

WICEN (NSW) Inc.



WICEN Operator (NTS001)

Professional Communications Volunteers linking the community in time of need

FOREWORD

PREFACE

The WICEN training manual

The New South Wales Training manual for WICEN Operator based on the National Training Syllabus is complete.

This manual has been produced over several years and is a reference for operators involved in exercises and operations.

There has been a move over the years to Competency Based Training (CBT) in all walks of life and in particular, the emergency services.

The idea of a volunteer as being a "walk off the street and lending a hand" situation is gone. These days, the only difference between the "Full time" and "Volunteer" is the rate of pay. All Emergency Service personnel are required to train to the same standards. The adjective "professional" applies equally to the Rural Fire Service, State Emergency Service, Police, Volunteer Rescue Association, Ambulance, NSW Fire Brigade. These people like to deal with groups that share the same "professional" attitude.

To achieve equal standards for WICEN operators this manual has been produced. Each chapter has been produced with CBT in mind and to the level required by a WICEN operator.

Consideration was given to what we understand is our role and expertise. This is message handling. To achieve this message handling we need to be able to get there (map reading), set up our equipment safely, relate to other services, manage our task, and go home quietly. We are there to serve a "client" without getting into areas that do not concern us.

The purpose of this manual is to train our members to achieve this goal.

Peter Corkeron (VK2AGB)
State Training Coordinator
15/1/2000

PART 1 INTRODUCTION TO WICEN

Role
Structure
Code of conduct
Learning outcome

PART 2 VOICE PROCEDURE

Introduction
Definitions
Circuit discipline
Phonetic alphabet
Message sending
Prowords
Message registration and log keeping.
Logging messages
Telephone techniques
Learning outcome

PART 3 FIELD OPERATION

Equipment
Stationery
Safety
Learning outcome

PART 4 MAP READING

Purpose
Types of maps
Care of maps
Grid references
Contours
Gradients
The compass
Use of the compass
Finding North without a compass.
Learning outcome

PART 5 SETTING UP A COMMS CENTRE

Location
Layout of a ComCen
Stationery
Staffing
Facilities
Equipment
Learning outcome

PART 6 OCCUPATIONAL HEALTH AND SAFETY

Whilst travelling
On station
Tools
Comfort
Departing
RF exposure guidelines

PART 7 FORMS

Attendance form (WOF01)
Log sheet (WOF07)
Message forms (WOF08)
Operator deployment list (WOF09)
Competency check list.

Chapter 1

Introduction to WICEN

THE ROLE AND STRUCTURE OF WICEN

What is WICEN?

Formally a sub Committee of the Wireless Institute of Australia
WIRELESS INSTITUTE CIVIL EMERGENCY NETWORK.
Now an Incorporated Association.

An accredited specialist rescue support group within the emergency services.
Affiliated with the New South Wales Volunteer Rescue Association. VRA.
Affiliated with the State Emergency Service of New South Wales.
Australia wide state groups.

What is WICEN?

Separate State groups, formed to provide communications in times of emergency.

The Federal Coordinator is a WIA appointee. (not a WICEN appointee)
Each State group recognises the other.

Through the Federal Coordinator we are working towards a National training syllabus and manual.

WICEN's History in VK2

1950.. Formation of CDEN.
1955.. Name change to WICEN.
(a sub-committee of the WIA)
1975.. Reformed by the late Howard Freeman. (VK2NL)
1977.. Affiliated with the Volunteer Rescue Association.
1989.. Becomes incorporated in its own right.
1990.. An accredited specialist support group.
1992.. WICEN is granted charity status.

WICEN in the 2000's

FUNCTION:

To provide emergency communications support, to the disaster combat agencies where normal communications do not exist.

To provide timely, accurate, emergency message handling over any distance, under any conditions, by the most appropriate and efficient means available.

WICEN Capabilities

Fast 24 hour response and deployment.
 Competent base and field operations.
 Type and range of Comms to suit the need.
 A pool of trained operators throughout the state.
 Short or long distance communications.

Major WICEN Activations

Bushfires in Blue Mountains -	1979
Bushfires on Central Coast -	1979
Barrington tops plane crash -	1981
Ash Wednesday bushfires. -	1981
Newcastle earthquake.-	1989
Vales point power station fire -	1993
January bushfires -	1994
Sydney hailstorm-	1999
Central Coast Newcastle disease	1999

WICEN Personnel

Amateur Radio Operators (Hams).
 The operator is licensed, not the equipment.
 Motivated and trained.
 Familiar with emergency procedures.
 Technically biased - affording flexibility.

WICEN Training

EXERCISES:

Lecture sessions,
 Field exercises,
 Provides the necessary training environment for the Amateur Operator.

COMMUNITY SERVICE:

Information evenings,
 Operational training groups,
 Technical training and assistance.

WICEN's STRUCTURE

WICEN's State Management

President and Committee with State Co-ordinator,

All elected by the membership except the State Co-ordinator, who is elected by the RCO's and the Management Committee.

State duties:

To manage the affairs of the Organisation on behalf of the members.

The State Management Committee is responsible for the Administration of the organisation.

The State Co-ordinator is responsible for the Operation and training of the organisation.

Liaise with the Emergency Services at State level.

Encourage new members to join, to provide a co-ordination of the regions.

WICEN's Regional Structure

Regional Committee,

Regional Coordinator + Deputy,

Secretary & Treasurer,

(All elected by the Region's members)

Regional duties:

Liaise with the Emergency Services at a regional level, the District Emergency Management Officer (DEMO) and the Management Committee,

Encourage new members to join,

Train the regional members,

Manage the Region's finances.

Major Activities

Annual General Meeting in August

Hawkesbury Canoe Classic,

City to Surf fun run,

Shahzada horse enduro,

Horse enduros.

SUMMARY

WICEN:

- is the link between Amateur Radio Operators and the Emergency Services,
- Trains Amateurs to provide emergency communications,
- is a recognisable community service activity which can advance the image of Amateur Radio.

THE WICEN CODE OF CONDUCT.

INTRODUCTION.

To be effective in promoting the good name of WICEN to the Amateur Radio fraternity and the organisations that we wish to serve we must always conduct ourselves in a professional manner and maintain the highest standards of honesty.

PURPOSE:

The purpose of this code of Conduct is to provide the guidelines for the professional and personal behaviour of members whenever they are identifiable as WICEN members. Failure to adhere to this code will represent unacceptable behaviour.

KNOWLEDGE:

All members of WICEN should maintain an adequate knowledge of the functions of WICEN, the role of WICEN and knowledge of the policies and procedures of the organisation as contained the Regional Co-ordinator's manual.

Regional Co-ordinators shall be responsible to pass on this information to members of their region. The Training Manual and the Regional Co-ordinator's manual shall be made available for members to view at all of the Region's meetings or by appointment with the RCO.

TRAINING STANDARDS

It is the responsibility of all members to achieve and maintain at least minimum training standards relating to Station Operator as contained in the Training Manual. Wherever possible, all members should undertake other training as recommended by the Region.

PROFESSIONAL BEHAVIOUR:

In the performance of duties as a member of WICEN members should:

- Be polite and courteous when dealing with other organisations or members of the public and the media. Any incidents should be reported as soon as practicable to the RCO.
- Follow reasonable directions from those within WICEN that are placed in a leadership position and those people from other organisations with the appropriate authority.
- Treat other members of WICEN, members of other services with courtesy and With due regard to their rights and responsibilities.
- Conduct all practices in a safe and workman like manner with consideration to occupational Health and Safety standards.

PERSONAL BEHAVIOUR:

Members of WICEN should remember that whenever they are identifiable they are on show.

Every action will be noticed and so they must act in such a manner as to bring credit to WICEN.

FAIRNESS:

Members of WICEN who are placed in leadership positions must ensure that their authority is exercised fairly and consistently.

PUBLIC COMMENT:

Members of WICEN may make a public comment regarding the organisation or facts relating to an operation or exercise in which they are personally involved. Due thought shall be given to questions that may be best answered by the RCO, or an appointed spokesperson. However there shall be **NO** public criticisms made regarding WICEN, other organisations or against other members of WICEN. Any information given in confidence shall be respected.

CHAIN OF COMMAND:

Members are expected to use the normal chain of command other than in extraordinary situations and should give the next higher authority the opportunity to resolve a problem before taking further action.

USE OF WICEN OWNED EQUIPMENT:

Members may be issued with WICEN owned equipment from time to time. It is expected that members will treat this property with care and maintain it in good order and condition.

The use of WICEN owned equipment for private use should be kept to a minimum.

CONCLUSION:

This code of conduct is designed to assist members of WICEN to maintain a high standard of professional and personal behaviour when dealing with other organisations on behalf of WICEN which it is reasonable to expect from them.

**Learning Outcome 1:
Explain the role and structure of WICEN and appropriate Emergency Services..**

Assessment: Oral assessment. (Can be achieved by radio, phone or face-to-face)

- Performance:
- a. State the role of WICEN and any appropriate Emergency Service organisations
 - b. Describe the structure of WICEN within the members region.
 - c. Be familiar with the WICEN Code of Conduct.

INTRODUCTION TO WICEN

SAMPLE QUESTIONS

1. The role of WICEN is
 - to provide an efficient communication ----- and communications ----- to the emergency Services.
 - Is Radio Amateurs supporting the ----- in times of need.

2. The aim of WICEN is:
 - to provide a service for our role.
 - To train amateur ----- in emergency service communications.
 - To provide a service
 - Enhance the image of -----

3. In most states, WICEN is a sub committee of the WIA. In NSW, WICEN is -----
-----.

4. WICEN (NSW) is a member squad of the NSW Volunteer ----- and is affiliated with the NSW State Emergency Services.

5. The Main Group for managing the affairs of the association is the

6. The role of the Regional committee is to:
 - Liaise with other emergency services at a ----- level,
 - Liaise with The ----- Officer (DEMO),
 - Encourage new members to join

7. Some major activities of WICEN would be:
 -
 -
 -

8. Each state body of WICEN is separate.. There is no direct link to any state or
..... body.

9. The code of conduct is designed to assist members of WICEN to maintain a high
standard of professional and ----- when dealing with other organisations.

10. Members should remember that whenever they are ----- they are on show.

Chapter 2

VOICE PROCEDURE

VOICE COMMUNICATIONS PROCEDURE

1. INTRODUCTION.

Message passing procedure is an important means to an end - the end is the carrying of information, quickly and accurately. It cannot be stressed too much, however, that procedure is only a means to an end. An over rigid, inflexible adherence to a particular form of procedure, in certain circumstances, can have an effect reverse to the effect intended.

Good Amateur-operating practices, together with fundamental net discipline are of little difference from the procedures outlined in this manual. Therefore, do not be frightened by the use of procedure. Use it for what it is, a useful guide for the better regulation of a communication net, and a means, by the use of standard phrases, to avoid inaccuracies.

2. DEFINITIONS.

CALLSIGN:

The call sign of the Amateur concerned, or in the case of a group station, the nominated call sign. An abbreviation of call signs may be used.

ABBREVIATED CALLSIGNS:

Abbreviated callsigns are used, provided there is no possibility of confusion, in exercises and when operational. These take the form of a callsign, which identifies the location rather than the operator. ie "Charlie" for checkpoint C, "Welfare" for the welfare centre.

ABBREVIATED VOICE PROCEDURE:

Abbreviated voice procedure may be used on FM circuits where the possibility of error is at a minimum. In this case the callsigns are used to establish the contact and then a conversation style may be adopted.

This would negate the use of prowords such as "over", "out" etc.

Example:

Start: "Charlie this is Start."

Charlie: "Charlie, send."

CONTROL: One station on a network (or "net") normally the one serving the senior headquarters is appointed the Net Control Station. It is responsible for the efficient clearance of traffic on the net and the maintenance of circuit discipline.

CONTROLLED or DIRECTED NET: A controlled net is where all Transmissions are directed to the net control station. When there is a message for another sub-station, permission is required from the net control to speak direct.

LINK: Two stations operating on the same channel for the purpose of communicating one to the other is termed a link.

NET: A number of stations operating on the same channel for the purpose of communicating with one another is termed a net.

NET CONTROL STATION: (NCS) The station that is the Command station.

OPEN NET: Is a net where all stations may operate freely with other station on the net.

OPERATOR: An Operator is a *Licensed Amateur Operator* who is operating within the terms of his or her licence. (a Limited Operator is not licensed to operate a WICEN station on HF unless accompanied by an operator that holds an appropriate licence).

PROWORD:

- (a) Prowords are pronounceable words or phrases that have been assigned meanings for the purpose of expediting message handling. A proword, or a combination of prowords, must not be used as the text of a message.
- (b) The prowords set out are authorised for general use.

STATION: Any station on a net other than the net control station (NCS).

USER: A person, other than an operator, who uses a radio.

3. CIRCUIT DISCIPLINE.

- (a) Transmissions are to be as short as possible.
- (b) If the procedure does not cover a specific operating requirement, use your common sense to deal with the situation.
- (c) The following basic rules are essential for simplicity:
 - i) No transmission shall be made which has not been authorised by proper authority.
 - ii) The following practices are forbidden:
 - * UN-official conversations between operators.
 - * Transmitting in a directed net without permission.
 - * Excessive tuning and testing.
 - iii) Speaking faster than the receiver can write.
 - iv) The WICEN Operator does not make operational decisions. This is reserved for the client..

4. TYPES OF MESSAGES:

There are three types of radio communication:

- (a) Conversations
- (b) Unregistered messages and
- (c) Formal messages.

(a) **Conversations** usually a series of alternate voice transmissions between two users in which subjects may be discussed, questions answered and information exchanged. The transmissions must be as brief as possible. These are not logged.

(b) **UR messages:** A user may frequently wish to ask a question to get information, etc, without discussion. He can do this by giving his message verbally to the operator, or by writing it down for transmission by radio as a UR message. A UR message consists simply of the users text with an indication of the addressee where necessary. All UR messages are recorded in the log including the text of the message and the reply.

(c) **Formal message:** a formal message is one that is written down and signed by the originator. It should be written on a message form. A file copy and all formal messages are kept in the local and distant Comms Centre, at the radio terminals.

5. HOW TO SPEAK.

Clear speech is necessary to help the receiving operator to understand you. The following factors are important.

RHYTHM: The use of phrases that make sense.

SPEED: Not too fast.

VOLUME: every word at the same volume.

PITCH: Slightly higher than usual.

6. PHONETIC ALPHABET.

The standard (NATO) phonetic alphabet is:

LETTER	SPOKEN AS	LETTER	SPOKEN AS
A	ALPHA	N	NOVEMBER
B	BRAVO	O	OSCAR
C	CHARLIE	P	PA-PA
D	DELTA	Q	QUEBEC
E	ECHO	R	ROMEO
F	FOXTROT	S	SIERRA
G	GOLF	T	TANGO
H	HOTEL	U	UNIFORM
I	INDIA	V	VICTOR
J	JULIET	W	WHISKY
K	KILO	X	X-RAY
L	LIMA (LEEMA)	Y	YANKEE
M	MIKE	Z	ZULU

Difficult words or groups with the text of plain text messages may be spelled using the phonetic alphabet, and preceded with the proword "I spell". If the operator can pronounce the word to be spelled, he will do so before and after the spelling to identify the word.

example A (a pronounceable word)

"Catenary. . . I spell charlie alpha tango echo november alpha romeo yankee, catenary"

example B (an unpronounceable word);

"Moving to . . . I spell november sierra whisky - state I spell."

7. PRONUNCIATION OF NUMERALS

- (a) To distinguish numerals from words similarly pronounced, the proword "FIGURES" may be used preceding such numbers.
- (b) When numerals are transmitted the following rules for their pronunciation will be observed

NUMERAL	SPOKEN AS	NUMERAL	SPOKEN AS
1	WUN	6	SIX
2	TOO	7	SEVEN
3	THUH-REE	8	ATE
4	FO-WER	9	NINER
5	FI-YIV	0	ZERO

- (c) Numbers will be transmitted digit by digit except that exact multiples of hundreds and thousands may be spoken as such.

NUMBER	SPOKEN AS	NUMBER	SPOKEN AS
44	FO-WER FO-WER	1478	WUN FO-WER SEVEN ATE
90	NINER ZERO	7000	SEVEN THOU-SAND
136	WUN THUH-REE SIX	16000	WUN SIX THOU-SAND
500	FI-YIV HUN-DRED	812681	ATE WUN TOO SIX ATE WUN

- (d) The figure zero is written "Ø"
 Underscore the numeral 1 to avoid the confusion with the letter I.
 Make U's with square corners to prevent them looking like V's.
 Carefully print the numeral 5 to prevent confusion with the letter S.
 Make E with one stroke, not three or four. This will save time.
 When ruled paper is used, print slightly above the line. This prevents confusion of U with 11, 1 with I etc. when the horizontal base stroke is made over the ruling on the paper.

8. MIXED GROUPS

In giving a mixed group of letters and figures, the prowords "FIGURES" and "I SPELL" are used in the following example:

The mixed group 31AB7 is sent as follows -

FIGURES - thuh-ree wun - I SPELL - alpha bravo - FIGURES seven.

9. PUNCTUATION.

In sending capital letters or punctuation, the following phrases will be used.

- (a) "Full stop"
- (b) "Quote" and "Unquote"
- (c) "Brackets on" & "Brackets off"
- (d) Slant (/)

11. PRECEDENCE.

12.

The precedence or priority of a formal message is to be entered on the message form by the Originator. Two precedences are used on WICEN messages.

- i) Routine
- ii) Urgent

11. ORIGIN (Date-Time)

The date and time a message is written. This takes the form of a seven digit group such as 191429K. The first two figures "19" indicate that the message was written on the 19th day of the month. The figures "1429" indicate the time was 2.29 pm. The letter "K" indicates EST (Eastern Standard time.).

The world is divided into time zones. GMT or Universal Time Coordinate (UTC) is referred to as "Z" or "zulu". Eastern Australia is 10 hours ahead of UTC and is known as "K". West Aust is in "H" zone.

12. OPERATING RULES.

- (a) To save circuit time, all messages should be written down prior to transmission. The receiving operator shall write down messages preceded by the proword "MESSAGE"
- (b) Transmissions must be kept as short as possible. The use of prowords enhances brevity. Every transmission must be concluded with "Over" or "Out" as appropriate. (see list of prowords).
- (c) Transmissions should be clear with natural emphasis on each word and should be spoken in natural phrases.
- (d) To avoid interfering with other traffic, a user should listen on the circuit before transmitting.
- (e) When it is necessary for a station to indicate test signals, either for adjustment of a transmitter before making a call or for adjustment of a receiver, the signals will not continue for more than 10 seconds. The

transmission will be composed of spoken numerals (1,2,3 etc.) followed by the callsign of the station transmitting the signals.

13. OPERATING IN A NET:

Sub-stations will obey the control station promptly and without question.

14. SYNCHRONISING TIME:

When a net has been established, Control should announce the time so all operators can synchronise their watches.

"All stations, All stations, When I say TIME the time will be 1030 hours."

"five, four, three, two, one, TIME 1030. This is control. Out."

15. OFFERING MESSAGES:

An offer is a short transmission made to warn the receiving station (s) concerned that a message follows. On a directed net, all messages will be offered. The prowords used in the exchange of calls in the offer of a message are:

"MESSAGE" or "LONG MESSAGE" or "SEND YOUR MESSAGE".

16. RECEIPTS:

The transmission of a message is not completed until the receiving station gives a receipt for it. Simply using the proword "ROGER" does this.

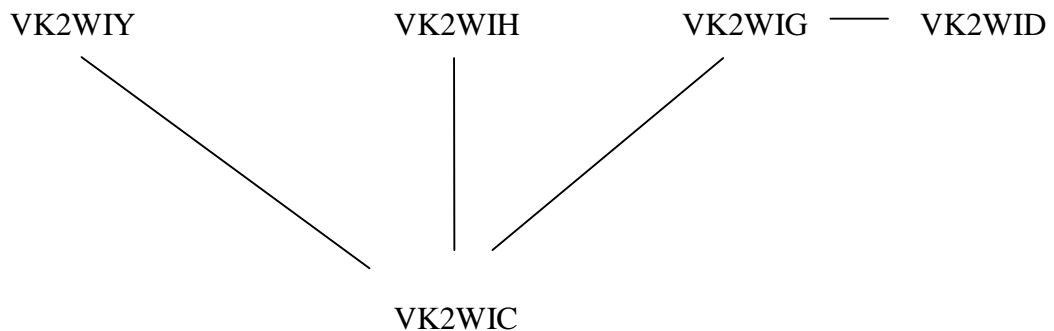
17. MESSAGE PASSING:

(a) In the following sections the examples will be based on the following net:

Control Station: VK2WIC

Sub-stations: VK2WIY
VK2WIH
VK2WIG
VK2WID

These may be drawn thus:



(b) NOTE: In the examples the full callsign sign is shown. In practice the callsign may be abbreviated at the direction of the control station.

(c) The use of the WICEN message form (WOF08) is assumed

18. MESSAGE SENDING:

(a) VK2WIY at the LHQ wishes to send a message to DHQ. He can hear no other station.

VK2WIC is at D.H.Q. He transmits:

VK2WIY: "VK2WIC this is VK2WIY - Message - Over".

(b) If there is a message in progress from a station VK2WIY cannot hear, VK2WIC will transmit:

VK2WIC: "VK2WIY - wait - out".

(c) If VK2WIC is ready to receive the message he will transmit:

VK2WIC: "VK2WIY this is VK2WIC - send your message - over".

VK2WIY will then send the message.

VK2WIY: "VK2WIC this is VK2WIY - to DHQ from LHQ - message - Fire moving south - figures one five mile front - more to follow - over".

VK2WIC: "Roger - over".

VK2WIY: "and Arthur's - I spell -Alpha Rome Tango Hotel Uniform Rome Sierra - Arthur's Creek now in danger - signature A.CO Smith - figures one six one three two five kilo - message ends - Over".

VK2WIC: "Roger - over?"

VK2WIC: "VK2WIY this is VK2WIC - roger- out".

(d) If VK2WIC has a message for VK2WID and cannot hear him but VK2WIG can hear both stations loud and clear VK2WIG would say.

VK2WIG: "VK2WIC this is VK2WIG. Through me. Over."

VK2WIC would use the Relay Procedure such as:

VK2WIG: "VK2WID this is VK2WIG message from VK2WIC - Over"

19. CORRECTIONS:

If in the above example VK2WIY had transmitted the origin date time incorrectly the operator would have transmitted as follows:

VK2WIY “signature A.CO Smith figures one six three two five - correction - figures one six one three two five kilo - over”.

20. REPETITIONS:

If in the example VK2WIC missed part of the message he would transmit a request to say again. Example: VK2WIC missed the word “creek”:

VK2WIY: “... Mile front - over”.

VK2WIC: “Say again word after Arthur’s - over”.

VK2WIY: “I say again - Arthur’s creek - over”.

VK2WIC: “Roger - over”.

If VK2WIB had missed the remainder of the transmission after the word “Arthur’s” he would have transmitted:

VK2WIB: “Say again all after Arthur’s - over”.

NOTE: In the examples note that commonly recognised groups such as “HQ” are sent as “HQ” not as “Hotel Quebec”.

21. SUB-STATION TO SUB-STATION:

- (a) Assume that VK2WIY wished to sent the same message to another station - VK2WIH. VK2WIH can hear VK2WIY. He must get permission of VK2WIC as the control station first.

VK2WIY: “VK2WIC this is VK2WIY message for VK2WIH - over”.

VK2WIC: “VK2WIY this is VK2WIC - send your message out.”

VK2WIH: “VK2WIY this is VK2WIH - send your message - over”.

VK2WIY will send the message in the usual way.

- (b) If VK2WIH cannot hear VK2WIY, VK2WIC will repeat the message phrase by phrase as it is transmitted by VK2WIY. Example of phrases sent this way:

VK2WIY: “message - fire moving south on Figures one five mile front - over”.

VK2WIC: “message - fire moving south on Figures one five mile front - over”.

VK2WIH: “Roger - over”.

VK2WIC: “VK2WIY - Roger - over”.

NOTE: That VK2WIY does not continue his message until VK2WIC has preceded his transmission by VK2WIY’s own callsign. If VK2WIC had wished to say something further to VK2WIH, he would have preceded the transmission with the callsign “VK2WIH”.

22. PRIORITIES.

In the example no mention was made of the priority of the message, as it was a routine message. If the message had been a urgent message the transmissions would have been as follows:

VK2WIY “VK2WIC this is VK2WIY Urgent message - over”.

VK2WIC “VK2WIY this is VK2WIC - send your urgent message - over”.

VK2WIY “VK2WIC this is VK2WIY - to DHQ from LHQ - urgent message - Fire moving south.....” etc.

The word “Urgent” then becomes the first word of the text.

23. TOD/TOR

TOD = Time of dispatch

TOR = time of receipt.

The operator must fill in the date and time of receipt or dispatch as the case may be at the bottom of the message form. If he is sending the message it is the time of dispatch, and he writes that time in. As in the example, he confirms that time with the station with whom he is in communication. The time of dispatch is the same time of receipt.

24. PAUSES BETWEEN TRANSMISSIONS.

As different priorities are used, there must always be a pause between transmissions to enable the other stations to inform the control station that they have priority messages.

25. PROWORDS.

Prowords are words or phrases that have a specific meaning. All services have a set of prowords relating to their own work. Some prowords have been used in the examples. A list of prowords as used by the Emergency services follows.

PROWORD	USED BY SENDER	USED BY RECEIVER
OVER	That ends my transmission. I am listening to hear your reply.	I have replied but expect further transmission from you.
ROGER		Message received and understood.
OUT	My transmission is ended. No reply is required.	My transmission is ended. No reply is required.
RADIO CHECK	What is the strength & readability of my signal?	
LOUD AND CLEAR		Your signal is loud and clear.
READABLE		While not loud & clear, Your signal is readable.
WEAK		Your signal is weak.
INTERFERENCE		Your signal is hard to understand because of interference.
DISTORTED		You are hard to understand because of distortion on your signal.
UNREADABLE		Your signal is unreadable.
WORDS TWICE	To indicate that each word or phrase will be said twice	To request that each word or phrase be sent twice because conditions are difficult.
MESSAGE	I have a message for you.	(The receiver should have a message form ready to receive a message).
LONG MESSAGE	I have a long message. (use a large form).	
THROUGH ME	Send your message to via me.	
RELAY	Send this message to all addressees or to the address designations immediately following.	
INFO	The message is to be passed for information to the designations immediately following.	
SPEAK SLOWER		Your transmission is too fast to write.
SAY AGAIN		Repeat all your last transmission or the part I will identify.

PROWORD	USED BY SENDER	USED BY RECEIVER
I SAY AGAIN	I will say again the transmission or the part identified.	
ALL AFTER ALL BEFORE WORD AFTER WORD BEFORE	I say again the portion of the message you require and repeat your identification.	This identifies the part of the message I require. The reference I quote is the nearest word or phrase I received correctly.
I SPELL	I will spell the next word phonetically.	
FIGURES	Numerals follow.	
CORRECTION	I will correct a word or group I have sent incorrectly.	
CORRECT	Your version is correct.	
WRONG	Your last transmission was incorrect. The correct version is...	
READ BACK	Repeat this entire transmission back to me exactly as received.	
I READ BACK	I read back the transmission.	
VERIFY	Verify the whole (or portion indicated) of the message with the originator and send the correct version. Only the addressee will originate the request for verification.	
I VERIFY		That which follows has been verified by the sender in response to your request and is repeated.
SITREP (*)	What is the situation at your location?	The situation here is
LOCSTAT (*)	Send your LOCation STATement	My location is.....
TIME	Send the time	When I say 'time' it will be
WILCO (*)		I will comply with your request

(*) Not used by WICEN

MESSAGE REGISTRATION AND LOG KEEPING

26. MESSAGE REGISTRATION

Messages can get lost, overlooked, and even forgotten about. In emergency Communications this can be disastrous. To prevent this there is a system by which all messages can be traced. This can also be used in any debriefs where you could be looking for every fact to justify actions taken.

Messages are received in two ways:

- a. from the originator who inserts an Originators number: and
- b. by the radio or phone operator.

This is for tracing purposes.

When messages are transmitted:

All messages being transmitted are to be given an OUT number.

Messages received are given an IN number. This is written in the top section 3 (WICEN SERIAL) portion of the form. It is in the form OUT or IN 05/23, that is, the fifth message of the 23rd. The numbers start at 01 and continue on until the end of the exercise/callout. Do not start 01 every day. Some agencies do this, we don't. OUT is placed there because for incoming messages, there will be a number already and if it is to be re-transmitted it could be confusing.

The IN and OUT numbers are consecutive from your log.

This number is for reference only and is not transmitted.

This number comes from MESSAGE NUMBER OUT column of the log sheet.

You must also complete the "D" (dispatched) block at the right of the message form. The "D" block has provision for date, time, system and operator's initials for Dispatch.

When messages are received.

CARBON COPIES MUST ALWAYS BE MADE IF THE ORIGINAL IS HANDED TO A THIRD PARTY.

You must complete the "R" block at the bottom of the form as the message is received.

The WICEN SERIAL is filled in by the log keeper and is the next number from the log.

27. LOGGING MESSAGES

Apart from the obvious column like TO/FROM, OPERATOR and TIME, the MESSAGE TEXT column gives you the opportunity to enter some reference or "Gist of message" phrase. Usually you would use the Originator number. This makes it easy to find the message if they call you and say 'reference my MED 04". You can go to it in your IN folder and find the carbon copy of that message.

If there is no originator's number, you can enter something like, Message re TRANSPORT or SITREP.

If there is another person available, they could be used to register and log the messages. This enables a greater throughput on the net.

RADIO LOGS

Why do we keep radio logs?

To keep a formal and accurate record of the radio transmissions received by the base. To record any outgoing messages not recorded on a message form.

Radio logs are not generally an incident log, but merely a record of radio transmissions, which tells a story.

Are radio logs important?

In a word, YES!

They provide evidence of radio transmissions made, advice given and actions taken in a chronological and ordered manner.

Radio log-keeping requirements:

The person who answers the radio generally should write the logs.

The logs should be written during or as soon after the radio transmission is made.

Transmissions should be recorded directly onto the radio logs and not onto paper and then transferred to the logs.

Sufficient information should be recorded to enable the operator to accurately tell the story later.

Do not try to assess the relevance of information for logging purposes.

Within reason, if it is on the radio, it should be in the logs.

The logs should be signed / initialled to identify who has made the records and thus received the radio message.

The logs should be written neatly and accurately.

The logs should be written in ink only, not pencil.

Mistakes should be crossed out with a single line, initialled and then the correct information written immediately to the right.

Errors should not be scribbled out, or erased with Liquid Paper (or similar). Such corrections could make a log inadmissible as evidence in a court situation, as its accuracy could be placed in doubt.

Do not leave large gaps or spaces in the logs. Any gaps accidentally left should have a single line ruled through them.

Radio logs should be secured for safe keeping when completed.

Radio log-keeping hints and tricks:

A NCS operator should be ready to accept a radio call. Write the time and the callsign of the station calling, before answering them on the radio. This ensures that your pen is in your hand and working, so that you are ready to immediately write down what is being said.

Make every effort to write down what is being said, as it is being said.

Do not acknowledge information passed by a station until you have logged most of what they have said (but be aware of leaving a station "hanging" for too long, waiting for you to acknowledge them).

Develop the skill of trying to listen and write (using abbreviations) at the same time. This will significantly improve the speed of your log keeping.

Look at your logs, once finished, and ask yourself if another person could tell the story of that radio transmission from your radio logs.

Logging Abbreviations

Acco	Accident	NFI	No further information
A/A	As Above	Nil TX	No transmission rx'd
Ambo	Ambulance	NNTA	No need to attend
ASAP	As Soon As Possible	NPI	No persons injured
Att	Attend	Nr	Near
AVCG	Aust. Volunteer Coast Guard	N (Nth)	North
B4	Before	O/A	Off at (arrived at)
B/F	Bush Fire	Ops	Operations
BFB	Bush Fire Brigade	O/S	Outside
Bld'ing	Building	OTW	On the way
B/O	Back On (the air)		
Btwn	Between	P/Stn	Police Station
		P.O.	Post Office
C	See (go and see)	Pol.	Police
Chk	Check	Pt	Point
Cnr	Cnr	P/U	Pick Up
Conf	Confirm(ed)		
Ctc	Contact	R (circled)	Right hand side
C/P	Checkpoint	RCO	Regional Coordinator
		Req'd	Required
D'csed	Deceased	R/Sq	Rescue Squad
DFCO	Deputy Fire Control Officer	R/abt	Roundabout
DRCO	Deputy Regional Co-ord	R'Way	Railway
DSCO	Deputy State Co-ord	R/Stn	Railway Station
Dir	Direction	Rx	Received
		RTA	Roads and Traffic Authority
E	East	RVCP	Royal Volunteer Coastal Patrol
EOC	Emerg. Ops Centre		
ETA	Estimated Time of arrival	SCO	State Coordinator
ETC	Estimated time of completion	S/Ctre	Shopping Centre
		SES	State Emergency Service
F/B	Fire Brigade	S (Sth)	South
FCO	Fire Control Officer	Sitn	Situation
F'Way	Freeway	Sqr	Square
		Stn	Station
GDH	Gosford Dist. Hospital	S/Stn	Service Station
Gosf	Gosford		
		Traf	Traffic
Hwy	Highway	Tnkr	Tanker (fire vehicle)
HQ	Headquarters		
		Vic	In the vicinity of
Info	Information		
		W	West
L (circled)	Left hand side		
Locn	Location	Xst	Nearest Cross Street
		X/Way	Expressway
		---->	Travelling towards

These are examples of logging abbreviations and should only be used where confusion will not result.

Examples.

The statement "I am leaving this location and am returning to base"

Could be logged as "B/O ---> BASE"

The statement "Could you advise the location of VK2***?"

Could be logged as "Locn VK2***?"

The statement "Have VK2*** attend the corner of Smith St and Johnson St Wyong as soon as possible and confirm if the Fire Control Officer is there".

Could be logged as "VK2*** ----> Cnr Smith St and Johnson St Wyong ASAP, re locn FCO".

You can see the difference between the freehand and the abbreviated version, whilst both basically tell the same story. While the actual abbreviations should be consistent, their use is somewhat flexible. As long as you can tell the story of what happened through the correct use of abbreviations, you will find that they save you a lot of time.

If the circuit is busy and the NCS Operator is busy he should put out a call such as:

“ All stations, this is net control, Stand-by unless urgent.”

As soon as possible, notify or call in the station last heard. This will allow time to catch up.

28. CIRCUIT ANNOUNCEMENT.

Where a WICEN net is in operation a broadcast should be made periodically to indicate that the frequency is in use for WICEN purposes.

The net control station should make this announcement four times per hour. The announcement should indicate that:

- the circuit is being used for a WICEN exercise / operation.
- the purpose of the exercise
- request that the frequency be kept clear or that non -WICEN traffic be kept to a minimum,
- that abbreviated callsigns are being used,
- that all operators are licensed Amateur Radio Operators
- thank other operators for their co-operation.

Example: "This is VK2WIY net control station for the <name of event>. We are conducting a WICEN exercise / operation on this frequency and we would appreciate it if stations not involved in the exercise keep the frequency clear.

Stations on the net are operated by licensed Amateurs and are using abbreviated callsigns. We thank you for your co-operation. This is VK2WIY. Out".

29. TELEPHONE TECHNIQUES

One of the secondary roles of WICEN is that of providing extra radio operators or manpower for other services' existing radio systems ie. the Bushfire or the SES may require extra radio or telephone operators during an emergency. They may call upon us.

Most people have limited telephone skills. This is the ability to say what you mean clearly and concisely over the telephone.

If we are called into assist on the phones during an emergency, it is important to have some idea of what you might ask someone who is giving you information via the phone.

The first and most important thing is to ask the person where the incident is occurring. If that is the only information you get out of a person before the line drops out then at least you have somewhere to start. When getting a location, you should get an address as well as the nearest cross street (if they know it) or distance from a known landmark. Some country properties require detailed directions. Make sure they are taken down accurately and read back to the caller for confirmation.

The next thing to find out specifically what is happening, You prefer to accept facts, not hearsay or rumours. When finding out what is happening, you should ask if anyone is injured. If so, how many? What is the nature of the injuries? Is anyone trapped? All of these will determine the type and speed of the response.

If no one is injured, what damage has occurred and what assistance does the caller require?

At the end of the call you should obtain the name of the person calling and a contact phone number for them. If they say they are calling from a public phone you should note that on the message sheet.

The service you are assisting may have other questions that you should ask but this is the basic minimum.

Remember that the caller may be in a distressed state. They may be abusive or irrational because of the situation. No matter how many times the caller says "Come quickly", you should still get down the important information. Don't let the caller put pressure on you to take short cuts, The extra thirty seconds taken on the phone will assist the response time in the long run, by reducing mistakes. Always try to stay calm and try to be as helpful and understanding as you can.

When contacting other emergency services or utilities, you should first identify yourself and from where you are calling. You should then relay the information that is relevant to them in the order given above and supply them with a contact number for yourself and the location of the incident. When dealing with other services it is very unprofessional to act in a "panicked manner".

Learning Outcome 2: ***Use radiotelephone procedure to send and receive a formal message:***

Demonstrate the correct procedures for keeping a Radio Operators logbook.

Assessment: Practical demonstration

- Performance:
- a. Use correct radiotelephone procedure.
 - b. Send and receive 3 messages of at least 50 characters with no uncorrected errors. One to be sent on SSB, 2 to be sent on FM.
 - c. Complete operator details on a message form.
 - d. Explain the necessity for log keeping.
 - e. Accurately maintain a logbook.
 - f. Submit completed forms.

VOICE PROCEDURE

SAMPLE QUESTIONS

1. The three types of messages used in radio and phone communications are:

.....
.....

2. The two precedence of messages as used are:

is and

3. To avoid interference with other traffic a user / operator should

.....

4. A proword is a pronounceable word that has a specific meaning.
Explain the meaning of 5 prowords.

SITREP

LOCSTAT

.....

.....

.....

5. Clear speech is necessary to be understood by the receiving station. The four factors that need to be considered are

.....,

..... and

6. Logs should be kept for different situations. For the communicator, a log of messages must be kept. This log is a summary or reference to what has been said or done. There are several notes to be made in the log. This includes change of

....., and a Precis of

7. In a log, sufficient information should be recorded to enable the operator to

..... later.

- 8. When sending a formal message, the operator should complete the
..... area of the message form.
- 9. Abbreviations are used in log keeping to assist in speed and accuracy. Some of these are:

Stn	FCO
C/P	B4
ETA	ETC
R/stn	NFI
- 10. When operational or exercising, it is necessary for the net control to make a circuit announcement every
- 11. When taking a message on the phone from the public the first information required is:
- 12. When speaking to the public or operators in the field it is important to remain
- 13. Circuit discipline requires that transmissions are as short
- 14. Do not faster than the receiver can
- 15. The WICEN operator does not make operational
- 16. Do not transmit in a net without permission.
- 17. To allow a station with a higher priority message to transmit it is necessary to between transmissions.
- 18. When a message is for a third party, a must be kept.
- 19. Abbreviated voice procedure can be used when
- 20. Transmissions should be clear and spoken in

Chapter 3

FIELD OPERATIONS

FIELD OPERATIONS

The WICEN Operator would normally operate in a location that is not the home station address.

In the home station all radios, antennas, cables, adaptors, food, clothing, power etc are either connected or on hand.

1. **Field operation** is defined as operating a station away from the normal location.

This includes a Communications Centre (Comcen) of the local SES or BFB or DEMO to a vehicle parked alongside a forward command vehicle or tent.

With field operations it is necessary to have all the required equipment on hand. This will only occur if proper planning has been done by each individual Operator and is familiar with the equipment he will be using.

The “equipment” falls into eight categories:

Power sources

Radios

Antennas

Clothing

Food

Fuel

Stationery

Safety of Operation

Or **PRACFFSS. (practice)**

2. **POWER SOURCES** vary from mains supply available to bringing your own.

The power source may be in the form of:

240 volt mains using a regulated 12 volt power supply.

Batteries including gel cells, Nickel-cadmium, Car batteries, Generators etc.

Portable Packet requires lap-top computers that operate on non-standard voltages.

In this case, a special power supply may be required to maintain a charge in the internal batteries.

3. **RADIOS:** The type of radios used would be dependent on the band in use for the propagation required for the event.

We do not wish to speak “all over the world” but to a station in a particular location.

The Amateur Operator is fortunate in having bands available to suit every possibility.

HF, VHF, UHF and perhaps, SHF.

The correct microphone, Headset and external speaker should be part of “the kit”.

The operator would be well advised to use a headset particularly in a closed environment. There is nothing more tiring than several radios and people talking when an operator is trying to do his job.

Most radios have an adjustment on the output power. Use a level of power that will maintain a good signal level but conserve power. There is no need for 40 watts when 5 watts will do the job.

4. ANTENNAS:

The antennas chosen must suit the band of operation and the need. ie: would a directional beam on UHF be more suitable than an omnidirectional antenna?

A point to point contact is perhaps required.

Listed under antennas is the mast, guys, brackets and associated hardware.

5. CLOTHING:

Clothing is an important part of the operation.

The Operator must be comfortable if he is to work for long hours.

If the period of operation is over several days, he would be well advised to bring several changes of clothing and include wet weather gear.

Toilet gear, towels etc should also be carried.

6. FOOD:

Where an operator is working from a base the food will normally be supplied by the client.

It would be reasonable to assume that he may be asked to leave the camp or base for several hours or even spend the time on a hill top.

The food carried by an operator should contain sandwiches, or other substantial meals and also “nibbles” ie chocolate, chips, cake, fruit and plenty of liquids such as orange juice, Coke, etc in sufficient quantity for the time away from the base. **Do not** drink alcohol before or while on the job.

7. FUEL:

Where an Operator is using his own vehicle he should refuel before arriving at the base for briefing.

He may not know to where he will be allocated and it will save time to have the vehicle refuelled prior to the briefing.

This also includes any fuel for a generator that may be required. All Fuel should be kept in approved containers and stored away from fires, stoves and any dangerous locations. Maintain at least 2 metres clear around the fuel. It is wise to cover fuel containers from rain and the sun.

8. STATIONERY:

A field, as a base station will require stationery to operate effectively.

The *minimum* requirements would be message forms, carbon paper, log sheets, map of the area, compass, spare pens, pencils etc. Basically, the field station would be a small office. All this can be kept in a Stationery box that holds A4 sheets and is 5 cm high.

A white board is handy to maintain a net diagram and other information. These are available from K-mart and other outlets at a very reasonable price.

9. SAFETY OF OPERATION:

WICEN personnel are there to assist an operation not to be part of the injured. All operating should be conducted so as no injury shall occur to himself, others or to property.

The work area should be tidy. Cables should be placed out of the way.

Power cables should be threaded so as damage to the cable will not occur. The cables should be anchored on each side of a walkway or covered to prevent it lifting and tripping people.

Do not run cables across a roadway. a minimum height of 10 feet should be observed over a walkway.

Some WICEN regions have some phone systems with extension lines. This is handy to connect services in a search area or on an exercise. Regional members should practice setting up such a system.

A generator should be placed so that no exhaust fumes are directed towards people. The Generator should be placed in a safe area and directed so as the noise of operation is at a minimum to operators. It may be possible to use a long extension lead thus placing the generator some distance away. Keep the fuel for the generator in an approved container and a safe place. Cover if necessary.

Where 240-volt equipment is used in the field it would be wise to have and use a "Safety switch" at the beginning of the line. These items are relatively expensive and really should be in the kit.

A First Aid kit should be standard equipment. This should be kept in readiness. The operator should be familiar with the contents of it.

When operating in a "front line" situation, vehicles should be parked in an orderly fashion in such a way that they can be moved forward and out of the area immediately. The operator must have in his mind a plan of withdrawal from the area. In a bushfire, conditions may change quickly and urgently. The operator must be able to pull out with out having to untangle his vehicle from cables, antennas etc. Make sure that no one parks across his path thus blocking him in.

Practice is important for the operator. It is vital that the operator is familiar with his gear and knows the limitations of it. Practice setting up and closing a portable station can be conducted in the back yard at home without trouble. The operator can also take part in field day contests to enhance his skills. This is a good opportunity to check the equipment under prolonged operation.

Practice also includes care and maintenance of the equipment.

Learning Outcome 3: Operate in the field.

Assessment: Continuous assessment.
Practical test.

- Performance:
- a. Attain a 70% pass mark in the written test.
 - b. Describe environmental considerations.
 - c. Describe administrative requirements.
 - d. List typical equipment requirements.

FIELD OPERATIONS

SAMPLE QUESTIONS

1. Field operation is generally described as operating away from
2. The Stationery box should contain a number of items including:
 - a)..... b).....
 - b)..... c).....
3. When parking a vehicle in a "front line" position always park so as
.....
4. The use of headphones are recommended because
.....
5. The acronym PRACFFSS stands for:
 - P.....
 - R.....
 - A
 - C
 - FOOD
 - FUEL
 - S
 - SAFETY
6. When transmitting, use the Power level to give reliable communications.
7. One item in "the kit" should be a 240 volt switch.
8. As an operator may be tasked to operate away from a headquarters, it is advisable that the kit includes water and some
9. The minimum height for cables over a walkway is Metres.
10. The first aid kit should include
.....

Chapter 4

MAP READING

MAP READING

PURPOSE: To provide WICEN members with the map reading skills relative to their role as communicators.

THE AIM: To provide WICEN members with the skills to understand map reading in the following areas.

- Types of maps
- Description of legend
- Marginal information
- Map orientation
- Scales
- Measuring distance
- Reading grid references
 - Difference between Grid and Magnetic
 - Working out bearings from a map
- Use of a compass to take a bearing
- Determining back bearings
 - Bypassing obstacles
 - Resections
 - Transmitting LOCSTATS

WICEN members may be used in the field at forward commands, Police stations, Welfare centres, operations rooms where command and control may be used.

In the case of a search and rescue, maps of the area would be in use.

It is important that the WICEN member is able to understand how to read a map and convey a given interpretation via phone or radio. If the member has a good understanding of map reading there is little chance of there being an error introduced.

Map reading can be broken into three parts.

Types of maps

Map details

Use of the compass

1. Types of maps

ROAD MAPS OR TOURIST MAPS: are the normal day to day maps that motorists use. These are from the NRMA, UBD, Sydway, Melway Gregorys, etc.

SKETCH is, as the name suggests, is a sketch or drawing of an area. There is limited detail in terms of scales and contours but the information supplied should be sufficient to achieve the objective.

ORTHOPHOTO is an aerial photo of the area. This is a photo showing the lay of the land and constant scale but cannot show contours or reliefs.

GEOLOGICAL shows the mineral placement in the area.

TOPOGRAPHIC is the maps normally used by search parties and bushwalkers. These are very detailed maps and provide a good source of scale, contours, grid references, land detail etc. The map we will use for map reading is the topographic map.

Marginal information and legend: At the side of the map there is information and descriptions of the symbols, scales, bearings, care of the map and date of issue etc as used on the map.

Care of the map. Care should be taken in handling a map. This is a tool and may be used to save a life. With proper care, a map should last for some years.

How to fold a map. There are 3 steps to fold a topographic map.

fold the map in half with the printing out.

Concertina the map inwards following the existing folds.

Fold the top section down backwards so as the front of the map is towards you and the legend is exposed at the back.

MAP DETAILS

Consider the following information:

Map title (found on the front. Ie SASSAFRAS 8927-1-N)

Type of map: ie topographic map

Scale: 1:25000 or 1:100000 or 1:63000 (old)

Date: (under the scale) PRODUCTION: Central Mapping Authority of New South Wales Aerial Photography 1980, Field revision 1985, printing 1986

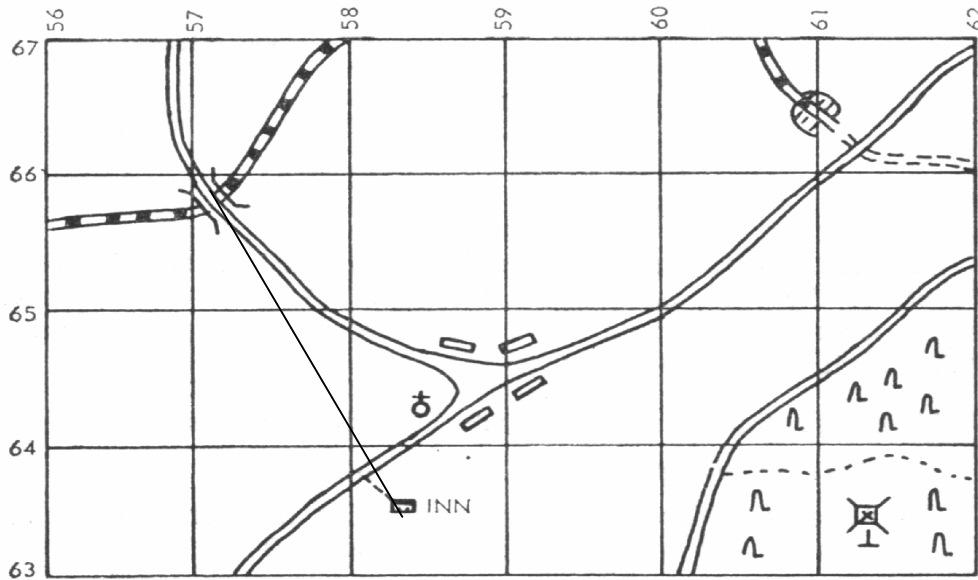
SCALES: Maps come in various scales. The most common scale for search is 1:25000. This scale means that 1-cm on the map represents 25000cm or 250 metres or 1/4 Km on the land. 1:100000 scale means that 1-cm represents 1Km on land. This map would cover more area but would contain less detail of the area.

A linear scale is drawn to show linear distances. This scale can be used to calculate distances between points on this map. On some linear scales, the zero point is in from the left of the scale. And show the larger primary distances to the right and on the left are the smaller or secondary distances.

MEASURING DISTANCES: measuring linear or air distances may be done by the use of dividers, a ruler, a length of string or a piece of paper against the scale. This method does not take into consideration contours or detours, hills and valleys. Place the paper on the map and mark on the paper the two points of reference. Place the paper against the scale and measure the distance off the scale. This will give a close idea as to the linear distance.

Where a distance along a road or creek is to be determined, the "string method" may be the most appropriate.

Place the beginning of the string at the point "A" on the map. Use the string to follow the shape of the creek along to the point "B". Using the scale, place the string against it and determine the distance.



Example of Map Reference

GRID REFERENCES:

The world has been mapped using a grid system. By the use of such a system, any point on the globe can be located.

This would require a 15-figure reference to achieve. For simplicity as an operation or exercise would be conducted within a small area and on one or two maps, a 4 figure or 6-figure group is used.

A 4-figure group would be used to define a search area and the 6-figure group would be used to determine a point or an area $1/100^{\text{th}}$ the size of a grid.

The grid lines on a map are the Eastings (running north to south) and the Northings running east to west. The grid line number increases heading east and also north.

ALWAYS GIVE THE "Eastings" before the "Northings." Read across the bottom then read up the map.

On the map shown, the Inn is located at 58 and $2/10^{\text{th}}$ and 63 and $7/10^{\text{th}}$ or is written as GR582637, The road junction is in the grid GR5864. By placing "GR" in front of the reference it shows that it is a Grid Reference.

A more accurate position may be obtained by the use of a **ROMER**. A romer scale is a simple device for accurately measuring the position of a point instead of estimating $1/10^{\text{th}}$ divisions within a grid.

To use the romer, place the corner of the scale on the point or location in question and the edges of the romer parallel to the gridlines. It is then possible to accurately determine the tenths.

It should be noted that a different size romer is necessary for each map scale.

Example of map reading is to give the LOCSTAT of the inn. Reading across from the west gives us 581. Reading upwards gives us 637. Combining this into a grid reference would give GR581637.

Following the road from sector 5763 the road passes the inn at GR581637 and then makes a turn at the junction at GR587645. The road continues over a rail bridge at GR571658.

CONTOURS:

To show the gradients, contours, or the shape of the ground and features, the map depicts these features by the use of lines which "join" equal heights together. These lines are known as contour lines. The closer the lines are together, the greater the incline or gradient. The further apart the lines are on the map, the more gradual the slope.

By studying the contours we are able to decide how sharp or gradual is the incline. We may need to know what means of transport is needed to transverse this part of the land or, in fact, if it is passable.

GRADIENTS:

The slope of the ground may be expressed as the angle the ground makes to the horizontal but more commonly as a gradient eg 1 in 10 or 1:20. This means that the ground will rise or fall 1 unit in a horizontal distance of 10 or 20 units.

Generally a vehicle can handle a steep gradient, a steep railway is 1:40, cycling 1:20. As a guide, a road or track should not exceed 1:6.

DIRECTION:

Points of the compass: Direction is determined in several ways. Firstly, the cardinal points of the compass are North, South, East and West. These are divided into 16 smaller increments of NE, SE, SW, NW, NNE, ENE, SSE, ESE, WSW, SSW, WNW, and NNW.

The Degree system: For greater accuracy, the circle may be divided into 360 degrees. Further accuracy may be obtained by dividing the degrees into minutes and seconds where there are 60 seconds in a minute and 60 minutes in a degree. Generally, the division of degrees need not go smaller than half of a degree.

Zero or "360" degree is taken as North and South as 180 degrees with East at 90 and West at 270 degrees.

The purpose of taking a bearing is to give an accurate indication of direction of one location to another. A bearing is the angle, measured clockwise.

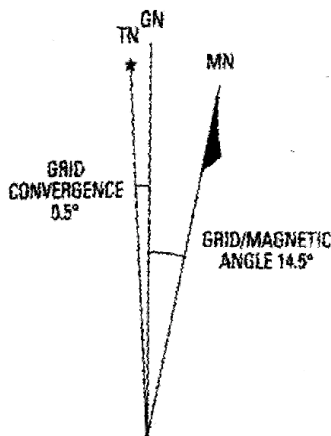
Magnetic North Vs True North and Grid North.

There are three "north poles":

True North (TN) is the geographical North Pole and is the axis around which the earth spins. Lines drawn from the North Pole to the South Pole are true North-South lines or meridians. True North is therefore the direction from any point on the earth's surface to the North Pole.

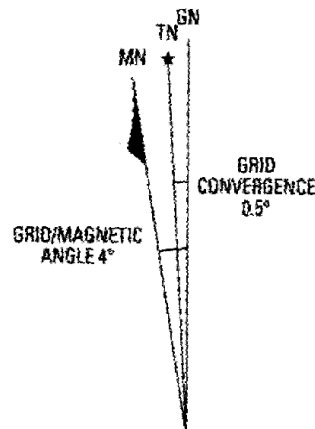
Magnetic North (MN) is the point on the earth to which the compass points. Its position varies slightly each year. This is shown on maps on the legend. On the Sassafrass map the GN is 1.5deg east of TN and the GN/MN variation is 10.8 deg in 1980 and + 0.1 deg per 3 years. Eg. The map was in 1980. For year 2000 (20 years) Say 21 years, the variation would be 0.7 degree or 11.5 degrees.

Grid North (GN) The grid lines on a map do not generally lie along the true north-south axis. Except one easting. Since the grid lines are parallel and are drawn on the map, it is convenient to use them. The relationship between the three are shown in the legend



TRUE NORTH GRID NORTH AND MAGNETIC NORTH ARE SHOWN DIAGRAMMATICALLY FOR THE CENTRE OF THIS MAP. MAGNETIC NORTH IS CORRECT FOR 1991 AND MOVES EASTERLY ABOUT 0.1° EVERY THREE YEARS.

a. easterly variation



TRUE NORTH GRID NORTH AND MAGNETIC NORTH ARE SHOWN DIAGRAMMATICALLY FOR THE CENTRE OF THIS MAP. MAGNETIC NORTH IS CORRECT FOR 1995 AND MOVES EASTERLY ABOUT 0.1° EVERY TWO YEARS.

b. westerly variation

Convert magnetic to grid:

For most of Australia the magnetic lines are east of true north and of the Grid north. To convert the magnetic bearing to grid it is necessary to add the variation to the magnetic. This will give the grid bearing.

One prompt is: **MGA** (My Great Aunt) (M)agnetic to (G)rid - (A)dd.

Example: to convert a magnetic bearing of 55 degrees to a grid bearing.

$$55 + 14.5 = 69.5 \text{ degrees}$$

Convert Grid to magnetic:

Where it is necessary to convert to magnetic, it will be necessary to subtract the variation.

To achieve 338 degrees on the map (Grid north) it will be necessary to subtract 14.5 degrees from the compass. In other words, the compass shall be set to 323.5 degrees. The compass reads east of true north and of Grid north.

GMS (My Grandma sits) (G)rid to (M)agnetic - (S)ubtract.

THE COMPASS:

General:

There are several types of compasses

The magnetic compass as used for map reading comes in different shapes and sizes. Basically they are the same.

The compass consists of a magnetised pointer on which the north-seeking pole is painted with a red tip and luminous paint for night-time use.

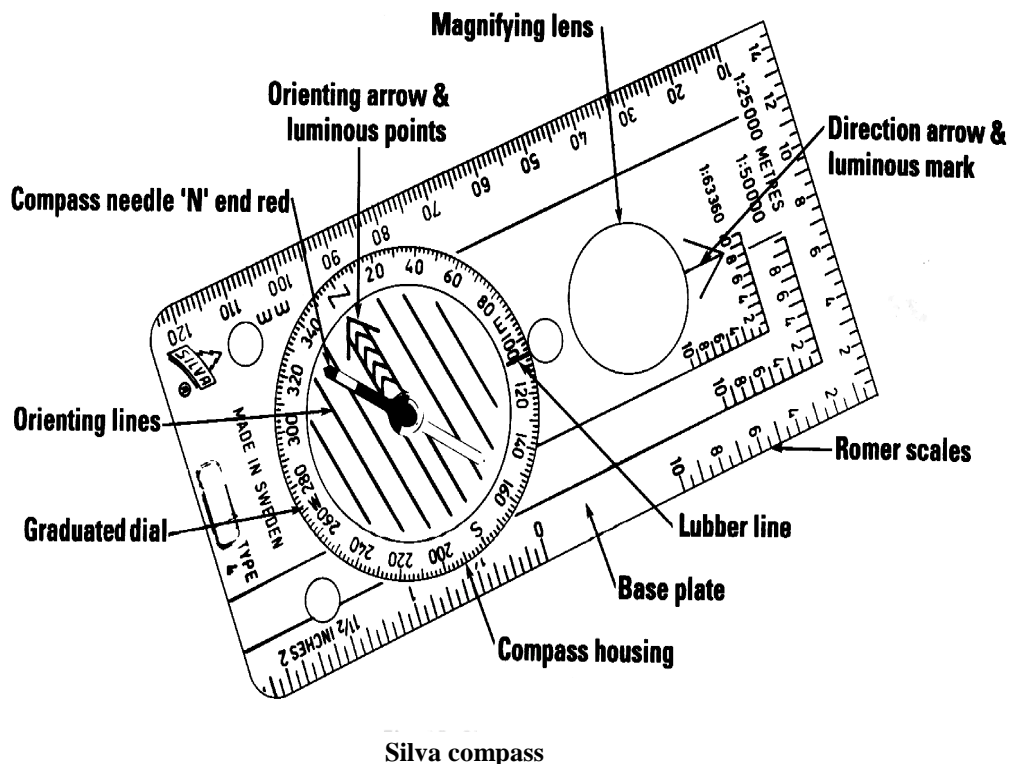
The needle is contained in a plastic or non-ferrous housing and it is balanced on a pivot enabling it to swing freely.

To reduce over swing, the housing is filled with a liquid to dampen the movement.

The outside of the housing is graduated into 360 degrees with the cardinal points marked.

The Prismatic compass has a prism enabling it to be used "in line". The sighting is taken through the hairs and the angle is read through the prism.

Other compasses, including the Swiss or Silva, must be read from above. All compasses must be held level or placed on a level surface while reading.



The Silva compass has several features that include:

- A dampened movement,
- A graduated scale in degrees,
- A magnifying lens,
- Orienteering lines,
- A fluorescent lubber line,
- Romer scales,
- Inches and centimetres marked on the base plate,
- Can be used as a ruler.

Taking a bearing:

To take a bearing in the field using the previous map and from the inn to the Railway Bridge, place the compass over the map. Place the side of the compass in line with the inn and the bridge. Adjust / rotate the graduated dial until the orienteering lines are parallel with the northings (vertical lines). Read off the lubber line the direction. In this case, the answer would be 338 degrees.

Taking a back bearing:

To take a back bearing (or if you were walking in the opposite direction) the reading would be +/- 180 degrees. If the bearing is less than 180 degrees, add 180. Ie. 64 degrees, the back bearing would be $64 + 180 = 244$ degrees. Where the bearing was 338 degrees, then the back bearing would be $338 - 180 = 158$ degrees. Where a return journey is required by compass, just turn around, and point the compass into the body. Keep the pointer in the luminous area of the dial and walk in the direction of the back of the compass.

Bypassing obstacles:

There is a number of times where there are obstacles in the path of travel. This may be a lake, dam, thick undergrowth or such. This can cause a loss of direction.

To overcome the problem, it is advised to make a right hand turn and move in line with the back of the Silva compass. Note the distance travelled at right angles. Once around the obstruction, turn back in the original direction and with the compass pointing but now following the side of the compass plate. After passing the obstruction, turn again at right angles (in the opposite direction) and follow the back of the compass plate, noting the distance before turning to resume the original path.

Resections:

Resection is where a bearing needs to be taken from several points to establish the exact location of the user. This makes use of three or more points of note in the scenery and on the map.

On the map shown, from your location you can see the inn, the bridge and the tunnel. You have found these features on the map. By using the compass and taking a magnetic bearing from each feature your exact location can be established.

Take a magnetic bearing and convert to grid.

Convert this reading to a back bearing and draw a thin line on the map from the feature in the direction of your approximate location.

Take similar readings and convert them from the other features in like manner.

Where the lines intersect or where there is a small "triangle of error" is your location.

Finding North without a compass

During the day it is possible to determine north without the use of a compass.

This is done using a watch and the sun.

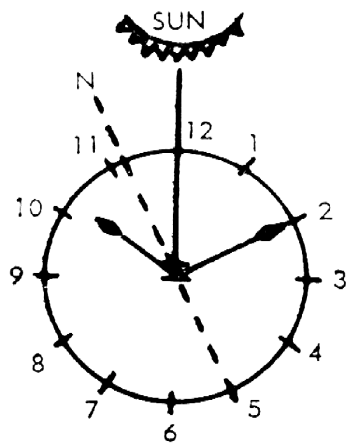
The sun rises in the East and sets in the west. The time is almost 12 hours from east to west with midday directly above.

Point the 12 o'clock on the watch to the sun. Note the position of the hour hand. Dissect the angle between the hour hand and 12. This points to north.

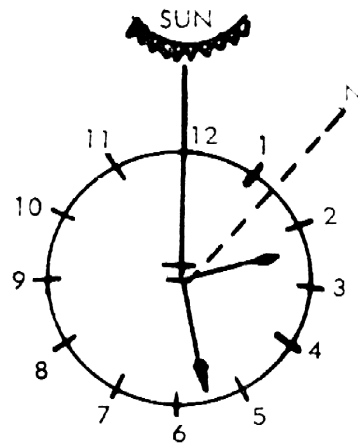
Remember that before noon, read forward (clockwise) from 12.00

After noon, read backwards (anticlockwise) from 12.00.

During daylight summer time, it is necessary to subtract 1 hour from the time.



Before Mid-day



After Mid-day

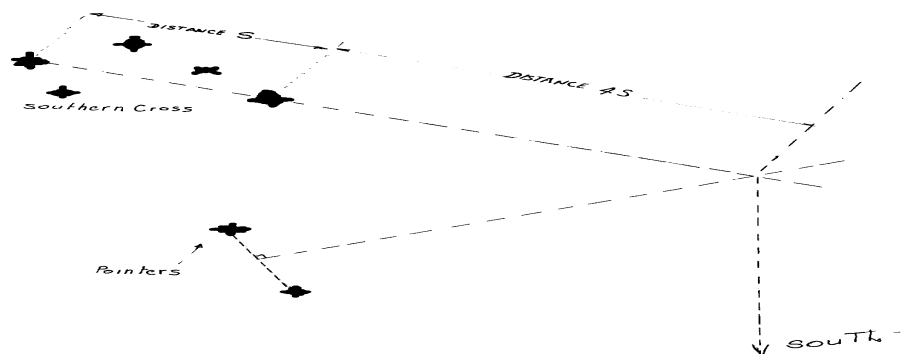
Finding south without a compass.

During the night and a clear sky it is possible to determine South by looking at the Southern Cross and the two pointers.

Draw a line from the top to bottom of the Southern Cross.

Draw a line between the two pointers. In the middle of that line, draw a perpendicular line to cross the line from the Southern Cross. At that point drop a line to the horizon.

This will be south



Using the Southern Cross for South

Compass errors:

Checking a compass for errors is important. There are two main causes for errors.

An individual compass error that involves an error in the instrument. Converting a magnetic to grid reading on a map to several known objects from different locations can check this. If the error is large and consistent, It is possibly a problem in the compass. If it only occurs at one or two sites, the problem is possibly local magnetic errors. Iron, steel in the ground or nearby, can cause errors in reading. Remember that steel fences, vehicles, metal tools, metal objects in pockets can cause an error.

To check for local magnetic attraction, select two points about 100 metres apart and take a bearing from both. The back bearing (reading - 180) should equal the other.

If this is not the case, there could be magnetic interference at one or both sites.

Conclusion:

This is a short form of map reading for the WICEN Station Operator. Further information is available from the State Emergency Service, Wilderness Rescue, Cave Rescue, Central Mapping Authority and other sources.

Acknowledgements:

Information and Land Services, Department of Primary Industries, Water and Environment, Tasmania

Learning Outcome 4: Use topographical maps to navigate:

Assessment: Written test.
Practical exercise.

- Performance:
- a. Obtain at least 70% in a written test.
 - b. Calculate bearings from a map.
 - c. Complete a resection to within 200 metres accuracy.
 - d. Move to a specified location indicated by a grid reference.
 - e. Transmit a locstat correctly and accurately.

MAP READING

SAMPLE QUESTIONS

1. The type of map generally used in searches and exercises is the
2. Maps come in different scales. The most common scales are:
.....and
3. A grid reference is used to identify an or a point on the ground.
4. When giving a grid reference, always read the eastings then northings true / false
5. A Scale is a device to divide the grid into $1/10^{\text{th}}$ for greater accuracy.
6. The slope of the ground may be expressed as the angle the ground makes with the horizontal.. This is known as the
7. If a bearing is less than 180 degrees then the back bearing is the reading less 180 degrees true / false.
8. Resection is the term used to determine the location of
9. There are 3 "north poles". They are: Magnetic north, north andnorth.
10. All compasses must be held or placed while reading.
11. Contours show the shape of the ground and join the points lines of heights.
12. The distance may be measured on the map using or or or a length of string.
13. A romer must be suitable for the of the map.
14. The compass has a North seeking pole. This is identified by
15. To convert grid to magnetic it is necessary to the variation.
16. To use a watch as a compass during the day it is necessary to point the at the sun.

Chapter 5

Setting up a comms centre

SETTING UP A COMMUNICATIONS CENTRE

A COMCEN has certain requirements. The net control station (NCS) will usually be located at the headquarters of the client. This module is designed for a large headquarters. Smaller stations would be tailored down to suit the requirements. Usually a WICEN operator will be on his own and/or working his own station as a sub-station in the field.

In the case of an exercise, most operators will be working with other checkpoint people on their own. This means that they will have to consider how best to set up their radios etc with regard to the checkpoint.

The factors that concern the WICEN supervisor are:

Location

Size

Staff requirements.

Facilities offered

1. LOCATION:

This is usually a room in the operations area of the SES or BFB headquarters.

It should have access to the operations room and to the outside.

The ComCen should have good lighting and ventilation.

It should be a quiet room. Access should be restricted to the operators and operational staff on duty. Headsets should be used where possible.

No **WICEN** personnel or other people should enter the ComCen unless on business.

The Coffee machine and rest area should be in another part of the building. Should an operator be required, he can be called on the radio as most operators have a hand held.

In a ComCen the less traffic the better.

The ComCen should be located with attention to antennas and cables. The closer to the outside the better for running cables and less losses.

The antenna needs to be mounted as high as possible and either a beam or omnidirectional antenna to suit the requirements.

The size of the ComCen should be sufficient to allow operators to move and to install the required equipment.

Depending on the size of the operation, the number of staff will vary. For ease of operation there should be two operators per circuit. One will operate and logs, the other to support, writes IN messages and liaise with the client.

To keep noise and fatigue at a low level the operator and log keeper are well advised to use headsets.

Most ComCens are small and are acoustically poor. The radios and phones ringing cause an increase in noise levels.

2. LAYOUT OF A COMCEN.

The ComCen should be laid out so that the operators do not have to move greatly while still able to work.

The phones should be in cubicles if possible and each circuit should have wire baskets labelled "IN" and "OUT". These to be accessed by the messenger as he will have to direct the messages in to the operator or out to a destination within the building.

3. STATIONERY:

The stationery required in a ComCen is:

Message forms	WOF08	Log sheets / book	WOF07
Attendance form	WOF01	Casual worker forms	WAF10
Activation reports	WOF05	People tracker	WOF11
Operator deployment list	WOF09		

Other items to be included are maps, pens, pencils, erasers, carbon paper etc.

4. STAFF REQUIREMENTS:

The staffing requirements of a ComCen varies depending on:

- The level of traffic,
- The length of the activation,
- Number of circuits in use.

When Operators are activated and are being used, additional operators should be placed on standby.

A time and location for the new operators to commence may be agreed upon at the time of contact. Additional information regarding items such as equipment, food and other requirements should be discussed at that time to allow the new operator to properly prepare.

5. FACILITIES OFFERED

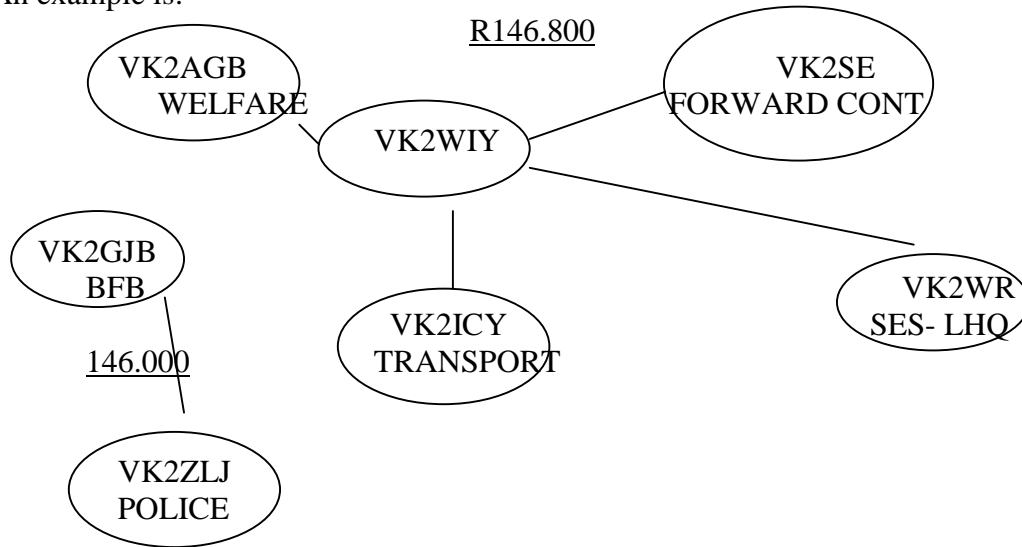
The client may have facilities available for operators. Such facilities are for the comfort of operators and feeding. Other facilities may be photocopying, fax machines, meals, rest areas.

In a large complex these facilities although available, may not be obvious. The Supervisor should make himself aware of such facilities.

6. WHITE BOARDS:

There is a need for the NCS to know who is on the net. A method to have a ready access to this information is the use of a whiteboard with a circuit diagram of operators or stations that are on the net.

An example is:



A board displaying the location, callsign, ETA and other information is helpful. It is important for the NCS to know where all operators on duty are AT ALL TIMES. This board could be used in conjunction with form WOF09.

OPERATOR	LOCATION	TIME ON	LAST HEARD	NOTES
VK2AGB	WELFARE	23.30	0234	TO BE REPLACED
VK2ICY	TRANSPORT	21.00	0225	OK
VK2WR	SES	21.00	0223	OK
VK2SE	FWD CMD	21.00	02.07	OK
VK2AGF	REST AREA			RESTED
VK2SAD	REST AREA			RESTED
VK2GJB	BFB	21.30	02.10	TIRED
VK2ZLJ	POLICE	21.22	02.10	OK
VK2CD	AT HOME			RESTING

List the operators as shown. “Last heard” can be filled in during quiet times. When an operator stands down or is resting, the Supervisor should note it on the board. The Operator should note his arrival and stand down on the attendance sheet in person or direct the supervisor to make a note.

Attach: WOF07, WOF08, and WOF09.

Learning Outcome 5: Set up and operate a station

Assessment: Practical demonstration.

- Performance:
- a. Set up a station to operate on 2 bands one of which is HF. Station must not be inside a vehicle. The vehicle battery may be used.
If vehicle must be used, consideration is to be made for Client access, ie shade, protection from weather.
 - b. Operate with an assistant.
 - c. Be self-sufficient. (Not including food preparation)
 - d. Demonstrate knowledge of Occupational Health and Safety.

SETTING UP A COMCEN

SAMPLE QUESTIONS

1. The person in charge of a ComCen is called the
2. The ComCen should be run quietly and access should be restricted to
.....
3. To keep noise and fatigue at a low level the operator and log keeper should
..... whenever possible
4. There are several items which should be kept as stationery. They are:
Message forms, logbooks, area maps, forms,
etc.
5. The length of activation, Level of traffic and the number of circuits in use will
determine the:
.....
6. White boards can be used to show and
7. In ops there are other facilities available.. These may include
and
fax machine or, for our use.
8. Details of other stations, particularly mobiles, should be updated regularly. The Net
controller should maintain the Operator deployment board.
9. The role of the Supervisor is to and
.....
10. ComCens should have access to the room and to
outside.

Chapter 6

OCCUPATIONAL HEALTH and SAFETY

OCCUPATIONAL HEALTH and SAFETY Within WICEN (NSW) Inc.

Contents:

- 1. Whilst travelling**
 - 1.1 Carry bars
 - 1.1.1 Load security
 - 1.2 Back seat
 - 1.3 Back of the wagon
 - 1.4 Storage
 - 1.4.1 can you lift it?
 - 1.5 Mounted transceivers

- 2. On station**
 - 2.1 Location
 - 2.1.1 limbs
 - 2.2 Laying out the equipment
 - 2.2.1 tripping over it
 - 2.3 Preparation
 - 2.3.1 gear check
 - 2.4 Erection of masts
 - 2.4.1 planning
 - 2.4.1.1 What of the wire
 - 2.4.1.2 NVIS
 - 2.4.2 the public
 - 2.4.2.1 Falling objects
 - 2.4.4 strong winds
 - 2.4.5 storms
 - 2.4.5.1 earthing
 - 2.4.5.2 NVIS
 - 2.5. getting it down
 - 2.6 Makeshift

- 3. Tools**
 - 3.1 Condition
 - 3.2 Correct tool for the job
 - 3.3 Proper housing
 - 3.3.1 where did I put it?

- 4. Making yourself comfortable**
 - 4.1 Legs
 - 4.2 Environment
 - 4.2.1 insects
 - 4.2.2 sun
 - 4.2.3 wind
 - 4.3 Posture

- 5. On leaving**
 - 5.1 Tidy the area
 - 5.2 Properly repack the vehicle
 - 5.3 Advise someone of your intended path

- 6. RF exposure guidelines**
 - 6.1 Susceptible Human tissue at VHF
 - 6.2 RF confinement
 - 6.3 Non intermittent operations
 - 6.4 Shielding RF

- 6.5 UHF/SHF 1/4 wavelengths
- 6.6 VHF soft tissue

1. Whilst travelling.

Much of the WICEN operators time is spent in travelling with equipment within and atop the vehicle and the method used to carry this often quite heavy load is very important.

1.1 Carry bars

The type and strength of these bars or rack is important. It is particularly important that the rack is well secured to the vehicle.

1.1.1 Your load

Load security can only be achieved when properly tied. Too often the load is poorly secured with improper knots. The use of flexible straps is common and these should not be used on retaining loads that are in excess of the straps ability to restrain, especially under severe braking of the vehicle.

1.1.2 Long poles

These can be a problem especially if they are steel and contain some weight. It is important that they can be loaded and unloaded safely and not be a cause of physical injury.

Because of their weight, stresses on the rack are greatly increased when the vehicle is under brakes or swerves sharply.

1.2 Back seats

Back seats are a common environment to carry equipment, especially if that equipment is somewhat fragile and it is thought that the seat will absorb the road shocks.

Whilst this is true, most people do not have the means to retain the equipment, if there is a need to brake or swerve sharply, the equipment can cause injury to occupants of the vehicle including damage to the equipment

If there is no restraining method available, the use of the back seat should be avoided as untethered equipment can be flung toward the front of the vehicle causing injury.

1.3 Station wagons

If the station wagon has a well mounted mesh frame to limit the mobility of flying objects and equipment, then injury to occupants of the vehicle is not of consideration. If however the vehicle is not fitted with such a frame, there is still a strong likelihood of equipment being thrown about causing injury to the occupants when the vehicle is required to swerve sharply or brake severely.

The use of a properly designed retaining mesh that is securely attached to the vehicle when covering the load, will prevent the equipment from breaking free.

The use of a retaining mesh for rear storage in a station wagon or similar vehicle is very desirable.

1.4 Storage

An important aspect in reducing personal injury is to limit the weight that you must carry especially if that weight requires side lifting or pulling. It is far better to have more items to carry of less weight than it is to carry a larger weight.

1.4.1 Can you lift it?

Place the equipment in strong boxes or plastic containers that can be easily grasped for lifting, do not pull sharply and do not lift heavy weights whilst you are in an awkward position.

1.5 Mounted transceivers

A short note on the structural dependability of transceivers in vehicles. Too often radio equipment is lying around on the floor of the vehicle or is poorly attached, the same condition arises if the vehicle needs to take evasive action.

Equipment mounted behind the driver or passenger should be securely attached to the mounting material that in turn is securely attached to the vehicle.

2. On Station

2.1 Location

Often, the choice of location is limited, but there needs to some consideration to possible dangers or hazards

2.1.1 Limbs of trees.

A very real danger can exist from falling tree limbs.

Certain species of eucalypt, when exposed to certain weather conditions can drop limbs or even loose root footing causing the tree to fall. These are the often large trees that grow around rivers, mainly White, Manna and Redwood gums.

Dead limbs should be avoided, do not set up or place any equipment beneath

Be extra cautious after rain

2.2 Laying out the equipment

It is often a good idea to lay out your equipment in a neat fashion so that all the gear can be obtained and items clearly seen, much frustration can be avoided using this method even if it does mean a certain amount of reloading.

2.2.1 Tripping over it.

When laying out the gear, place it in a spot that will not cause you to have to step over it.

Select a spot clear of dangers as discussed and not too far away as the gear for the gear to be carried.

2.3 Preparation

Plan what you need to do first. Often there is a need to establish radio contact quickly and this may be your first concern but don't rush into it.

If you do have contact from the whip on the vehicle, perhaps only to your neighbour, this may be sufficient for you until you have completed all the other tasks and without haste.

In all events you are instructed to be on site usually within 90 minutes to start time, this should be plenty of time to set up your station without fluster and still have a cuppa..

2.3.1 Gear check

The first (or maybe the second, after a cuppa) is to lay out the gear and check it for completeness.

If incomplete you may be able to rig something or take another approach, knowing early in the set up is important as it will reduce panic and give you time to think or ask questions etc.

2.4 Erection of masts

Care and planning of mast erection is important. If you have a light weight aluminium sectioned mast you will still need to consider how to keep it upright, especially if you are on your own, you will require sufficient space for maximum anchorage and use appropriate guying material and pegs.

2.4.1 Planning

If you have a sectioned steel mast or even a long length of steel section, you should not be on your own. There are methods that can be used for individual erection of such masts but in the matter of safety, you should have assistance.

Lightweight masts, if they fall, will not cause as much damage as the steel section, are easier to control and may be erected singularly.

Plan the placement of the mast, the area required for guying and consider the consequences if it happens to fall, is it near other people or equipment vehicles etc.

2.4.1.1 What of the wire

If you erect a dipole, there is little chance of the public getting tangled in its ends, maybe the middle though, make sure the feed wire is not in the public's path. If you erect an inverted V, there is plenty of scope for the public to get entangled in the ends, you will need to enclose the ends with a suitable tape suggesting to the public that this area is out of bounds.

2.4.1.2 NVIS

It is appropriate at this time to mention the V dipole, an Near Vertical Incident Skywave antenna that has raised ends and a tuned low to ground feed line, this will mean the public have little chance of getting foul of the antenna unless they are in your lap!

2.4.2 Public

If you are to erect a mast of some height in and around the public, you can be sure that it will not go unnoticed, the public will want it erected with regard to their safety and yours.

Multi sectioned steel masts of up to 30 feet or 10 meters can be pushed up by a single person but unless you can hitch it to some strong safe section of the vehicle, you will not be able to leave it and guy the mast into place.

If you have another person to assist in this matter, it is still preferable to be able to tie well the mast firmly to a section of the vehicle.

It is preferable to have the guys pre-cut to a proper length and to know how many of your steps from the foot of the mast the pegs need to be placed, it is then possible to push the mast into place, watching the guy ropes come into near taught as the mast reaches vertical, (3/4 guy method). . Attach the mast to the vehicle if possible then a quick run around the guys and pegs to tighten and the public will be well pleased with your efforts.

2.4.2.1 Falling objects

There have been a number of instances where either a vehicle's bodywork or the windscreen has suffered from a falling spanner or nut. DO NOT throw an object over a limb of a tree without first checking the surroundings for safe re-entry, well guided throw or not.

2.4.3 Strong winds

A well supported mast will be quite safe in strong winds but this pre supposes that you have :

- anchored the base
- used good strong rope, it need not be large in size for this
- properly tied guys atop the mast
- pegs will not be easily withdrawn from the ground

2.4.4 Storms

Whether wind or atmospheric (Thunderstorm), care must be taken in regard to your location. For the former, a windbreak is required, this may be natural or it may need to be manufactured by you, and, if manufactured, some care will need to be taken as to the strength and viability of the structure. If you have a vehicle then you have your protection.

If the storm is electrical in nature then special needs are to be met.

2.4.4.1 Earthing

Connect all transceivers, ATU's etc to an earth stake as close as possible to the equipment. Run your coax from the dipole to the ground and then bring the feed along the ground to the equipment. At the right angle bend in the coax, it is a good idea to use a joiner which incorporates an earth connection and connect this joiner earth to a separate ground stake.

2.4.4.2 NVIS

In the event of having to operate during storm conditions, use of wire aerials run near to or along the ground via an ATU (NVIS) is far more favourable. For 80 meters, an 85 ft. Wire length giving a broadside field is satisfactory. The ATU must be earthed along with the other side of the balanced line.

2.5 Getting it down

Lowering a heavy mast can be a hazard. Be sure that there is nothing in the path of the mast in the direction in which it is to be lowered. Leave the guys in the opposite direction attached and have your partner use one of the guys in assisting the lowering by taking some of the load of the mast.

To take the load of the mast it is best done by removing from the peg or anchor, the guy that is going to be used. Lengthen it sufficiently so as to enable the rope to be placed twice around a small diameter steel section of the vehicle (bull bar). Feed out the guy until the mast is down. This will provide a degree of leverage and greatly assist with the lowering.

2.6 Makeshift

Makeshift can be extremely dangerous when dealing with masts, especially of the heavier steel section. Anchor points for the guy ropes to the mast is important, if you use nylon rope make sure that it is bound so that it will not unravel the knot.

Poor guy rope must not be used

Pegs must be suitable, if not, it is possible to bury a log or use the vehicle as the tie point.

Unless the makeshift is sound, try another system.

3. Tools

A tool or implement is involved in all we do. Tools come in many different forms, shapes, sizes, and danger to the user.

Some considerations in regard to proper care of tools are given below.

3.1 Condition

Care must be taken with all tools, all tools should be kept in good condition, a poorly kept implement is a hazard, blunt knives require extra effort and as a result, slippage and possible severe injury can result.

3.2 The correct tool

Often, we select a tool that will do the job in some fashion, but it is not the one designed for that application. A case in point is the use of a shifting spanner to loose quite tight nuts, more often than not, the tool will damage the nut if it has not already skinned your knuckles.

Some examples that are close to home for many WICEN amateurs:
incorrect striking implement,
spanners in trees, general tools in tree forks.
Using a knife for cutters etc.

There are many instances of the incorrect tool being used and perhaps much of this is unavoidable, but I'm sure in many instances, the real reason is an apparent difficulty in obtaining the correct one, we might have to get up from what we are doing and look for it!.

3.3 Proper housing

A very sure method to reduce injury to oneself or others is to have the tool retained in its proper housing. A sheath for knives, axes, saws or any other sharp instrument. Often there is a need to construct some sort of housing for certain tools, a wood plane comes to mind.

3.4 Where did I put it?

Every tool has a home!, this should be the case and a case, bag, or box is a fair home at that.

If you take the care to sheath sharp tools and replace them in their container-home, you will reduce the risk of injury to yourself and others, especially children enormously, and reduce the risk of losing the tool.

4. Making yourself comfortable

It is desirable that you be comfortable whilst on station.

These days with folding tables, chairs, all manner of aids to keep sun, flies and various other things at bay, there is no reason why you should suffer an on station job.

4.1 Legs

Idyllic setting?, even so there are dangers lurking. How serviceable are those table and chair legs, do they fold up for no apparent reason, if so what can be done about it.

Will the table you have brought along manage the weight of the HF transceiver, the VHF unit and you arm weight together?.

Though the card table folds away well, it must be remembered that it is not designed for weight let alone anyone nudging it!.

4.2 Environment

Sometimes the location we are sent to is an idyllic setting, no problems exist, other times it is right out in the bush on a hot summers day!, far from idyllic when you have ants, snakes, flies, mosquitoes, leeches etc.

4.2.1 Insects

There is a need to keep insects from attacking you from at least two quarters, flying and ground mobile. The use of an insect repellent is very necessary, make sure it is one that agrees with your skin and is effective.

There is not a lot that can be done with ants except make sure you are not too close to an ant nest, clear away the scrub and give yourself some room to move without tripping over yourself, you will see them easier!. Keep food well out of the way and be careful with your food scraps, perhaps they can be left some distance away and drive the ants to it.

4.2.2 Sun / Wind

Protection for yourself using creams, cover up and head cover, ensure that you have placed yourself in a wind break if possible, if not, use some plastic sheeting to protect yourself from the wind.

Severe burning of the skin can occur with a hot wind. Cold winds of course are very dangerous as well, you must be well protected from cold and a windbreak is essential.

4.3 Posture

It can be long hard day if you are uncomfortable, make sure you are happy with your folding chair, that the table is the right height for you, spend some time to ensure that you are comfortable as it often is a long day out there.

4.4 Smoke free environment

Most people do not smoke. Some people are adversely affected by cigarette smoke. WICEN has a policy regarding smoke free environment.

5. On leaving

When all is packed away look around the area for plastic, paper or any mess you may have created and clean it up.

Make sure the vehicle is again properly and safely packed and ensure you have told the net control of your real route on leaving.

6. RF exposure

Potential exposure situations should be taken seriously.

ANSI C95.I-1982 advises that frequencies between 30 MHz and 300 MHz should be avoided by body lengths of around 0.4 wavelength.

6.1 Never operate a mobile rig of 10 watts or more RF power if anyone is near the antenna

6.2 RF confinement

Confine RF radiation to antenna radiating elements themselves. Provide a good single station ground and eliminate radiation from transmission lines.

6.3 Non Intermittent operations

With radiation of the type found with RTTY and high incidence Packet operation, try to avoid human presence near antenna ends.

High power into vertical monopole antennas requires humans to be no nearer than 3 - 4 meters with non-intermittent transmission.

6.4 RF Shielding

Ensure that all VHF and UHF power amplifiers are operated with covers on.

6.5 UHF/SHF $1/4 \lambda$

In this frequency region, never look into the open end of an activated length of waveguide or point it at anyone

Never point a high gain, narrow beamwidth antenna toward people!

6.6 Soft and RF susceptible Human tissue

Do not operate higher power Hand Held transmitters with the antenna tip and base close to forehead and eyes. It is preferable to operate using a speaker mike and an external antenna.

Don't work on antennas that have RF power applied.

Learning Outcome 6: Demonstrate safe working practices.

Assessment: Written test.
Practical demonstration.
Continuous assessment.

Performance: a. Obtain 100% in the written test.
b. Demonstrate safety at all times.


Chapter 7

WICEN FORMS

message form WOF-08N

The WICEN message form is the basis for all the WICEN training. Unless the message form is understood in its basic form, its function, use, variations etc will not be understood.

Each section on the form has a use and must be filled in correctly and in the proper sequence for the form to be effective.

DISPLAN MESSAGE FORM		WICEN				WICEN is a group of radio amateurs trained to provide radio communications assistance during a DISPLAN emergency.
PRECEDENCE 2	WICEN SERIAL 3	DATE / TIME 4		WICEN DISTRIBUTION RELAY TO 1		VK2/JUNE 98
★ PAN			ORGANISATION 5			
★ URGENT			ORGANISATION 6			
★				FROM		
★ ROUTINE						
				7	DATE/TIME ACCEPTED D	
					DATE/TIME DESPATCHED	
					SYSTEM	
					OPERATOR	
					DATE/TIME RECEIVED R	
					SYSTEM	
				ORIGINATORS SERIAL No. 8	OPERATOR	
				SIGNATURE 9	ACTIONED	

Its use is explained as follows:

Basically there are three sections.

The first part is for the Originator of the message for addresses and text.

The second is for the originators reference and signature.

The third is for the ComCen staff

The Originator will need to address the message and the protocol calls for the originator first then the addressees followed by the text.

The Originator may have logged his in and out messages and will then supply an Originators number.

eg. WEL 015 (from Welfare) or SES 032 from SES etc.

On receiving the message for transmission, the WICEN staff will allocate the next sequential number from the WICEN register and place it in box (3). *(This is not transmitted)*

The area to the right is for the WICEN staff for logging purposes.

The “RELAY TO” (1) is used by WICEN staff when a message is to be relayed to a station out of contact by the originating station. ie “VK2ASE this is VK2WIY, relay to VK2BGT - over”

When received by WICEN, the message should be read for clarity of text.
The Operator should read the message prior to sending or if not time, to read ahead while sending so as to correctly phrase the text for transmission. (remember RSVP).

When transmitting the message, the following procedure will be used:

Sequence	Location on message	Components	Sending operator says	Remarks
1		callTHIS IS.....	May be single, multiple or all stations call
2		Advise to write	MESSAGE LONG MESSAGE SITREP ETC.	As appropriate
3	Precedence	Precedence action	PRECEDENCE ACTION	not transmitted if no precedence entered
4	Top of form	Date-time-group	TIME	not preceded by "figures"
5	originators no. below text	Originators identification	ORIGINATORS NUMBER	Pronounceable abbreviation not spelt. eg OPS, SIGS, WEL
6	From	Originator	FROM	
7	To	Action addressees	TO	
8		To indicate beginning of text	BREAK	
9	Body of message form	text		Dictate text as written by the originator. Pronounceable words are spoken as such. Words written in full are not abbreviated.
10		Separation sign to indicate end of text.	MESSAGE ENDS	or sitrep ends, etc.
11		Final instructions	WAIT CORRECTION READ BACK OVER	as may be required
12		ending sign	OUT	Sending operator waits for acknowledgment.

When the message has been sent, the Operator shall fill in the area on the right hand side.
"R" is for received and the "D" area is filled in when Dispatched.

System is for "R" = radio, "Ph" = Phone, etc

Operator is for the operator's initials.

Action Taken is for the WICEN staff to indicate "filed", "returned" etc.

Example:

"VK2WIC this is VK3WIB, MESSAGE - OVER"

"VK3WIB this is VK2WIC SEND - OVER"

"VK2WIC this is VK3WIB, Precedence - Routine, time 26jul 1234K, originator's number WEL003, FROM Welfare Officer, Rutherglen TO Operations, Albury, BREAK.

Send three cartons of milk, 2 bags of sugar, 3 tins coffee, 50 blankets, 50 pillows to the Welfare centre at Wodonga. Please advise ETA of above to sender.

MESSAGE ENDS, OVER."

"VK3WIB this is VK2WIC, roger, out."

VK3WIB fills in the "D" section of his form and VK2WIC fills in the "R" section of the form and also logs the message in the log sheet giving the form a sequential WICEN number (3) and passes the white copy of the message to the OPS room for action.

The yellow copy (duplicate) remains in the book.

WICEN Operator Deployment List

Activity:..... Date: .../.../.....

Control Location: WICEN Commander:

	Operator	Station	Location	Time on	Time off	Replacement	Hours
1
2
3
4
5
6
7
8

WOF09N

This form is used for administration and the welfare of the WICEN Operators.

To manage an exercise or operation, it is necessary to plan the tasking of Operators..

This is part of Supervision but the Operator should be aware of such a form.

WICEN Exercise / Activation Final Report

Event or Exercise Name: _____ Region: _____

Activated by / or organising body: _____

Date(s) and times: _____

Description of event or operation: _____

General locality of exercise: _____

Number of operators: _____ Number of stations: _____

Number of messages: (Formal): _____ Informal): _____

Frequencies and modes used: _____

Positive aspects of exercise / operation: _____

Negative aspects of exercise / operation: _____

Details to follow up: _____

Comments by WICEN Region Coordinator: _____

Claims for expenses are to be attached. List of operators attached. Copies of any media exposure should also be attached.
--

WICEN

Location _____ Number _____

CASUAL EMERGENCY WORKER REGISTRATION FORM

To Be Completed By All Casual Emergency Workers

To the State Co-ordinator

1. I, _____

of _____

_____ Postcode _____

hereby apply for registration as a casual emergency worker.

2. (i) I understand the WICEN Co-ordinators are responsible to the appointed emergency controller(s) during a civil emergency and I agree to comply to the best of my ability with the requests of the duly authorised personnel.

(ii) on cessation of duty I agree to report, as may be directed, for debriefing as necessary.

3. My personal particulars are as follows:

Date of Birth ----/--/-- Place of Birth (State or Country) _____

Occupation _____

Physical Disabilities (if any) _____

Signature of Applicant _____ Date ----/--/--

Office Use Only

The applicant has / has not* been approved for registration as a casual emergency worker. The name of the above applicant has been entered in the register as a casual emergency worker.

Signature of Recorder _____ Date _____

*Delete as appropriate.

WICEN OPERATORCOMPETENCY CHECKLIST

NAME _____

Learning Outcome	Competency	Passed
1	The role and structure of WICEN	
2 RATEL	Use correct RATEL	
	Receive 3 messages without errors	
	Send 3 messages without errors	
	Fill in a log book	
3 Operate in the Field	Written test	
	Describe administrative requirements	
	Describe equipment requirements	
4 Navigate using Maps	Written test	
	Determine bearings using a map	
	Correctly identify their location by resection.	
	Move to a specified location	
	Transmit a LOCSTAT	
5 Set up and Operate a Station	Set up a radio station as instructed	
	All safety points observed	
	Documentation correctly completed	
6 OH & S	Written test	
	Continually demonstrated safety	

Learning Outcomes:

1. *Describe the role and structure of WICEN.*
2. *Use radiotelephone procedure to send and receive a formal message. Demonstrate the correct procedures for keeping a Radio Operators Log Book.*
3. *Operate in the field.*
4. *Use topographical maps to navigate.*
5. *Set up and operate a station.*
6. *Demonstrate safe working practices.*

Passed all Learning Outcomes:

Signed: _____ Print Name: _____ Date: _____

Instructions for Use

Operators are to be assessed against the Module Descriptor Performance standards. When the Assessor is satisfied that the standard has been achieved he/she should initial and date the Passed column. When all LO's have been achieved, the page should be signed as Passed. This page should be processed in accordance with Standing Orders.

WICEN (NSW) Inc. following the guidelines of the National Training Syllabus as developed by Trevor Connell (VK8CO) and Peter Corkeron (VK2AGB) have produced this training manual.

All comments directed to the State Training Coordinator, WICEN (NSW) Inc. at P.O.Box 123 St Leonards 2065 would be appreciated.

Other manuals being developed are:
WICEN Supervision (NTS002)
WICEN Instructor (NTS004).

A further training manual will be produced to cover packet radio.

Peter Corkeron
27/11/99

Acknowledgments:

We gratefully acknowledge the assistance given to the compilation of this manual by:

Trevor Connell (VK8CO)

Greg Wilson (VK2DIL)

WICEN (Vic) Inc.

The NSW Volunteer Rescue Association

NSW State Emergency Service, SHQ.

Information and Land Services, Department of Primary Industries, Water and Environment,
Tasmania