or correct it as necessary.

Example:

Curtin Base says: 'VZ6DG Curtin 1, THIS IS Curtin Base, reference your stores request, VERIFY figures 200 stretchers, OVER'

Curtin 1 says: 'Curtin 1, WAIT OUT'

The operator at Curtin 1 must check with the message originator to establish that the message is correct

If Correct:

Curtin 1 says: 'VZ6DG Curtin Base, THIS IS Curtin 1, reference the stores request, I VERIFY figures 200 stretchers, OVER'

Curtin Base says: 'Curtin Base ROGER OUT'

If Incorrect:

Curtin 1 says: 'VZ6DG Curtin Base, THIS IS Curtin 1, reference the stores request, CORRECTION, figures 300 stretchers, OVER'

Curtin Base says: 'Curtin Base, ROGER, OUT'

NOTE: If the message has been found to be incorrect and the original message has been sent to more than one station, all stations must be informed of the correction.

6.33 CANCELLING TRANSMISSIONS AND MESSAGES

a. **Cancelling During Transmission**

During a transmission, but prior to the ending proword, a transmission may be cancelled by the use of the proword 'DISREGARD THIS TRANSMISSION, OUT'

b. **Cancelling an Immediate Past Transmission**

Curtin Base says, 'VZ6DG Curtin 1, THIS IS Curtin Base, CANCEL my last transmission, OVER'

Curtin 1 says: 'Curtin 1, ROGER, OUT'

c. **Cancelling a Previous Transmission**

Curtin Base says: 'VZ6DG Curtin 1, THIS IS Curtin Base, CANCEL my stores request, OVER'

Curtin 1 says, 'Curtin 1, ROGER, OUT'

MISCELLANEOUS PROCEDURES

6.34 Prowords Used:

FETCH (name)
WAIT OUT
SPEAKING

Curtin 3 says: 'Curtin 3, WILCO, OVER'

Curtin Base says: 'VZ6DG all stations, THIS IS Curtin Base, CLOSE DOWN NOW, OUT'

PROCEDURE FOR DIFFICULT WORKING CONDITIONS

6.43 The next group of procedures apply to difficult working conditions. These difficult working conditions may be caused by.

a. excessive noise,

b fading;

c. unintentional interference,

d. sharing frequency with other users;

e. shadowing of some sub-stations by hills etc;

f. weak signals from one or more sub-stations; or

g. congested net

6.44 WORDS TWICE

a. **Prowords Used:** WORDS TWICE
END WORDS TWICE

b. This procedure can also be used when communications begin to deteriorate. 'WORDS TWICE' procedure may be initiated by any station on the net for any or all transmissions. Call signs and offers are all transmitted twice. Full procedure must be used for transmission using 'WORDS TWICE' procedure.

c. When working conditions improve the procedure is cancelled by the prowords - 'END WORDS TWICE'.

Example:

Curtin Base says: 'VZ6DG Curtin 1, THIS IS Curtin Base, message, OVER'

Curtin 1 says: 'Curtin Base, Curtin Base, THIS IS, THIS IS, Curtin 1, Curtin 1, send, send, WORDS TWICE, WORDS TWICE, OVER, OVER'

Curtin Base says: 'Curtin 1, Curtin 1, THIS IS, THIS IS, Curtin Base, Curtin Base, WORD TWICE, WORDS TWICE, move, move, to, to, grid, grid, 736 643, 736 643, now, now, OVER, OVER'

Curtin 1 says: 'Curtin Base, Curtin Base, THIS IS, THIS IS, Curtin 1, Curtin 1, WILCO, WILCO, OUT, OUT'

6.45 RELAY PROCEDURE

a. **Prowords Used:** RELAY THROUGH
RELAY TO _____
FROM _____
THROUGH ME

b. If direct radio communications between any two sub-stations fail, traffic may be relayed through a third station that is in contact with both.

Example:

Curtin 1 calls Curtin 2 but receives no reply: 'VZ6DG Curtin 2, THIS IS Curtin 1, move now, OVER'

Curtin 1 calls Curtin 2 again. 'VZ6DG Curtin 2, THIS IS Curtin 1, move now, OVER'

Still no reply so Curtin 1 requests Curtin 3 to relay to Curtin 2: 'VZ6DG Curtin 2, THIS IS Curtin 1, nothing heard, OUT to you. Curtin 3, THIS IS Curtin 1, RELAY TO Curtin 2, move now, OVER'

Curtin 3 has heard the call and will now send it to Curtin 2: 'Curtin 1, THIS IS Curtin 3, ROGER, OUT to you Curtin 2, THIS IS Curtin 3, from Curtin 1, move now, OVER'

Curtin 2 has received the message: 'Curtin 2, WILCO, OUT'

NOTE: A STATION ACTING AS A RELAY STATION ASSUMES FULL RESPONSIBILITY FOR ENSURING THAT THE MESSAGE IS PASSED TO THE STATION IT WAS ORIGINALLY INTENDED FOR.

6.46 FREE AND DIRECTED NETS

a. **Prowords Used:** THIS IS A FREE NET
THIS IS A DIRECTED NET

b. **Free Net**

Under normal conditions a net is free and traffic between sub-stations on the net is uninhibited. The control station determines when the situation requires this freedom to be curtailed.

Example:

Curtin Base says. "VZ6DG All stations THIS IS Curtin Base THIS IS A FREE NET OVER"

Curtin 1 says: 'Curtin 1, WILCO, OUT'

Curtin 2 says: 'Curtin 2, WILCO, OUT'

Curtin 3 says: 'Curtin 3, WILCO, OUT'

c. **Directed Net:**

When working conditions are difficult, or the flow of traffic is heavy and traffic must be regulated, the control station may order the net to be directed. In a directed net, the control station intercepts each offer and must direct the involved sub-stations on when and how to pass the traffic. The control station is therefore able to regulate all traffic on the net. This regulation and procedure must apply to, and be acknowledged, by all sub-stations on the net.

Example:

Curtin Base says: 'VZ6DG ALL stations, THIS IS Curtin Base, THIS IS A DIRECTED NET, OVER'

Curtin 1 says: 'Curtin 1, WILCO, OUT'

Curtin 2 says: 'Curtin 2, WILCO, OUT'

Curtin 3 says: 'Curtin 3, WILCO, OUT'

6.35 ARRANGING A PERSON TO PERSON CONVERSATION

a. If there is a requirement for one station to speak to a specific individual (not the operator) at another station, the procedure is arranged by the operators using the following prowords:

(1) FETCH (name) - This means the person indicated is to be called to speak on the radio.

(2) WAIT OUT - Used by the receiving operator to allow time to arrange for the called person to be present.

(3) SPEAKING - Used by the called person when replying.

Example:

Curtin Base wishes to speak to the Coordinator at Curtin 1.

Curtin Base says: 'VZ6DG Curtin 1, THIS IS Curtin Base, FETCH Coordinator, OVER'

Curtin 1 says: 'Curtin 1, WAIT OUT'

Curtin 1 will now bring the Coordinator to the radio and brief him on its operation

Curtin 1 says VZ6DG Curtin Base, THIS IS Curtin 1 Coordinator SPEAKING, OVER'

Curtin Base replies: .....

b. The person to person call is arranged by the two radio operators. They must ensure that the individuals for whom they are arranging the call know how to operate the radio sets prior to providing them with the service. (ie able to use the Push To Talk switch etc).

CHANGING FREQUENCY

6.36 **Prowords Used:** CHANGE TO
CHANGE NOW
WILCO

6.37 PROCEDURE

Where more than one frequency is available on a radio system, occasions may arise when a change of frequency is desirable. The order to change frequency is given by simply quoting the channel number on VHF and UHF, or by quoting the frequency in kilohertz on HF and using the prowords - 'CHANGE TO' and 'CHANGE NOW.'

Example:

Curtin Base says 'VZ6DG All stations, THIS IS Curtin Base, CHANGE TO channel 4, OVER'

Curtin 1 says: 'Curtin 1, WILCO, OVER'

Curtin 2 says: 'Curtin 2, WILCO, OVER'

Curtin 3 says. 'Curtin 3, WILCO, OVER'

Curtin Base says: 'All stations, THIS IS Curtin Base, CHANGE NOW, OUT

6.38 If all stations do not respond or cannot comply, the control station must make alternative arrangements for the change and advise the whole net. A radio check will now be carried on the new frequency.

CLOSING DOWN

6.39 **Prowords Used:** CLOSE DOWN
CLOSE DOWN NOW
WILCO

No station may close down, or leave the radio, even only for a few minutes, without prior permission from the net control station.

6.40 The net control station must ensure that no net individual sub-station is closed down until the net control station is absolutely sure that the net or sub-station is no longer required. The usual practice for closing down sub-stations is to wait until they return to base and individually close them down thus ensuring the safety of teams in the field.

6.41 If communications are to be re-opened at a later time, the net control station must ensure that everyone concerned is aware of the time communications are to be re-opened, and the frequency to be used, before it closes the stations down.

6.42 When the time to order a close down over the radio arrives, and all stations are satisfied regarding arrangements for reopening, the net control station orders the net or sub-stations to close down. The net control station may do this by using the proword - 'CLOSE DOWN '

Example 1:

Curtin Base says: 'VZ6DG all stations, THIS IS Curtin Base, CLOSE DOWN, OVER'

Curtin 1 says: 'Curtin 1, WILCO, OVER'

Curtin 2 says: 'Curtin 2, WILCO, OVER'

Curtin 3 says: 'Curtin 3, WILCO, OVER'

The control station records each response and, if satisfied that all stations have replied and there is no further traffic, transmits:

Curtin Base says. 'VZ6DG all stations, THIS IS Curtin Base, CLOSE DOWN NOW, OUT'

Example 2:

The net control station transmits to all stations to close down and gives re-opening directions:

Curtin Base says: 'VZ6DG all stations, THIS IS Curtin Base, CLOSE DOWN. The net will re-open at figures 0800 hours tomorrow, on this frequency, OVER'

Curtin 1 says: 'Curtin 1, WILCO, OVER'

Curtin 2 says: 'Curtin 2, WILCO, OVER'

d. When a net is directed, an offer by one sub-station to another is answered by the control station in one of the following ways:

(1) 'SEND YOUR MESSAGE OUT';

(2) 'SEND YOUR SITREP OUT';

(3) 'WAIT OUT':

(4) 'THROUGH ME OVER': or

(5) 'RELAY THROUGH (sub-station)'.

Example:

Curtin 2 says:'VZ6DG Curtin 1, THIS IS Curtin 2, message, OVER'

Curtin Base says: 'Curtin Base, SEND YOUR MESSAGE OUT'

Curtin 1 says: 'Curtin 1, send, OVER'

Curtin 2 says: 'Curtin 2, move to grid 643 718, OVER'

Curtin 1 says: 'Curtin 1, WILCO, OUT'

NOTE: On all occasions Curtin Base must give direction to proceed, or not proceed, to the offering Station. If Curtin Base does not wish the message to proceed it will use the proword - 'WAIT OUT.'

THE TRANSMISSION OF FORMAL MESSAGES

6.47 OFFERING

Formal messages are always to be offered and written down by the receiving operator. The offer is to include the following:

a. The degree of precedence:

(1) Routine;

(2) Priority; or

(3) Immediate.

b. The proword - 'FORMAL MESSAGE' OR 'LONG FORMAL MESSAGE.'

c. Any additional information which may aid the receiving operator, such as the requirement for additional copies when the message has to be delivered to more than one addressee by the receiving station.

RADIO OPERATOR LOGS

6.48 FUNCTION

All radio operators should maintain a log while they are on duty. The log fulfils a useful administrative function to:

a. check whether a message has been transmitted or received;

b. determine details of other station signal strengths;

c. log the opening and closing of stations;

d. be used (if required) to brief radio operators coming on duty;

e. log details of interference for later action; and

f. log all transmission difficulties etc.

6.49 INFORMATION

The log should include:

a the handover of the radio station from one operator or user to another;

b. the time of opening and closing of the station;

c. all procedural transmissions;

d causes of delays in transmission or reception of a message;

e. frequency adjustments and changes;

f. call signs of other stations that cause interference (so that unsatisfactory frequency allocation may be corrected, if possible);

g. unusual occurrences, such as procedural violations;

h record of informal messages and voice conversations sent to other stations on the net (recorded as completely as possible); and

i intrusion and interference details.

6.50 FORMAT

The log entries should be maintained in the following columns:

a. Calls From.

b. Calls To.

c Message Text, Identity, Event.

d. Time (in local time).

LIST OF DO'S AND DON'TS

6.51 In summary, some 'do's' and 'don'ts' are listed below:

a. **Do's:**

(1) Always speak distinctly at a regular, medium speed, and pitch your voice slightly higher than normal

(2) Practise and become thoroughly proficient in the use of the PHONETIC ALPHABET, and the 24 HOUR clock method of telling the time.

(3) Make use of authorised PROWORDS.

(4) Always obey the instructions of the net control station. If you disagree, argue about it after the operation or exercise.

(5) Always think about what you are going to say before you start your transmission, and then keep it short and concise.

(6) Be aware of your position in the net order of calling and answering. Remember who answers immediately prior to you.

(7) Offer to relay messages if you become aware that stations you can hear clearly are having trouble communicating with each other.

(8) Develop the habit of ALWAYS carrying a notebook and pencil with you. This will enable you to write down messages as they are given to you.

(9) Practise voice procedures regularly in order to retain your skill level.

b. **Don'ts:**

(1) Don't shout.

(2) Don't drop your voice towards the end of sentences.

(3) Don't develop 'personal quirks' such as 'OVER and OUT' 'negative copy' 'ROGER ROGER', 'do you read' etc.

(4) Don't use an abbreviation unless you are positive there can be no misunderstanding.

(5) NEVER leave or close down your station without permission from the net control station.

(6) Don't use profane or obscene language, waste air time, and don't offer unnecessary traffic, particularly in times of emergency.