NZCF 159

RATEL MANUAL

THIS RATEL MANUAL IS NOT TO BE ALTERED IN ANY WAY WITHOUT THE PRIOR CONSULTATION AND APPROVAL FROM THE COMMANDANT NEW ZEALAND CADET FORCES.

(Original Signed)

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COMMANDER
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Amendment Certificate

Any proposals for amendment or additions to the text of this publication should be made through the Area Office.

The amendments in the under mentioned amendment lists have been made in this publication.

Date	Amendment No	Amendment Subject	Chapter & Section

Introduction

This publication is for the use by all three Corps of the New Zealand Cadet Forces.

The purpose of this manual is to aid the units in any RATEL lessons and to be used as a reference for such lessons if other reference material is not available for use. However it can also be used in conjunction with other reference material.

Whilst the headings for each Corps may be the same, the information contained in the chapters is specific to the Corps. However should the unit wish to, they may use the information from the other Corps to extend their training.

Instruction on parts, care and operation of individual radios is not covered in this manual. Refer to the manufactures instructions.

To use a radio in a boat or an aircraft, the radio operator must gain set qualifications that must be taught by qualified instructors. Therefore this manual covers Emergency procedures and basic RATEL for Sea and Air only.

CHAPTER 1 – General RATEL Procedures

SECTION 1 - New Zealand Emergency Procedures

1.1 These are the Basic Procedures to be followed if you are in the Bush and require a Search and Rescue team or require Medical Assistance.

1.2 For Basic RATEL procedures refer to Chapter One, Introduction to Radios, for any Corp in this Manual.

Frequencies

1.3 You will need to confirm the correct frequencies for emergencies within your area – your local Mountain Safety Council office should be able to provide these for you.

1.4 This information should be stored on each individual radio and whilst the frequencies shouldn't change, it is recommended you confirm them once a year.

1.5 Ensure you only use these frequencies for Emergency procedures. Confirm alternate frequencies for general camping usage.

Radio Operator and Log Keeper

1.6 Ensure both the Radio Operator and the Log Keeper (person who will write down the transmission as it occurs) are experienced, are fully briefed on the situation and can communicate with the persons in charge of the Emergency situation easily.

1.7 Try and keep the same people in these positions during the emergency for consistency.

1.8 The Radio Operator and Log Keeper take no part in giving instructions or making decisions. They are merely the go between for handling messages.

Message Preparation

1.9 Write down your message before calling Base (the Emergency Frequency). This is to ensure information is correct and doesn't change during the transmission.

1.10 Ensure your message has maximum information to assist SAR personnel to reach your location with the required equipment and skills. Provide details of location, assistance required, urgency, party details, weather and terrain, disabilities or medical problems, time, how and when to contact. Communication can be by runner or radio. Cell phones won't work in all bush areas so can not be relied upon.

1.11 Keep your message clear and concise - but not so abbreviated that it makes no sense. Each message must be self-contained e.g. If asked the color of a jacket reply "The jacket colour is blue" don't say just 'Blue".

1.12 Include your current grid reference - ensure two team members check it.

1.13 Messages must be in plain English - no codes, military, medical or technical terms.

1.14 Have pen and paper ready to record the reply.

1.15 Never transmit personal details (e.g. address or phone numbers) about any SAR personnel or missing party unless specifically requested by Base.

1.16 Log the time you transmit your message.

Message Transmission

1.17 If your message requires priority due to genuine injury or incident, start your message with 'This is an Urgent Message'.

1.18 'Mayday' three times should precede any message if your message indicates that assistance is required for serious and/or imminent danger - also referred to as a Distress Call.

1.19 Remember to speak at dictation pace as the Radio Operator at Base is writing down your message.

1.20 Let Base end the transmission - this ensures they have all the necessary information to start SAR or Medical procedures.

1.21 Stay in one place while transmitting, unless requested to move by Base to enable clear reception or you think Base cannot hear you.

1.22 When called by Base, reply immediately.

1.23 Have pen, paper and maps ready to receive the message.

1.24 Examples of Emergency Calls:

Type Of Call	Calling Station	Message
Urgency Call	CF	This Is An Urgent Message – Base - This Is – Cadet Forces - Over
	Base	Cadet Forces – this is – Base – over
	CF	Base – this is – Cadet Forces - We are located at Map 260 Q11 & PT R11, Edition 2, 1993, Grid Ref 473645. We have one cadet with suspected broken leg; require assistance to return to vehicles. More to follow. Over
	Base	Cadet Forces – this is – Base – Continue with message – Over
	CF	Base – this is – Cadet Forces - Have administered basic first aid, injured person is comfortable. Can camp for the night in present location. Nine other cadets plus two Officers. No disabilities and only other Medical condition is asthma. More to Follow. Over
	Base	Cadet Forces – this is – base – copy – continue message – Over
	CF	Base – this is – Cadet Forces – Weather is fine and expected to continue sunny, terrain is solid underfoot, not too steep. Time by us is 1830hrs. End of message. Over
	Base	Cadet Forces – this is – Base. Will send medical party tomorrow morning. Approximate arrival time is 0900hrs. Radio checks at 2100hrs tonight, 0700hrs and 0900hrs tomorrow. Read Back - Over
	CF	Base – this is – Cadet Forces – I read back – will send medical party tomorrow morning. Approximate arrival time is 0900hrs. Radio checks at 2100hrs tonight, 0700hrs and 0900hrs tomorrow. Over.
	Base	Cadet Forces – this is – Base – Correct. Speak to you at 2100hrs. Out.

Type Of Call	Calling Station	Message
Distress Call	CF	MAYDAY – MAYDAY – MAYDAY – base – this is – Cadet Forces – Located at Map 260 Q11 & PT R11, Edition 2 1993, Grid Ref 473645 – two severe burn victims – have administered First Aid but require immediate evacuation – eight others in party including two adults – have two mild asthmatics in party – weather is fine – terrain is solid underfoot and not steep – Time now is 1830hrs – contact via radio - Over
	Base	Cadet Forces – this is – Base – have received May Day call. Will call in 10 minutes with evacuation procedure. Over

Note: Make your location clearly visible from the air - use bright colors, smoky fire, use movement to attract the attention of searching aircraft and search parties. Carry a whistle.

CHAPTER 2 – Sea Cadet Corps Procedures

SECTION 1 - Introduction To Radios

Introduction

2.1 The successful use of radio communications requires standard Radio Telephone Procedure (RATEL) practise and discipline.

2.2 On a ship, the radio is to be used only by someone who has qualified on their Restricted Radio Operations course. However you may use radios on the land or be required to make a distress or urgency call on a ship and therefore need to know the correct procedure.

2.3 The procedures outlined in this manual are based on the principals of:

a. Security;

b. Accuracy; and

c. Discipline.

2.4 These principals are easily remembered by the mnemonic SAD.

SECURITY

Communication Security Procedures

2.5 Whenever a radio is used for communication it must be assumed that other uses can intercept it and any information gained could be used to assist you. It is also very important that there is no unnecessary chatter over the radio net. Therefore users need to observe the following:

a. Think before speaking. Is your transmission essential?

b. Ensure it is short and precise. Use correct procedure (as set out in this manual).

Security Rules

2.6 Following are some basic rules that are essential to transmission security and are to be strictly enforced:

a. Only authorised transmissions are to be made;

b. The following practises are specifically forbidden:

(1) Unofficial communication between operators.

(2) Transmitting operators' personal sign or name.

(3) Use of plain language in place of suitable Prowords.

(4) Obscene language.

c. The following practises are to be avoided:

(1) Use of excessive transmitting power.

(2) Transmitting long messages of a non-emergency nature over general calling frequencies.

(3) Excessive time spent in changing frequency or adjusting equipment.

(4) Transmitting at speed beyond the capability of the receiving operators.

Jargon

2.7 Jargon is not permitted. Jargon includes unofficial and clumsy reference to:

a. People;

b. Equipment;

c. Appointment for an individual; or

d. Organisation.

ACCURACY

2.8 It is important that letters and figures are accurate and legible to ensure messages are transmitted correctly. Accuracy via voice is covered under RSVP.

2.9 To avoid confusion between similar letters and figures, there are some basic rules to follow:

a. The figure one (1) is printed with a line under it to differentiate it from the letter I, e.g. 1;

b. The letter Z is printed with a short horizontal line through it to differentiate it from the figure two (2) and seven (7), e.g. Z; —

c. The letter U has square corners to differentiate it from the letter V;

d. The figure five (5) is written carefully to ensure it is different from the letter S;

e. The letter E is printed with one stroke so it looks like a backwards 3;

f. The figure zero (0) has a slant through it to differentiate it from the letter O e.g. ∅.

DISCIPLINE

2.10 Discipline is important to ensure efficient working over the radio net. Radio discipline includes:

a. Correct use of RATEL procedures;

b. Using correct frequencies; and

c. Constant watch by all stations.

2.11 Only one station can transmit at a time. To prevent confusion the following rules must be applied:

a. Ensure no one else is transmitting before starting a transmission;

b. Leave a short pause at the end of a conversation;

c. Answer all calls immediately and in the correct order; and

d. Ensure you return radio to RECEIVE mode after each transmission.

Radio Silence

2.12 All stations using an SSB Frequency between bands 1605 kHz and 2850 kHz shall keep watch on 2182 kHz for three minutes starting on the hour and the half hour. During this time all transmissions between the frequencies of 2173.5 kHz and 2190.5 kHz - except for distress and urgency calls - shall stop.

2.13 There is no provision for radio silence on the VHF frequencies but it is good safety practise to observe the silence period used on the SSB frequency.

RSVP

2.14 To avoid wasting time with repetitions and incorrect messages there are some easy steps to take to ensure transmissions are heard clearly. Operators must remember and use the following:

a. Hold the microphone close to the mouth when transmitting;

b. Use the correct manner of rhythm, speed, volume and pitch as follows:

(1) **Rhythm.** Keep the rhythm natural. Break the call into logical sequences of no more than 30 seconds.

(2) **Speed.** Speak slightly slower than normal conversational speed.

(3) **Volume.** Keep voice to normal conversational volume, yelling into the radio will only distort the transmission and make it hard for the recipient to understand.

(4) **Pitch.** The voice needs to be pitched slightly higher than normal conversation but still comfortable for both the transmitter and receiver.

Frequencies

2.15 On the water there are various frequencies used. It is important that you follow the correct procedures and don't hinder the distress, safety and calling frequencies with unnecessary traffic.

2.16 Below are two tables showing the different frequencies and what they are used for.

VHF Channels

Channel	Use
Channel 16	**The international distress, safety and calling frequency for the maritime mobile VHF radiotelephone service.** All ship's stations licensed for operation in the authorised bands between 156 MHz and 174 MHz must be able to transmit and receive on this channel
Channel 6,8	For inter-ship working
Channels 9,10, 11, 12, 13, 14,	Working channel for harbour authority radio stations on port operation and ship movements
Channels 20, 21, 23	Continuous weather transmission channel
Channels 2, 24, 25, 26, 27	For connection to the public telephone network
Channels 1, 3, 4, 5, 60, 61, 62, 63, 64, 65, 66	Two frequency talk-through repeater channels
Channels 67	Working channel for WHANGAREI, TOLAGA, WAIRARAPA, TARANAKI, D'URVILLE, FOX, PUYSEGUR, KAIKOURA and WAITAKI MARITIME RADIOs
Channel 68	Channel for use by 'rescue' organisations. Also working channel for PLENTY, NAPIER, FAREWELL, PICTON, AKAROA, GREYMOUTH and BLUFF MARITIME RADIOs
Channel 71	Working channels between coast and ship stations after initial contact has been made on channel 16. Also working channel for KAITAIA, AUCKLAND, RUNAWAY, WELLINGTON, WESTPORT, FIORDLAND and CHALMERS MARITIME RADIOs
Channel 73	Channel for use in association with marina developments
Channel 74	Working channels between coast and ship stations after initial contact has been made on channel 16.
Channels 17, 77	Channels available for aquatic events
Channels 84, 85, 86, 87, 88	Repeater channels for Search and Rescue communications

SSB Frequencies

Frequency	Use
2182 kHz	**An international distress, safety and calling frequency for radiotelephony.** All ships license to operate in the marine frequency bands between 1605 kHz and 2850 kHz must be able to transmit and receive on 2182 kHz. Distress, urgency and safety calls should be made on this frequency. It is also the general calling and reply frequency when establishing communication with ship and coast stations and for use by coast

Frequency	Use
	stations to announce the transmission, on other frequencies, of safety information and lists of messages on hand. Except for distress and urgency, all other communications should be carried out on a working or inter-ship frequency, leaving 2182 kHz available for such calls. Safety traffic should also be transmitted on a working frequency.
2045 kHz	Supplementary calling frequency
2068 kHz 2456 kHz 2638 kHz	Inter-ship working frequency for use after communication has been established on 2182 kHz or 2045 kHz
2012 kHz 2162 kHz	Harbour authority working frequency
2480 kHz 2444 kHz	Working frequencies for exchanging messages between private coast stations and ship after communication has been established on 2182 kHz or 2045 kHz
2089 kHz 2129 kHz	For communication with coast stations providing communication for aquatic sporting events. Land stations providing communication for sporting events may also use these frequencies.
4125 kHz	**An international distress, safety and calling frequency**
4146 kHz 4417 kHz	Working frequencies between coast and ship stations, or inters-hip, after initial contact has been established on 4125 kHz
6215 kHz	**An international distress, safety and calling frequency**
6225 kHz 6227 kHz	Working frequencies between coast and ship stations, or inter-ship, after initial contact has been established on 6215 kHz
8291 kHz	**International distress and safety frequency only**
8255 kHz	International call frequency only
12290 kHz **16420 kHz**	**International distress, safety and calling frequencies**
2207 kHz 4146 kHz 6224 kHz 8297 kHz 12356 kHz 16531 kHz	Working frequencies for exchanging messages between TAUPO MARITIME RADIO and ships after communications has been established on a calling frequency.

SECTION 2 - Letters and Figures

Phonetic Alphabet

2.17 When it is necessary to identify a letter of the alphabet the authorised Phonetic Alphabet is to be used as outlined below. The syllables shown in bold type carry the emphasis. Difficult words or phrases to spell are preceded with the pro-words I SPELL. If the transmitter can pronounce the word they will do so before and after to identify the word, for example: 'Papadopoulos - I SPELL Papa Alpha Papa Alpha Delta Oscar Papa Oscar Uniform Lima Oscar Sierra - Papadopoulos'.

Letter	Phonetic	Spoken As
A	Alpha	**Al**-fah
B	Bravo	**Brah**-voh
C	Charlie	**Char**-lee
D	Delta	**Dell**-tah
E	Echo	**Eck**-oh
F	Foxtrot	**Foks**-trot
G	Golf	Golf
H	Hotel	Hoh-**tell**
I	India	In-**dee-ah**
J	Juliet	**Jew**-lee-**ett**
K	Kilo	**Key**-loh
L	Lima	**Lee**-mah
M	Mike	Mike
N	November	No-**vem**-ber
O	Oscar	**Oss**-car
P	Papa	Pah-**Pah**
Q	Quebec	Keh-**beck**
R	Romeo	**Ro**-me-o
S	Sierra	See-**air**-rah
T	Tango	**Tang**-go
U	Uniform	**You**-nee-form
V	Victor	**Vik**-tah
W	Whiskey	**Wiss**-key
X	X-Ray	**Ecks**-ray
Y	Yankee	**Yang**-key
Z	Zulu	**Zoo**-loo

Figures

2.18 To distinguish figures from similar words being used in the transmission they are preceded with the pro-word FIGURES. See the table below for the correct pronunciation for each figure.

Number	Spoken As
1	Wu**n** (with emphasis on N)
2	**T**oo (With sharp T and long O as in Moo)
3	Thuh-**ree** (with short U, slight rolling of R and E)

4	**Fo**-wer (with long O as in FOE)
5	**Fi**-yiv (emphasising the consonants, with a long I for the first syllable [as in PIE] and a short one for the second [as in GIVE')
6	Si**x** (with emphasis on X)
7	**Se**ven
8	**A**te (with long A as in MATE)
9	**Nin**er (with lone I [as in PIE] and emphasising each N)
0	**Z**ero

2.19 Numbers are transmitted digit by digit, however in good condition hundreds and thousands maybe spoken as such. Figures in a text - except for Grid References and target indicators - may be spoken as in normal speech. Under poor conditions figures are spoken individually and preceded by pro-word FIGURES as below.

Number	Good Conditions	Bad Conditions
44	Forty four	Figures - Four Four
57	Fifty seven	Figures - Five Seven
90	Ninety	Figures - Nine Zero
136	One hundred and thirty six	Figures - One Three Six
500	Five hundred	Figures - Five Zero Zero
1478	Fourteen Seventy Eight	Figures - One Four Seven Eight
2008	Two tousand and eight	Figures - Two Zero Zero Eight
2359 hours	Twenty three fifty nine hours	Figures - Two Three Five Nine hours
2700	Two seven hundred	Figures - Two Seven Zero Zero
16000	Sixteen tousand	Figures - One Six Zero Zero Zero
812681	Eight one two six eight one	Figures - Eight One Two Six Eight One

2.20 The pro-word FIGURES is not used with call-sign, address groups, grid references, time checks, date time group (DTGs) or time group.

2.21 Thousand is pronounced Tousand, e.g. 1000 is spoken as wun tousand.

2.22 The decimal point is written as POINT but is to be spoken as DECIMAL (pronounced DAY-SEE-MAL). For example, 123.4 should be written as such, however, is spoken as One Two Three DECIMAL Four.

2.23 Dates are spoken date by date and the month in full in good or bad conditions, e.g. 25 Aug is spoken as Two Five August.

2.24 Roman Numerals are transmitted in Arabic form but with the pro-word ROMAN e.g. VII is spoken as 'ROMAN Seven'.

SECTION 3 - Radio Terminology

Call-Signs

2.25 On land, a CALLSIGN is a combination of three letters and figures used on the Net to hide the unit or sections plain language address (unit name), establish order of answering and maintain discipline on the net.

2.26 For ships, on being licensed to use a radio and becoming a station, each ship is issued a callsign with letters and figures i.e. ZM1726. This is for identifications and must be used whenever a radio transmission occurs. Therefore any calls made use the name of the ship followed by the callsign/ID i.e. Albatross ZM1726.

2.27 Figures used in call-signs are spoken digit by digit and individual letters are spoken phonetically.

Radio Appointment Titles

2.28 Radio Appointment titles are used to refer to specific appointments. They are not classified and only conceal the level of the headquarters (i.e. the person in command of a Division and the person in command of a Ship would have the same Radio Appointment title). The title designates the senior representative or the appointment holder in that unit. The title is not to be qualified in anyway except:

a. To indicate appointments next in seniority, in which case MINOR may be added, for example STARLIGHT MINOR is the next most senior Medic; and

b. When it is necessary to distinguish between similar appointments holders in each unit MY, OUR, YOUR, HIS or THEIR may be used before the title, e.g. MY STARLIGHT, YOUR STARLIGHT or OUR NOMAD.

2.29 Following are some of the common Radio Appointment Titles:

Appointment	Title
Adjutant	SEAGULL
Air Reconnaissance	SPYGLASS
Aviation	HAWKEYE
Chaplain	
Deputy Commander, Second in Command	SUNRAY MINOR
Executive Officer	MOONBEAM
Ground Transport	PLAYTIME
Armour	IRONSIDE
Infantry	FOXHOUND
Intelligence Staff	ACORN
Medical	STARLIGHT
Military Police	WATCHDOG
Navigation	NOMAD
Officer in Command, Section Commander	SUNRAY

Appointment	Title
2nd in Command, Section 2IC	SUNRAY MINOR
Signals	PRONTO
Squadron Warrant Officer, Company Sergeant Major, Ships Coxswain	PACESTICK

Note: A call-sign refers to the whole station not an individual person. A Radio Appointment Title refers to a particular appointment. Names for individual persons are Nick names. Nicknames are not to be used over the radios.

Prowords

2.30 A pro-word is a pronounceable phrase or word used to make radio communications more efficient. This assists in keeping Radio Communications short, clear and concise by allowing a word or phrase to be used instead of whole sentences e.g.:

a. ROGER means 'I have received your last transmission satisfactorily'; and

b. OUT means 'I have finished transmitting, no reply required'.

2.31 A list of common pro-words is below:

Pro-word	Meaning
ALL STATIONS	Used when calling station needs to communicate to all stations on that frequency.
CORRECT	You are correct, or, what you have transmitted is correct.
CORRECTION	a. What has been said is wrong, the correct version follows. b. An error has been made in transmission (or message indicated). The correct version is…. c. That which follows is a correct version in answer to your request for verification.
DISREGARD THIS TRANSMISSION	Used to cancel a message during its transmission.
FETCH	Followed by an appointment/title to indicate to whom the caller wishes to speak.
FIGURES	Used before sending groups of figures digit by digit. Not used for call-signs, grid references, time checks, authentication and DTG.
GRID	Used before giving a grid reference.
I READ BACK	Use by receiving station to satisfy themselves they have received the transmission or part of correctly.
I SAY AGAIN	Used by sender of a message to repeat a section for emphasis or in response to say again.
I SPELL	Used before spelling words phonetically.
I VERIFY	What follows has been verified as per your request. Used only in response to verify.
MAYDAY, MAYDAY, MAYDAY	Used when a ship, aircraft or person is in grave and imminent danger and requires IMMEDIATE assistance.
MAYDAY RELAY	Used when relaying a MAYDAY message.
OUT	This is the end of my transmission, no reply required.
OVER	This is the end of my transmission, reply required.
PAN PAN, PAN PAN, PAN PAN	Used to signify an Urgency call, indicating a ship has an urgent

Pro-word	Meaning
	message to transmit concerning safety.
PRUDONCE	Restricted working conditions can proceed after a distress transmission.
RADIO CHECK	Report signal strength and readability.
READ BACK	Repeat the entire transmission back to me entirely as received.
ROGER	I have received your last transmission satisfactorily.
SAY AGAIN	Request repetition of last transmission or part of.
SECRUITE	(Pronounced SAY-CUR-E-TAY) Indicates that the calling ship has a message concerning important navigational or meteorological warning.
SEELONCE DISTRESS	Request for silence by any station during a transmission of a distress call.
SEELONCE FEENEE	Normal working conditions can be resumed after a distress transmission.
SEELONCE MAYDAY	Request for silence by a control station during a transmission of a distress call.
SEND	I am ready to receive your message.
SPEAKING	Used with title/appointment to indicate who is speaking.
THIS IS	Indicates identification of calling station.
VERIFY	Verify portion indicated with originator and send correct version.
WAIT	I must pause for up to five seconds before replying. No one else is to transmit in this time.
WILCO	Have received your last transmission and will comply

Prowords for Signal Strength and Readability

Pro-word	Meaning
LOUD	Indicates that the senders signal strength is excellent.
GOOD	Indicates that the senders signal strength is good.
WEAK	Indicates that the senders signal strength is weak.
VERY WEAK	Indicates that the senders signal strength is very weak.
FADING	Indicates that the senders signal strength is fading to such an extent that continuous reception cannot be relied upon.
CLEAR	Indicates that the transmission is of excellent quality.
READABLE	Indicates that the quality of the senders transmission is good.
UNREADABLE	Indicates that the quality of the senders transmission is so bad that the receiver can not read the sender.
DISTORTED	Indicates that there is trouble understanding the transmission due to distortion.
WITH INTERFERENCE	Indicates that there is trouble understanding the transmission due to interference.
FADING	Indicates that at times the signal strength fades to such an extent that continuous reception cannot be relied upon.

Common Mistakes

2.32 Ensure that you **don't** use more pro-words than required. Common errors are:

a. “OVER and OUT” - this is telling the receiver that “This is the end of my transmission, reply is required” and “This is the end of my transmission, no reply is required”. It is either OVER or OUT - **it cannot be both**; and

b. “ROGER WILCO” - this is saying “I have received your last transmission; I have received your last transmission and will comply”. WILCO incorporates ROGER so ROGER is **not** required.

SECTION 4 - Radio Telephone Procedures

General Procedure

2.33 Before you start to transmit, ensure there is no other communications transmitting. This is particularly important on the frequencies used for Emergency Messages.

2.34 Calling frequencies should be used for initial calls and replies only. Once the communication has been established, the stations should change to a working frequency before continuing.

CALLING AND ANSWERING

Calling

2.35 A station wishing to transmit over the radio is to make the following call on the general calling frequency:

a. **Initial Call:**

(1) The initial CALL-SIGN which indicates the station being called.

(2) The pro-words THIS IS indicating the CALL-SIGN of who is calling is about to follow.

(3) The last CALL-SIGN which indicates the calling station.

b. **Text.** The message is then sent.

c. **Ending of Call.** The transmission is then ended with one of the following pro-words:

(1) OVER - signifying that I have completed the transmission, you can speak now.

(2) OUT - end of transmission, no reply required or expected.

Answering

2.36 Should the initial transmission require an immediate answer (having ended with pro-word OVER) the station replies in the following format.

a. Answering Call: Same as the initial call is in three parts:

(1) CALL-SIGN of the station being called.

(2) The pro-words THIS IS indicating called stations CALL-SIGN to follow.

(3) CALL-SIGN of the station calling.

b. Text: The reply or message to be transmitted. Include the working frequency you are going to change to.

c. Ending Call: The transmission is then ended with one of the following pro-words:

(1) OVER - signifying that I have completed the transmission, you can speak now.

(2) OUT - end of transmission, no reply required or expected.

2.37 If the transmission is to continue, both stations change to the frequency as per the message and continue the conversation there.

2.38 Example of correct radio procedure:

ON CHANNEL 16:

KOTARE ZM1624 – THIS IS – OCEAN BLUE ZM1234 – Are you receiving? – OVER

OCEAN BLUE ZM1234 – THIS IS – KOTARE ZM1624 – Change to Channel 6 – OVER

WORKING CHANNEL 6:

KOTARE – THIS IS - OCEAN BLUE – How are you reading me? – OVER

OCEAN BLUE – THIS IS – KOTARE – Receiving you LOUD AND CLEAR – go ahead – OVER

KOTARE – THIS IS – OCEAN BLUE – Will be arriving Picton at about 6pm – Can we meet you at the Ferry Terminal then? – OVER

OCEAN BLUE – THIS IS – KOTARE – we can make that meeting – see you then – OVER

KOTARE – THIS IS – OCEAN BLUE – OUT.

2.39 The above shows ship to ship communications. It can also be used for Ship to shore and MF/HF communication.

SECTION 5 - Emergency Signals

2.40 There are three different types of Emergency calls. It is important that you use the correct type of call and procedure for the level of the emergency or situation.

Distress Call

2.41 Distress Calls should be transmitted on VHF CHANNEL 16 or on an equivalent SSB channel which is dedicated to Distress, Safety and Calling.

2.42 A Distress call is used when a ship, aircraft or person is threatened by grave and imminent danger and requires IMMEDIATE assistance.

2.43 A station in Distress can use any means to attract attention to its situation, to let people know its position and obtain help.

2.44 The radio distress signal is MAYDAY and its use is **absolutely forbidden** except in the case of distress.

2.45 The distress call has absolute priority over all other traffic on the radio.

The format of a Distress Call

2.46 The format for a distress call is as follows:

a. The pro-word MAYDAY repeated three times indicating this is a Distress Call;

b. The pro-words THIS IS indicating the CALLSIGN of the ship in distress is about to follow;

c. The CALLSIGN repeated three times of the ship in distress;

d. The message containing particulars of the ship in distress:

(1) Position - latitude and longitude, or if possible true bearing and distance from know geographical point.

(2) Nature of distress.

(3) Kind of assistance required.

(4) Number of people on board.

(5) Any other information that may assist in the rescue - i.e. the sea conditions and description of the ship.

e. The pro-word OVER to let any stations nearby know they are able to transmit.

2.47 You must then stay on the same frequency to hear an acknowledgement.

2.48 Upon hearing a Distress message, all other ships and coast stations shall cease any transmissions that will interfere with the transmission and shall continue to in case they can assist.

Acknowledging a Distress Call

2.49 Upon hearing the Distress call, if you are not in the ships vicinity you must leave the airway clear for any ships closer by. If no other response is heard then you acknowledge the call and take all possible steps to provide assistance either yourself or by contacting stations closer.

The format of an Acknowledging Call

2.50 The format of an Acknowledging call is as follows:

a. The pro-word MAYDAY stated once;

b. The CALLSIGN repeated three times of the ship in distress;

c. The pro-words THIS IS to indicate the receiving ships CALLSIGN is about to follow;

d. The CALLSIGN repeated three times of the receiving ship;

e. The message letting the ship in distress know you have received the MAYDAY transmission; and

f. The pro-word OVER informing them they are able to transmit.

2.51 At this point the replying station would confirm with the station in distress it's intention to either come in and assist itself, retransmit the message or co-ordinate the rescue.

Relaying Messages

2.52 If the station is going to retransmit the message to summon further assistance, the following transmission is made:

a. The pro-words MAYDAY RELAY repeated three times so people know this is relay of a Distress call;

b. The pro-words THIS IS to let people know the CALLSIGN of the relaying station is about to follow;

c. The CALLSIGN repeated three times of the relaying station;

d. The pro-word MAYDAY and the CALLSIGN of the ship in distress to indicate who is in distress;

e. The message as received from the station in distress; and

f. The pro-word OVER informing other stations they can reply to the transmission.

2.53 If the retransmission is being repeated on a different frequency to the original call, then the frequency and time received should be given in the retransmission between steps c and d.

Control of Distress Traffic

2.54 The control of distress traffic is the responsibility of either the ship in distress or the ship relaying its call. These stations can however delegate the control to another station if appropriate and wherever possible the nearest coast station should take responsibility and inform Search and Rescue authorities.

Calling for Silence

2.55 The station in control of the distress traffic can impose silence on all other stations in the area or any station that interferes with the distress communication by either calling ALL STATIONS or naming the particular station and using the pro-word SEELONCE MAYDAY followed by it's own name and callsign/ID.

2.56 Any other station can call for silence by using the pro-words SEELONCE DISTRESS, followed by it's own name and callsign/ID.

Resuming Restricted Working Conditions

2.57 When complete silence is no longer required, the controlling station can transmit to ALL STATIONS indicating that restricted work can be resumed with caution. The pro-word used here is PRUDONCE.

Resuming Normal Working Conditions

2.58 When the distress communications have ceased, the controlling station sends a message to ALL STATIONS to let them know that normal working conditions can be resumed. The pro-word is SEELONCE FEENEE.

> **Note:** The radio watch and contact with the ship in distress should be continued till all distress activity has ended. A distress call can be cancelled by transmitting a message to all stations or the stations assisting to inform them that help is no longer required. See table at end of Chapter for examples.

Urgency Calls

2.59 URGENCY CALLS should be transmitted on VHF CHANNEL 16 or an equivalent SSB Channel which is dedicated to Distress, Safety and Calling.

2.60 Urgency calls are used to indicate that a ship has a very urgent message to transmit regarding its safety.

2.61 The pro-word PAN PAN is given three times. These calls take precedence over all other traffic except distress calls. Upon hearing the PAN PAN call, all stations must take care not to interfere with the transmission of the message.

2.62 The Urgency message can be transmitted to either ALL STATIONS or to a particular station.

The Format for an Urgency Call

2.63 The format for an Urgency call is as follows:

a. The pro-word PAN PAN repeated three times to show an urgency call follows;

b. The either the pro-word ALL STATIONS repeated three times to let all stations know they need to listen or the CALLSIGN repeated three times of the required station;

c. The pro-words THIS IS indicating the CALLSIGN of the calling station is about to follow;

d. The CALLSIGN of the calling station;

e. The message containing particulars:

(1) Position - latitude and longitude, or if possible true bearing and distance from know geographical point.

(2) Nature of distress.

(3) Kind of assistance required.

(4) Number of people on board.

(5) Any other information that may assist in the rescue - i.e. the sea conditions and description of the ship

f. The pro-word OVER to let any stations nearby know they are able to transmit.

2.64 You must then stay on the same frequency to hear an acknowledgement. See table at end of Chapter for examples.

2.65 Once the station responsible for making the Urgency call is satisfied that the situation has been resolved they transmit another message cancelling the original message.

2.66 The urgency call and message should be transmitted on any international distress frequency/channel. In the case of a long message or medical call, a change to a working frequency should be made.

Safety Calls

2.67 The radio call is SECURITE (pronounced SAY-CUR-E-TAY), it indicates that the coast or ship station is about to transmit a message containing an important navigational or meteorological warning.

2.68 The warnings are broadcast by the Maritime Safety Authority’s Maritime Radio Service stations as soon as possible after they have been received, repeated following the

next silence period and thereafter at the scheduled times until they are cancelled or replaced.

2.69 Safety message are usually addressed to ALL STATIONS but in some cases may be addressed to particular stations.

2.70 When making a Safety Call, the transmission is to follow the procedure below:

a. The pro-word SECURITE repeated three times to indicate that this is a message regarding safety;

b. The pro-words THIS IS to indicate the CALLSIGN of the calling station to follow;

c. The CALLSIGN repeated three times of the calling station;

d. Message; and

e. The pro-word OVER or OUT depending on whether they require a reply or not. See table at end of Chapter for examples.

2.71 The call is then repeated on the working frequency and followed by the safety message. Below is a table showing examples of all calls:

Type Of Call	Calling Station	Message	Remarks
Distress Call	Albatross ZM1726 (station in distress)	MAYDAY, MAYDAY, MAYDAY – THIS IS – ALBATROSS ZM1726, ALBATROSS ZM1726, ALBATROSS ZM1726 – MAYDAY ALBATROSS ZM1726 – Five nautical miles west of Kapiti Island – holed and listing heavily, engine room flooded – require immediate assistance – three people on board – sea rough – OVER	
Acknowledging Call	Blue Duck ZM1983	MAYDAY ALBATROS ZM1726, ALBATROSS ZM1726, ALBATROSS ZM1726 – THIS IS – BLUE DUCK ZM1983, BLUE DUCK ZM1983, BLUE DUCK ZM1983 – Received MAYDAY – Will relay - OVER	Blue Duck acknowledges and informs it will relay
Relaying Message	Blue Duck ZM1726	MAYDAY RELAY, MAYDAY RELAY, MAYDAY RELAY – THIS IS – BLUE DUCK ZM1983, BLUE DUCK ZM1983, BLUE DUCK ZM1983 – MAYDAY AlbatrosZM1726 – Five nautical miles west of Kapiti Island – holed and listing heavily, engine room flooded – require immediate assistance – three people on board – sea rough – OVER	

Type Of Call	Calling Station	Message	Remarks
Relaying a message on different frequency	Blue Duck ZM1983	MAYDAY RELAY, MAYDAY RELAY, MAYDAY RELAY – THIS IS - BLUE DUCK ZM1983, BLUE DUCK ZM1983, BLUE DUCK ZM1983 – Following received on Channel 60 at 0930 today - MAYDAY AlbatrosZM1726 – Five nautical miles west of Kapiti Island – holed and listing heavily, engine room flooded – require immediate assistance – three people on board – sea rough – OVER	The channel and time is listed in between the callsign for Blue Duck and the MAYDAY pro-word
Control Station calling for Silence	Blue Duck ZM1983	MAYDAY – ALL STATIONS – ALL STATIONS – ALL STATIONS – THIS IS – BLUE DUCK ZM1983 – 0930 ALBATROSS ZM1726 – SEELONCE MAYDAY	
Resuming Restricted working conditions	Blue Duck ZM1983	MAYDAY – ALL STATIONS – ALL STATIONS – ALL STATIONS – THIS IS – BLUE DUCK ZM1983 – 0930 ALBATROSS ZM1726 - PRUDONCE	Include time of the original distress call and the ship who made it
Resuming Normal working conditions	Taupo Maritime Radio	MAYDAY – ALL STATIONS, ALL STATIONS, ALL STATIONS – THIS IS – TAUPO MARITIME RADIO – 0930 ALBATROSS ZM1726 – SEELONCE FEENEE	Coast Station informing all can resume Normal working conditions
Urgency Call	Albatross ZM1926	PAN PAN, PAN PAN, PAN PAN, - ALL STATIONS, ALL STATIONS, ALL STATIONS – THIS IS – ALBATROSS ZM1926, ALBATROSS ZM1926, ALBATROSS ZM1926 – Five nautical miles west of Kapiti Island - holed and listing heavily – require tow – sea smooth – no immediate danger – three people on board – OVER	
Safety Call	Taupo Maritime Radio	SECURITE, SECURITE, SECURITE – THIS IS – TAUPO MARITIME RADIO, TAUPO MARITIME RADIO, TAUPO MARITIME RADIO – ZLM listen 2207 kHz (working frequency) for (type of warning message) - OUT	

CHAPTER 3 – New Zealand Cadet Corps Procedures

SECTION 1 - Introduction to Radios

Introduction

3.1 The successful use of radio communications requires standard radio telephone procedure (RATEL), practise and discipline.

3.2 The procedures outlined in this manual are based on the principals of:

a. Security;

b. Accuracy; and

c. Discipline.

3.3 These principals are easily remembered by the mnemonic SAD.

Communication Security Procedures

3.4 Whenever a radio is used for communication it must be assumed that the enemy can intercept it and any information gained could be used against you. It is also very important that there is no unnecessary chatter over the radio net. Therefore users need to observe the following:

a. Think before speaking. Is your transmission essential? Ensure it is short and precise. Check for information that must be concealed, for example:

(1) Never refer to units, positions, appointments or equipment in plain language.

(2) Never link nicknames for topographical features with grid references.

(3) Use correct procedure (as set out in this manual).

Security Rules

3.5 Following are some basic rules that are essential to transmission security and are to be strictly enforced:

b. Only authorised transmissions are to be made;

c. The following practises are specifically forbidden:

(1) Unofficial communication between operators.

(2) Transmitting operators' personal sign or name.

(3) Use of plain language in place of suitable pro-words.

(4) Obscene language.

d. The following practises are to be avoided:

(1) Use of excessive transmitting power.

(2) Excessive time spent in changing frequency or adjusting equipment.

(3) Transmitting at speed beyond the capability of the receiving operators.

Jargon

3.6 Jargon is not permitted. Jargon includes unofficial and clumsy reference to:

a. People;

b. Equipment;

c. Appointment for an individual; or

d. Organisation.

Code-words

3.7 A code-word is a single word used to safeguard information. Allocation of code-words and their meanings are registered. Use of unauthorised code-words is prohibited.

Accuracy

3.8 It is important that letters and figures are accurate and legible to ensure messages are transmitted correctly. Accuracy via voice is covered under RSVP.

3.9 To avoid confusion between similar letters and figures, there are some basic rules to follow:

a. The figure one (1) is printed with a line under it to differentiate it from the letter I, e.g. 1;

b. The letter Z is printed with a short horizontal line through it to differentiate from the figures two (2) and seven (7), e.g. Ƶ;

c. The letter U has square corners to differentiate it from the letter V;

d. The figure five (5) is written carefully to ensure it is different from the letter S;

e. The letter E is printed with one stroke so it looks like a backwards 3 e.g. ε; and

f. The figure zero (0) has a slant through it to differentiate it from the letter O e.g. ∅

Discipline

3.10 Discipline is important to ensure efficient working over the radio net. Radio discipline includes:

a. Correct use of RATEL procedures;

b. Using correct frequencies; and

c. Constant watch by all stations.

3.11 Only one station can transmit at a time. To prevent confusion the following rules must be applied:

a. Ensure no one else is transmitting before starting a transmission;

b. Leave a short pause at the end of a conversation;

c. Answer all calls immediately and in the correct order; and

d. Ensure you return radio to RECEIVE mode after each transmission.

RSVP

3.12 To avoid wasting time with repetitions and incorrect messages there are some easy steps to take to ensure transmissions are heard clearly. Operators must remember and use the following:

a. Hold the microphone close to the mouth when transmitting;

b. Use the correct manner of rhythm, speed, volume and pitch as follows:

(1) **Rhythm.** Keep the rhythm natural. Break the call into logical sequences of no more than 30 seconds.

(2) **Speed.** Speak slightly slower than normal conversational speed.

(3) **Volume.** Keep voice to normal conversational volume, yelling into the radio will only distort the transmission and make it hard for the recipient to understand.

(4) **Pitch.** The voice needs to be pitched slightly higher than normal conversation but still comfortable for both the transmitter and receiver.

SECTION 2 - Letters and Figures

Phonetic Alphabet

3.13 When it is necessary to identify a letter of the alphabet the authorised Phonetic Alphabet is to be used as outlined below. The syllables shown in bold type carry the emphasis. Difficult words or phrases to spell are preceded with the pro-words I SPELL. If the transmitter can pronounce the word they will do so before and after to identify the word, for example: 'Papadopoulos - I SPELL Papa Alpha Papa Alpha Delta Oscar Papa Oscar Uniform Lima Oscar Sierra - Papadopoulos'.

Letter	Phonetic	Spoken As
A	Alpha	**Al**-fah
B	Bravo	**Brah**-voh
C	Charlie	**Char**-lee
D	Delta	**Dell**-tah
E	Echo	**Eck**-oh
F	Foxtrot	**Foks**-trot
G	Golf	Golf
H	Hotel	Hoh-**tell**
I	India	In-**dee**-**ah**
J	Juliet	**Jew**-lee-**ett**
K	Kilo	**Key**-loh
L	Lima	**Lee**-mah
M	Mike	Mike
N	November	No-**vem**-ber
O	Oscar	**Oss**-car
P	Papa	Pah-**Pah**
Q	Quebec	Keh-**beck**
R	Romeo	**Ro**-me-o
S	Sierra	See-**air**-rah
T	Tango	**Tang**-go
U	Uniform	**You**-nee-form
V	Victor	**Vik**-tah
W	Whiskey	**Wiss**-key
X	X-Ray	**Ecks**-ray
Y	Yankee	**Yang**-key
Z	Zulu	**Zoo**-loo

Figures

3.14 To distinguish figures from similar words being used in the transmission they are preceded with the pro-word FIGURES. See the table below for the correct pronunciation for each figure.

Number	Spoken As
1	Wu**n** (with emphasis on N)
2	**T**oo (With sharp T and long O as in Moo)
3	Thuh-**ree** (with short U, slight rolling of R and E)
4	**Fo**-wer (with long O as in FOE)
5	**Fi**-yiv (emphasising the consonants, with a long I for the first syllable as in PIE and a short one for the second as in GIVE')
6	Si**x** (with emphasis on X)
7	**Se**ven

Number	Spoken As
8	**A**te (with long A as in MATE)
9	**Nin**er (with lone I as in PIE and emphasising each N)
0	**Z**ero

3.15 Numbers are transmitted digit by digit, however in good condition hundreds and thousands maybe spoken as such. Figures in a text - except for Grid References and target indicators - may be spoken as in normal speech. Under poor conditions figures are spoken individually and preceded by pro-word FIGURES as below.

Number	Good Conditions	Bad Conditions
44	Forty-four	FIGURES Four Four
57	Fifty-seven	FIGURES Five Seven
90	Ninety	FIGURES Nine Zero
136	One hundred and thirty six	FIGURES One Three Six
500	Five hundred	FIGURES Five Zero Zero
1478	Fourteen Seventy Eight	FIGURES One Four Seven Eight
2008	Two tousand and eight	FIGURES Two Zero Zero Eight
2359 hours	Twenty-three fifty-nine hours	FIGURES Two Three Five Nine Hours
2700	Two seven hundred	FIGURES Two Seven Zero Zero
16000	Sixteen tousand	FIGURES One Six Zero Zero Zero
812681	Eight one two six eight one	FIGURES Eight One Two Six Eight One

3.16 The pro-word FIGURES is not used with call-sign, address groups, grid references, time checks, date time group (DTGs) or time group.

3.17 Thousand is pronounced Tousand, e.g. 1000 is spoken as wun tousand.

3.18 The decimal point is written as POINT but is to be spoken as DECIMAL (pronounced DAY-SEE-MAL). For example, 123.4 should be written as such, however, is spoken as One Two Three DECIMAL Four.

3.19 Dates are spoken date by date and the month in full in good or bad conditions, e.g. 25 Aug is spoken as Two Five August.

3.20 Roman Numerals are transmitted in Arabic form but with the pro-word ROMAN e.g. VII is spoken as ‘ROMAN Seven’.

SECTION 3 - Radio Telephone Procedure

Radio Appointment Titles

3.21 Radio Appointment titles are used to refer to specific appointments. They are not classified and only conceal the level of the headquarters (i.e. the person in command of a Section and the person in command of a Company would have the same Radio Appointment title). The title designates the senior representative or the appointment holder in that unit. The title is not to be qualified in anyway except:

a. To indicate appointments next in seniority, in which case MINOR may be added, for example STARLIGHT MINOR is the next most senior Medic; and

b. When it is necessary to distinguish between similar appointments holders in each unit MY, OUR, YOUR, HIS or THEIR may be used before the title, e.g. MY STARLIGHT, YOUR STARLIGHT or OUR NOMAD.

3.22 Following are some of the common Radio Appointment Titles:

Service	Appointment	Title
Joint	Air Reconnaissance	SPYGLASS
Joint	Aviation Officer	HAWKEYE
Army	Chaplain	SHEPHERD
Army	Deputy Commander, Second in Command	SUNRAY MINOR
Joint	Executive Officer	MOONBEAM
Joint	Ground Transport	PLAYTIME
Joint	Armour	IRONSIDE
Joint	Infantry	FOXHOUND
Joint	Medical	STARLIGHT
Joint	Military Police	WATCHDOG
Joint	Officer in Command, Section Commander	SUNRAY
Joint	Signals	PRONTO
	Sqn WO, Sgt Major, Ships Coxswain	PACESTICK
Joint	Adjutant	SEAGULL

Call-Signs

3.23 A CALL-SIGN is a combination of three letters and figures used on the Net to hide the unit or sections plain language address (unit name), establish order of answering and maintain discipline on the net.

3.24 Figures used in call-signs are spoken digit by digit and individual letters are spoken phonetically.

Nicknames

3.25 Nicknames can be allocated at the beginning of each operation. Nicknames can be used for:

a. Closing down a net, changing frequency;

b. Overcoming unpronounceable names, for example, CAT JEWEL in place of the town PEEDAMULLAGH; and

c. Reference to geographical features such as objectives, bounds, routes and report lines.

3.26 Nicknames are to consist of two distinct un-associated words neither of which is to be a colour.

Note: A call-sign refers to the whole unit not an individual person. A Radio Appointment Title refers to a particular appointment. Names for individual persons are Nick names.

Prowords

3.27 A Proword is a pronounceable phrase or word used to make radio communications more efficient. This assists in keeping Radio Communications short, clear and concise by allowing a word or phrase to be used instead of whole sentences e.g. ROGER means 'I have received your last transmission satisfactorily'. OUT means 'I have finished transmitting, no reply required'. A list of common prowords is below:

Proword	Meaning
CORRECT	You are correct, or, what you have transmitted is correct.
CORRECTION	d. What has been said is wrong, the correct version follows. e. An error has been made in transmission (or message indicated). The correct version is…. f. That which follows is a correct version in answer to your request for verification.
DISREGARD THIS TRANSMISSION	Used to cancel a message during its transmission.
FETCH	Followed by an appointment/title to indicate to whom the caller wishes to speak.
FIGURES	Used before sending groups of figures digit by digit. Not used for call-signs, grid references, time checks, authentication and DTG.
GRID	Used before giving a grid reference.
I READ BACK	Use by receiving station to satisfy themselves they have received the transmission or part of correctly.
I SAY AGAIN	Used by sender of a message to repeat a section for emphasis or in response to say again.
I SPELL	Used before spelling words phonetically.
I VERIFY	What follows has been verified as per your request. Used only in response to verify.
OUT	This is the end of my transmission, no reply required.
OUT TO YOU	This is the end of my transmission to you, no reply required. Transmission to another station follows.
OVER	This is the end of my transmission, reply required.
RADIO CHECK	Report signal strength and readability.
READ BACK	Repeat the entire transmission back to me entirely as

Proword	Meaning
	received.
ROGER	I have received your last transmission satisfactorily.
SAY AGAIN	Request repetition of last transmission or part of.
SEND	I am ready to receive your message.
SPEAKING	Used with title/appointment to indicate who is speaking.
THIS IS	Indicates identification of calling station.
VERIFY	Verify portion indicated with originator and send correct version.
WAIT	I must pause for up to five seconds before replying. No one else is transmit in this time.
WAIT OUT	I must pause for more than five seconds and a transmission will follow on the same subject later. Others may transmit as normal.
WILCO	Have received your last transmission and will comply.

Common Mistakes

3.28 Ensure that you don't use more prowords than required. Common errors are:

a. 'OVER and OUT' – this is telling the receiver that 'this is the end of my transmission, reply required, end of transmission, no reply required'. It is either OVER or OUT – it can not be both; and

b. 'ROGER WILCO' – this is saying 'I have received your last transmission; I have received your last transmission and will comply'. WILCO incorporates ROGER so ROGER is not required.

Calling and Answering

3.29 Before you start to transmit, ensure there is no other communications transmitting. This is particularly important on the frequencies used for Emergency Messages.

Calling

3.30 A station wishing to transmit on the net is to make an initial transmission which consists of the following:

a. Initial Call:

(1) The initial CALL-SIGN which indicates the station being called

(2) The prowords THIS IS indicating the CALL-SIGN of who is calling is about to follow

(3) The last CALL-SIGN which indicates the calling station

b. Text: The message is then sent.

c. Ending of Call: The transmission is then ended with one of the following prowords:

(1) OVER – signifying that I have completed the transmission, you can speak now.

(2) OUT – end of transmission, no reply required or expected.

Answering

3.31 Should the initial transmission require an immediate answer (having ended with Proword OVER) the station replies in the following format:

a. Answering Call: Same as the initial call is in three parts:

(1) CALL-SIGN of the station being called.

(2) The prowords THIS IS indicating called stations CALL-SIGN to follow.

(3) CALL-SIGN of the station calling.

b. Text: The reply or message to be transmitted. Include the working frequency you are going to change to; and

c. Ending Call: In addition to OVER and OUT, you may use any of the following endings:

(1) WAIT OUT – means ‘I must pause for more than five seconds and will start another transmission in reply’. Other stations may transmit as normal.

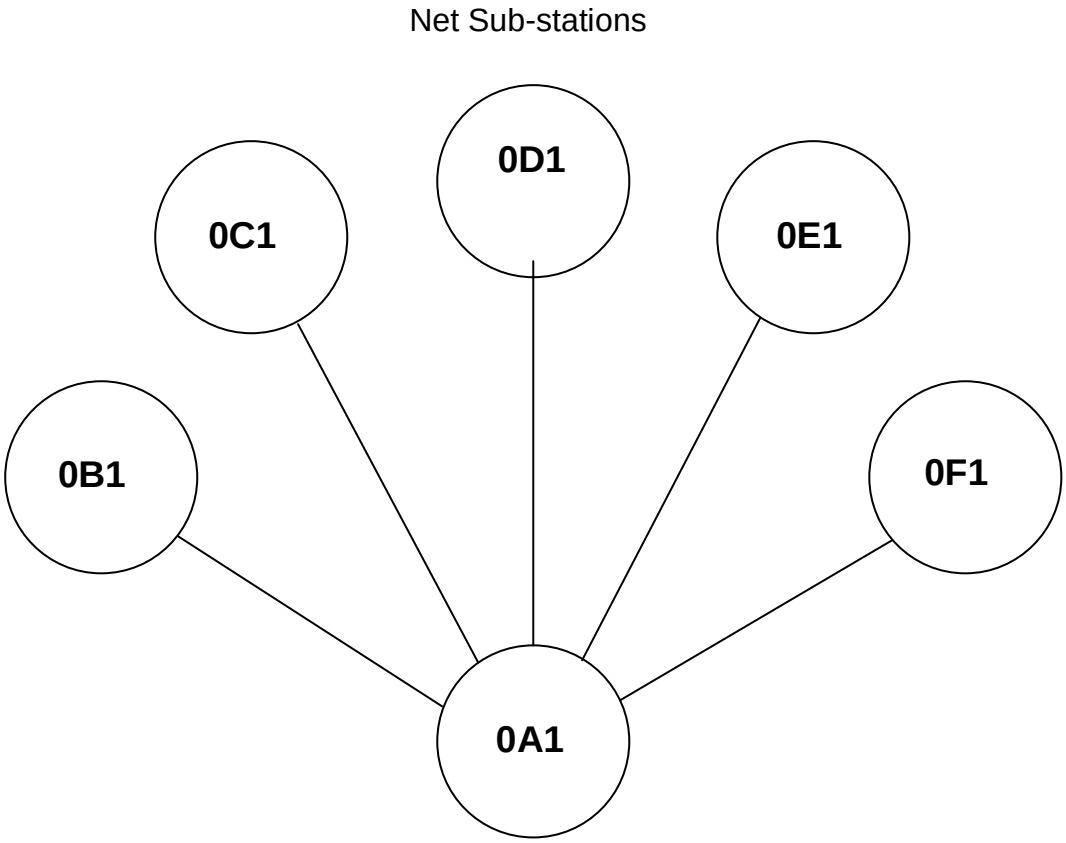
(2) OUT TO YOU – my transmission to you has been completed and no reply is required. A transmission to another station follows immediately.

3.32 When a transmission ends with OUT, OUT TO YOU or WAIT OUT it indicates the end of that series of transmissions and any further transmission will be new. When a transmission ends with the Proword OVER, then the following calls will follow the answering sequence till the final transmission is terminated by OUT, OUT TO YOU or WAIT OUT.

SECTION 4 - Radio Nets

Basic Radio Nets

3.33 The following net diagram is used throughout this manual:



Radio Nets

3.34 A radio net is a group of radio stations operating on the same frequency for the purpose of communicating with one another.

3.35 A Net consists of one NCS and two or more subordinate stations (sub-stations).

Net Control Station (NCS)

3.36 The Net Control Station is responsible for the discipline and efficient clearing of traffic over the net. It is normally collocated with the headquarters but the NCS can be based within any station that is capable of carrying out the duties required.

Sub-Stations

3.37 All other stations on the net are subordinate stations, referred to as sub-stations. They must comply with all communications from the NCS.

Net Identification Call-Signs (NIC)

3.38 The Net Identification Call Sign is a tactical call-sign which is allocated to each unit and formation net. As the name implies, the NIC is used to identify the net and also to identify all the stations on the net. It can be used by any of the stations to address all stations on the net. A NIC can be used with the Proword EXEMPT followed by one of the individual call-signs for a station that is excluded from the all stations call.

Establishing A Net

3.39 The establishing of a radio net is conducted in certain procedures to ensure all stations are able to set up communications with one another on the same frequency.

3.40 The procedure outlined is to be followed when setting up a new net or reopening a net. Proper control by the NCS and adherence to the rules by the sub-stations will ensure the net commences operation with minimum delay. The NCS is responsible for maintaining security on the net.

3.41 Establishing a net is conducted in the following sequence:

a. Preliminary instructions;

b. Tuning of the radio (if applicable);

c. Initial calls; and

d. Amplifying reports.

Preliminary Instructions

3.42 It is essential that operators are supplied with all the preliminary instructions regarding the working of the net. The instructions are to contain the following information:

a. The net organisation in the form of a diagram which identifies all stations on the net;

b. The frequency being transmitted on;

c. Any alternate frequencies to be used if required;

d. The call-signs and other net identification information;

e. Code-words and nicknames;

f. The time the net is to open; and

g. The net security measures.

3.43 The operator is to ensure they have enough stationary to establish communications.

Tuning the Radio

3.44 Tuning of radios varies with each type and the instructions with the radio should be followed. However most of the radios will fall into the following categories:

a. **Pre-tuned Radios.** These are automatically tuned to different frequencies or channels by the action of a selector switch;

b. **Manually Tuned Radios. These incorporate their own crystal calibrators, which** enable accurate tuning to any frequency within the range of the radio; and

c. **Automatically Tuned Radios.** As the name suggests, these radios are tuned automatically by the radio.

SECTION 5 - Radio Checks

Initial Call

3.45 As soon as the net is set up, the NCS is to confirm that all stations are receiving transmissions.

3.46 The NCS initiates a call to all stations to confirm their strength and readability of its signal by using the prowords RADIO CHECK, which means 'What is my signal strength and readability?', in other words 'Can you hear me?' (Readability refers to how the transmissions are being heard). The sub-stations answer in turn giving their report of strength and readability. Following is a full description of prowords to describe strength and readability.

Prowords for Signal Strength	Meaning
LOUD	Indicates that the sender's signal strength is excellent.
GOOD	Indicates that the sender's signal strength is good.
WEAK	Indicates that the sender's signal strength is weak.
VERY WEAK	Indicates that the sender's signal strength is very weak.
FADING	Indicates that the sender's signal strength is fading to such an extent that continuous reception cannot be relied upon.
Prowords For Readability	**Meaning**
CLEAR	Indicates that the transmission is of excellent quality.
READABLE	Indicates that the quality of the senders' transmission is good.
UNREADABLE	Indicates that the quality of the senders' transmission is so bad that the receiver can not read the sender.
DISTORTED	Indicates that there is trouble understanding the transmission due to distortion.
WITH INTERFERENCE	Indicates that there is trouble understanding the transmission due to interference.
FADING	Indicates that at times the signal strength fades to such an extent that continuous reception cannot be relied upon.

3.47 If the answer is LOUD and CLEAR then ROGER will suffice.

3.48 At the designated time the NCS initiates the following call between itself and the sub-stations to establish/re-establish a net, the NCS uses the following procedure:

a. MG4 – THIS IS – 0A1 – RADIO CHECK – OVER

b. 0A1 – THIS IS – 0B1 – ROGER – OVER

c. 0A1 – THIS IS – 0C1 – ROGER – OVER

d. 0A1 –THIS IS – 0D1 – ROGER – OVER

e. 0A1 – THIS IS – 0E1 – ROGER – OVER

f. MG4 – THIS IS 0A1 – ROGER – OUT.

Note: The NCS refers to the whole group by it's NIC – MG4 – so only one call is made by the NCS instead of an individual call to each sub-station.

3.49 When a station fails to answer in sequence it must wait till all other stations have transmitted and transmit after the last one. The NCS will wait five seconds for a response and then initiate a new preliminary call specifically to that sub-station. If the NCS does not receive any response to their final request then they indicate this by the prowords NOTHING HEARD.

3.50 In this example, 0C1 is unable to answer the call:

a. MG4 – THIS IS – 0A1 – RADIO CHECK – OVER;

b. 0A1 – THIS IS – 0B1 – ROGER – OVER;

c. 0D1 hearing no reply from 0C1 waits five seconds and then transmits;

d. 0A1 – THIS IS – 0D1 – ROGER – OVER;

e. 0A1 – THIS IS - 0E1 – ROGER – OVER;

f. NCS waits another five seconds for 0C1 to reply;

g. MG4 – THIS IS – 0A1 – ROGER – 0C1 – NOTHING HEARD – OUT.

3.51 The NCS waits for all station on the net to reply before giving its report to all sub-stations.

3.52 The NCS always acknowledges the report of the sub-stations by indicating, in these transmissions, the strength of the unsatisfactory stations. Sample transmissions:

Sample Station	Calling	Call Made	Remarks
Example A: On a satisfactory net.	NCS	MG4 – THIS IS – 0A1 – RADIO CHECK – OVER	
	OB1	OA1 – THIS IS – OB1 – ROGER – OVER	0B1 is reading the NCS is loud and clear.
	0C1	0A1 – THIS IS – 0C1 – WEAK BUT READABLE – OVER	0C1 has a weak signal strength but the transmission is good.
	0D1	0A1 – THIS IS - 0D1 – ROGER – OVER	The transmission from NCS is loud and clear.
	0E1	0A1 – THIS IS – 0E1 – LOUD WITH INTERFERENCE – OVER	0E1 is receiving an excellent signal strength but there is trouble understanding the transmission due to interference.
	0A1	MG4 – THIS IS – OA1 – 0C1 WEAK WITH INTERFERENCE – OUT	The NCS hears all stations loud and clear except 0C1 which has a weak signal strength and interference.
Example B: A sub-station on the net fails to answer in the correct sequence.	NCS	MG4 – THIS IS 0A1 – RADIO CHECK – OVER	
	0B1	0A1 – THIS IS – 0B1 – ROGER	

Sample Station	Calling	Call Made	Remarks
		– OVER	
	0C1	0A1 – THIS IS – 0C1 ROGER – OVER	
	0D1	(……)	No reply
	0E1	(after five second pause) 0A1 – THIS IS – 0E1 –LOUD WITH SLIGHT INTERFERENCE – OVER	
	0D1	0A1 – THIS IS – OD1 – WEAK BUT READABLE - OVER	
	NCS	MG4 – THIS IS – OA1 – ROGER – OUT.	NCS hears all station loud and clear.
Example C: A sub-station on a net fails to answer a preliminary call.	NCS	MG4 – THIS IS – 0A1 – RADIO CHECK – OVER	
	0B1	OA1 – THIS IS – OB1 – ROGER – OVER	
	0C1	(……)	No reply.
	0D1	(after a five second pause) OA1 – THIS IS – 0D1 – ROGER – OVER	
	0E1	0A1 – THIS IS – 0E1 – ROGER – OVER	
	0C1	(….)	No reply.
	NCS	(after five second pause) 0C1 – THIS IS – OA1 – RADIO OVER	NCS makes another call to 0C1.
	0C1	0A1 – THIS IS – 0C1 – WEAK BUT READABLE – OVER.	
	NCS	MG4 – THIS IS – OA1 – ROGER – OUT.	
Example D: A sub-station on a unit net fails to answer the NCS after the final call.	NCS	(five second pause) 0C1 – THIS IS – 0A1 – RADIO CHECK – OVER	
	0C1	(…….)	No reply.
	NCS	0C1 – THIS IS – 0A1 – NOTHING HEARD – OVER	NCS indicates that it did not hear 0C1 and advisees remaining stations of their strengths.
	NCS	MG4 – EXCEPT 0C1 - THIS IS 0A1 – ROGER - OUT	
Example E: NCS replies to sub-stations of varying strengths and readability.	NCS	MG4 – THIS IS – OA1 – 0C1 – WEAK WITH INTERFERENCE – 0E1 – WEAK BUT READABLE – OUT	

3.53 If performing a radio check in difficult conditions, all sections are said twice, for example:

a. 0D1 – 0D1 – THIS IS 0A1 – THIS IS 0A1 – RADIO CHECK – RADIO CHECK – OVER

b. 0A1 –0A1 – THIS IS 0D1 – THIS IS 0D1 – VERY WEAK BUT READABLE – VERY WEAK BUT READABLE – OVER

c. 0D1 – 0D1 – THIS IS 0A1 – THIS IS 0A1 – WEAK BUT READABLE – WEAK BUT READABLE – WITH INTERFERENCE – WITH INTEREFERENCE – OUT.

SECTION 6 - General

Types of Calls

3.54 The following are the three main types of calls:

a. The single call;

b. The multiple call; and

c. The net call.

Single Call

3.55 A single call is made by any station to any other station on the same net. The following example illustrates the single call between the NCS and a sub-station:

a. 0D1 – THIS IS – 0A1 – Move Now – OVER;

b. 0A1 – THIS IS - 0D1 – Cannot move for ten minutes – OVER; and

c. 0D1 – THIS IS – 0A1 – ROGER – OUT.

Multiple Call

3.56 A multiple call is a call to two or more stations but not all stations on the same net. The individual call-signs are separated by a natural pause. The following example is of a multiple call:

a. 0C1 – 0D1 – THIS IS – 0B1 – I am moving now – OVER;

b. 0B1 – THIS IS – 0C1 – ROGER – OUT; and

c. 0B1 – THIS IS – 0D1 – ROGER – OUT.

Net Call

3.57 A net call is a call to all stations on the same net from either the NCS or another sub-station. The following example illustrates a net call when the NCS is calling all stations – the NIC is MG4:

a. MG4 – THIS IS – 0A1 – Convoy departed – OVER;

b. 0A1 – THIS IS – 0B1 – ROGER – OUT;

c. 0A1 – THIS IS – 0C1 – ROGER – OUT;

d. 0A1 – THIS IS – 0D1 – ROGER – OUT; and

e. 0A1 – THIS IS – 0E1 – ROGER – OUT.

Grid References

3.58 All Grid references are preceded by the pro-word GRID. They are sent digit by digit with a short pause between the easting and the northing references, the figures are pronounced phonetically. An example of a proper grid reference is:

a. ‘Enemy at GRID Three Two Six - Four Eight Seven’.

Mixed Groups

3.59 A Mixed group refers to information that uses both letters and figures.

3.60 In good conditions, a mixed group can be sent as per normal speech, e.g.:

a. Generators 5 k VA is sent as ‘Generators Five kay-vee-ay’;

b. 2 ½ m by ½ m is sent as ‘Two and a half metres by half a metre’; and

c. 12 V bty is sent as ‘Twelve Volt battery’.

3.61 In poor or difficult conditions, the same information is sent as:

a. Generators FIGURES Five, I SPELL Kilo Victor Alpha’;

b. FIGURES Two Hyphen One Slant Two metres by FIGURES One Slant Two metres; and

c. FIGURES One Two volt battery.

Time Checks

3.62 Time checks are to be given in local time unless otherwise directed. Time checks may be sent out:

a. Periodically by the NCS; and

b. When requested by a station.

3.63 When the NCS needs to give an accurate time check to all stations on the net, it will give a sufficient pause between the warning phrase and the commencement of the count-down for the stations to prepare their watches. The NCS announces its intentions by using the prowords TIME CHECK AT….. The time at which the check is given is to be indicated by a four-figure time group followed by a 15 second count-down to the executive.

3.64 The following example is of the NCS initiating a time check:

a. MG4 – THIS IS – 0A1 – TIME CHECK AT Zero Nine Three Zero (pause to allow operators to prepare) – One Five Seconds – One Zero Seconds – Five – Four – Three – Two – One – TIME Zero Nine Three Zero – OVER.

b. (All stations in turn answer (ROGER) – OUT).

3.65 When a station requires an accurate time check, it will be requested by the prowords REQUEST TIME CHECK, e.g.:

a. 0A1 – THIS IS – 0D1 – REQUEST TIME CHECK – OVER;

b. (0D1) – (THIS IS) – 0A1 – TIME CHECK One Eight Zero Two (pause) – One Five Seconds – One Zero Seconds – Five – Four – Three – Two – One – TIME One Eight Zero Two – OVER; and

c. (0A1) – (THIS IS) – 0D1 – (ROGER) – OUT.

SECTION 7 - Radio Check 2

Amplifying Reports

3.66 Once the NCS has established that they can hear all the sub-stations on the net via a basic Radio Check, they need to confirm how each station reads each other. This is done by completing an Amplifying report. The NCS uses the prowords REPORT STRENGTHS AND READABILITY. This should only be necessary if the conditions are bad.

Sample Station	Calling	Call Made	Remarks
Example A: Satisfactory reports from all stations on a formation net. Initial call RADIO CHECK has been made.	NCS	MG4 – THIS IS – 0A1 – 0C1 – WEAK BUT READABLE – REPORT STRENGTHS AND READABILITY – OVER	NCS hears all stations loud and clear except 0C1 and then requests all stations to report strength of the other stations
	0B1	(0A1) – (THIS IS) – 0B1 – (ROGER) – OUT.	
	0C1	(0A1) – (THIS IS) – 0C1 – (ROGER) – OUT	
	0D1	(0A1) – (THIS IS) – 0D1 – 0B1 WEAK BUT READABLE – OUT	
	0E1	(0A1) – (THIS IS) – 0E1 – (ROGER) – OUT.	
	0A1	(MG4) – (THIS IS) – 0A1 – (ROGER) – OUT.	
Example B: Unsatisfactory combined report on a unit net.	NCS	MG4 – THIS IS – 0A1 – RADIO CHECK – OVER	
	0B1	(0A1) – (THIS IS) – 0B1 – LOUD BUT DISTORTED - OVER	
	0C1	(0A1) – (THIS IS) – 0C1 – ROGER – OVER	
	0D1	(0A1) – (THIS IS) – 0D1 – WEAK BUT READABLE – OVER	
	0E1	(0A1) – (THIS IS) – 0E1 – LOUD WITH INTERFERENCE – OVER	
	NCS	(MG4) – (THIS IS) – 0A1 – 0B1 – LOUD WITH DISTORTION – 0D1 – WEAK BUT READABLE – REPORT STRENGTH AND READABILITY – OVER	NCS hears 0C1 and 0E1 loud and clear but signals from all other stations are varying in strength. Then requests readability from the other stations
	0B1	(0A1) – (THIS IS) – 0B1 – 0E1 NOTHING HEARD – 0D1 – LOUD BUT DISTORTED – OUT.	
	0C1	(0A1) – (THIS IS) – 0C1 – 0B1 – WEAK BUT READABLE – 0D1 – LOUD BUT DISTORTED – OUT	

Sample Station	Calling	Call Made	Remarks
	0D1	(0A1) – (THIS IS) – 0D1 – 0B1 – WEAK BUT READABLE – OUT	
	0E1	(0A1) – (THIS IS) – 0E1 – WEAK – WITH INTERFERENCE – OUT	0E1 hears all stations fairly well with interference.

3.67 A sub-station only reports those stations not heard loud and clear. If they cannot hear a sub-station they use the prowords NOTHING HEARD preceded by the Call-sign of that station.

3.68 Where the NCS is not happy with the strength and readability of a sub-station and it believes it can be improved, the NCS can order the sub-station to retune or relocate the set. This is followed by a radio check from the NCS to the sub-station.

SECTION 8 - Radio Logs

Radio Logs

3.69 Radio operators' logs are to be maintained, when practical, by operators and users on all radio nets. When circumstances are such that it is impractical for the log to be kept at the operating position, consideration is to be given to monitoring the net elsewhere.

Maintaining a Log

3.70 There are some basic rules for maintaining a radio log. They are as follows:

a. All entries are made in pen;

b. Log entries are not to be erased. If an error is made it is to be crossed out with a single, horizontal line. The correct message must be made next to the correction and must be initialled by the radio operator;

c. The log is to show a complete and continuous record of transmitted and received calls from through out the day;

d. When operating conditions permit, every transmission heard by the operator, regardless of completeness or source is to be recorded, and is termed 'single line logging';

e. When a station receives or relays a message then the message needs to be written in full on a message form. The log should be brief and concise requiring only sufficient detail to identify the message;

f. During quiet periods, entries are to be made in the log at 15 min intervals to ensure adequate circuit attention;

g. Occurrences other than transmissions are to be made under the heading ENTRY – e.g. handover/takeover of shift, generator changes and changes to antennas;

h. Signal strengths of other stations are to be logged at the first opportunity after a new operator starts. Also any changes in readability and strength are to be logged;

i. When opening or starting a new days' log, the operator is to write their name and rank in full. When relieved or closing the circuit, they are to sign the log. The oncoming operator is to write their name and rank in full;

j. The log entries include details as follows in the designated columns:

(1) **Call From.** The call-sign of the calling station.

(2) **Call To.** The call sign of the called station.

(3) **Message Number In.** This shows the number of messages received that day e.g. if it's the first message on the 15th then the message

number would be 001/15, if it's the tenth message on the 16th it would read 010/16.

(4) **Message Number Out.** This shows the number of outgoing messages that day e.g. if it's the 12 message on the 13th then it would read 012/13, if it was the fifth message to be sent on the 19 it would read 005/19.

(5) **Operators Number.** To be recorded on all occasions, the operators' number is made up of the first letter of the operators surname and the last two numbers from their service number.

(6) **Message Text/Identity/Event.** All message details, answers, operating signals, pro-signs transmitted or received on the frequency in use.

(7) **Time.** The time of receipt and transmission of all actions taken pertaining to the circuit, all timings are to be in local time.

k. The person in charge of the radio section is responsible for ensuring that the radio logs are kept up to date and correct; and

l. The log must be held in a safe place until destruction is authorised.

Log Data

3.71 The log is to include the following data:

a. The handover of the station from one operator to the other;

b. Opening and closing times of the station;

c. All procedural transmissions;

d. Causes of delays in the transmission or reception of a message;

e. All difficulties of communication experienced and the steps taken to overcome them;

f. Frequency adjustments and changes (entry is to be underlined);

g. Unusual occurrences, such as procedural and security violations;

h. Battery changes; and

i. Record of informal messages and voice conversations sent to other stations on the net (recorded as completely as possible).

3.72 Entries of unusual occurrences, security violations and electronic interference should be headed ENTRY and reported to the supervisor immediately they occur.

3.73 To assist in keeping a log, the list of logging abbreviation following may be of use.

Logging Term	Abbreviation
Acknowledge	ACK
All After	AA
All Before	AB
Answer	ANS
Break	//
Correction	C
Disregard This Transmission	DISC
Distorted	D
Do Not Answer	F
Groups	GP
Information	INFO
Interrogative	INT
Number	NR
Out	AR
Over	K
Read Back	G
Roger	R
Say Again	IMI
Service Message	SVC
Speak Slower	SSL
Through Me	THM
That Is Correct	C
Unknown Station	AA (barred – with line above)
Verify	J
Wait	AS
Wait Out	ASAR
Wrong	WG
Word Before	WB

Sample Operator's Log Entry

DATE: 15 OCT 02		CALL-SIGN: 0A1		PLACE: WAIHI	FREQUENCY: 46.550
Call		**Message Number**		**Operators Number**	**Message Text / Identity / Event**	**Time**
FROM	TO	IN	OUT			
		ENTRY		G48	CPL Gilbert on shift, sighted instructions and codes.	1730
0A1	MG4		025/15	G48	ESTAB NET	1733
0B1				G48	R K	1733
0C1				G48	R K	1734
0D1				G48	LOUD WITH DISTORTION	1734
0E1				G48	R K	1734
0A1	MG4			G48	R AR	1735
		ENTRY		G48	Net Established	1736
0B1	0A1	019/15		G48	Tramping Party setting up camp for the night K	1800
0A1	0B1			G48	R AR	1800
0C1	0E1			G48	FETCH SUNRAY K	1845
0E1	0C1			G48	Conversation SUNRAY – STARLIGHT ref medical re-supply	1846

SECTION 9 - Messages

Read Back Procedures

3.74 Read Back procedures are used when:

a. The transmitting station needs to confirm that the receiving station has received the message correctly; and

b. The receiving station wishes to confirm it has received the message correctly.

3.75 If the transmitting station requires the receiving station to write the message down the transmission needs to be preceded with the pro-word MESSAGE. This informs the receiving station that they need to write the message down word for word. Once they are ready to receive they let the transmitting station know by replying SEND. If the message needs to be read back the prowords READ BACK are to be used. The receiving station uses the prowords I READ BACK to precede the read back message.

3.76 In this example the NCS informs 0C1 that they are about to receive a message they need to write down and then read back:

a. 0C1 – THIS IS – 0A1 – MESSAGE – OVER; and

b. (0A1) – (THIS IS) – 0C1 – WAIT – OVER.

c. (0A1) – (THIS IS)- 0C1 – SEND – OVER;

d. (0C1) – (THIS IS) – 0A1 – READ BACK – STARLIGHT requires minor First Aid kit at GRID - Seven Nine Five – Two Three Nine – OVER;

e. (0A1) – (THIS IS) – OC1 – I READ BACK – (0C1) – (THIS IS) – 0A1 - READ BACK – STARLIGHT requires minor First Aid kit at GRID - Seven Nine Five – Two Three Nine – OVER; and

f. (0C1) – (THIS IS) – 0A1 – CORRECT – OUT.

3.77 In this example, the NCS requests 0C1 to read back the text only:

a. 0C1 – THIS IS – 0A1 – MESSAGE – OVER;

b. (0A1) – (THIS IS) – 0C1 – SEND – OVER;

c. (0C1) – (THIS IS) – 0A1 – READ BACK TEXT – STARLIGHT requires minor First Aid kit at GRID - Seven Nine Five – Two Three Nine – OVER;

d. (0A1) – (THIS IS) – 0C1 – I READ BACK TEXT - STARLIGHT requires minor First Aid kit at GRID - Seven Nine Five – Two Three Nine – OVER; and

e. (0C1) – (THIS IS) – 0A1 – CORRECT – OUT.

3.78 In this example, the NCS request 0C1 to read the grid reference:

a. 0C1 – THIS IS – 0A1 – MESSAGE – OVER;

b. (0A1) – (THIS IS) – 0C1 – SEND – OVER;

c. (0C1) – (THIS IS) – 0A1 – READ BACK GRID – STARLIGHT requires minor First Aid kit at GRID - Seven Nine Five – Two Three Nine – OVER;

d. (0A1) – (THIS IS) – 0C1 – I READ BACK GRID – GRID – Seven Nine Five – Two Three Nine – OVER; and

e. (0C1) – (THIS IS) – 0A1 – CORRECT – OUT.

3.79 In this last example, the NCS requests 0C1 to read back the grid reference and 0C1 gets it wrong:

a. 0C1 – THIS IS – 0A1 – MESSAGE – OVER;

b. (0A1) – (THIS IS) – 0C1 – SEND – OVER;

c. (0C1) – (THIS IS) – 0A1 – READ BACK GRID – STARLIGHT requires minor First Aid kit at GRID - Seven Nine Five – Two Three Nine – OVER;

d. (0A1) – (THIS IS) – 0C1 – I READ BACK GRID – GRID – Seven Nine Six – Two Three – OVER;

e. (0C1) – (THIS IS) – 0A1 – WRONG – GRID - Seven Nine Five – Two Three Nine – OVER;

f. (0A1) – (THIS IS) – 0C1 – I READ BACK GRID - Seven Nine Five – Two Three Nine – OVER; and

g. (0C1) – (THIS IS) – 0A1 – CORRECT – OUT.

Cancelling Messages

3.80 If the operator sending a message requires a message to be cancelled during a transmission prior to the prowords OVER or OUT being used, the transmission is to be cancelled by the pro-word DISREGARD THIS TRANSMISSION – OUT. For example, 0B1 realises that the transmission is being sent in error and therefore cancels it:

a. 0D1 – THIS IS – OB1 – OVER;

b. (0B1) – (THIS IS) – 0D1 – OVER; and

c. (0D1) – (THIS IS) – 0B1 – SUNRAY has departed this location – DISREGARD THIS TRANSMISSION – OUT.

3.81 If a message has been transmitted and completed before the operator realises, then a new message needs to be sent to cancel the message. For example, 0B1 realises that the last message is in error and needs to cancel it:

a. 0D1 – THIS IS – OB1 – CANCEL my last message – OVER; and

b. (0B1) – (THIS IS) – 0D1 – (WILCO) – OVER.

SECTION 10 - Relaying Procedures

Relay Procedure

3.82 If communications between two stations fail, messages between them can be sent through a third station that is in contact with them both. The third station is the relay station. The message may be given to the relay station in the initial transmission or it may be offered.

3.83 The message would be offered if:

a. It is not certain that the relay station is in contact with the intended receiver; and

b. It is necessary for the relay station to make a copy of a message.

3.84 The following are prowords that are used when relaying messages and what they mean in this context:

Proword	Meaning
RELAY TO…..	Station called is to transmit/relay this message to the addressees(s) immediately following this pro-word.
SEND	I am ready to receive your message for….
FROM	The originator of this message is indicated by the address designator immediately following.
THROUGH ME	Relay your message through me.
RELAY THROUGH	Transmit your message via call-sign….(normally the NCS will inform of the most suitable station to relay through).

Relay To

3.85 The prowords RELAY TO with an address following indicates that the receiving station is to relay the message to the station indicated. When more than one station is called then the prowords RELAY TO are preceded by the call-sign of the station that is to relay the message.

3.86 In the example below, sub-stations 0B1 and 0C1 cannot communicate so they are relaying the message via 0D1:

a. 0B1 – THIS IS – 0C1 – SUNRAY departed for your location – OVER

(no reply from 0B1)

b. 0B1 – THIS IS – 0C1 – OVER

c. 0B1 – THIS IS – OC1 – NOTHING HEARD – OUT TO YOU – 0D1 – THIS IS – 0C1 – RELAY TO 0B1 – SUNRAY departed for your location – OVER

d. (0C1) – (THIS IS) – 0D1 – (ROGER) – OUT TO YOU – 0B1 – THIS IS – 0D1 – FROM 0C1 – SUNRAY departed to your location – OVER.

e. (OD1) – (THIS IS) – 0B1 – (ROGER) – OUT.

Through Me

3.87 The prowords THROUGH ME indicate that a station is happy to have the transmission relayed through them.

3.88 In this example, the NCS hears call-sign 0B1 is having trouble transmitting the message so instructs them to relay the message through NCS:

a. 0C1 – THIS IS - 0B1 – SUNRAY departed for your location – OVER

(no reply from 0C1)

b. 0C1 – THIS IS – 0B1 – OVER.

(no reply from 0C1)

c. 0B1 – THIS IS – 0A1 – THROUGH ME – OVER

d. (0A1) – (THIS IS) – 0B1 – RELAY TO 0B1 – SUNRAY departed for your location – OVER

e. (0B1) – (THIS IS) – 0A1 – (ROGER) – OUT TO YOU – 0C1 – THIS IS – 0A1 – FROM 0B1 – SUNRAY departed from your location – OVER

f. (0A1) – (THIS IS) – 0C1 – (ROGER) – OUT.

Relay Through

3.89 The prowords RELAY THROUGH is followed by the call-sign who is to relay the message.

3.90 In this example, 0B1 is told by NCS to relay the message through 0E1:

a. 0C1 – THIS IS – 0B1 – SUNRAY departed for your location – OVER

(no reply from 0C1)

b. 0C1 – THIS IS – 0B1 – OVER

(no reply from 0C1)

c. 0B1 – THIS IS – 0A1 – RELAY THROUGH 0E1 – OUT

d. 0E1 – THIS IS – 0B1 – RELAY TO 0C1 – SUNRAY departed for your location – OVER

e. (0B1) – (THIS IS) – 0E1 – ROGER – OUT TO YOU – 0C1 – THIS IS 0E1- FROM 0B1 SUNRAY departed for your location – OVER.

f. (0E1) – (THIS IS) – 0B1 – ROGER – OUT

SECTION 11 - Joining and Closing a Net

Joining a Working Net

3.91 On occasion another station will need to join an already established Radio Net. To do this they must call into the NCS to inform them and also to receive the order in which they must answer the group calls, for example:

a. 0A – THIS IS – 0F1 – REPORTING INTO NET – OVER;

b. (0F1) – (THIS IS) – OA – ROGER – ANSWER FIFTH – OVER; and

c. (0A) – (THIS IS) – 0F1 – WILCO – OUT.

Closing Down

3.92 No station is to close down without permission from the NCS. The greatest care must be taken by the NCS to ensure that all stations know of the closing down and the new frequency and time of re-opening if appropriate.

3.93 When the NCS is satisfied with the arrangements for re-opening the net, it then orders the net or sub-station to close down by using the pre-determined nickname – given in the pre operation brief. The translation of the nickname is CLOSE DOWN NOW:

a. MG4 – THIS IS – 0A1 – BACK ALLEY – OVER; and

(All stations reply in turn BACK ALLEY – OVER, and the NCS transmits the following executive to enforce the closure).

b. (MG4) – (THIS IS) – OA1 – BACK ALLEY – OUT.

Individual Stations

3.94 When one station needs to close down temporarily for technical or other minor reasons – i.e. changing battery – the request and instructions are given in plain language by use of the following prowords:

a. CLOSING DOWN, which means ‘May I close down (until….) due to …..’; and

b. CLOSE DOWN, which means, ‘Close down (until…)…’

3.95 In the following examples, 0C1 requests permission from NCS to close down to change a battery

a. 0A1 – THIS IS – 0C1 – CLOSING DOWN – battery change – OVER; and

b. (0D1) – (THIS IS) – 0A1 – CLOSE DOWN – OUT.

CHAPTER 4 – Air Training Corps Procedures

SECTION 1 - Introduction to Radios

Introduction to Radios

4.1 The successful use of radio communications requires standard radio telephone procedure (RATEL), practise and discipline.

4.2 The procedures outlined in this manual are based on the principals of:

a. Security;

b. Accuracy; and

c. Discipline.

4.3 These principals are easily remembered by the mnemonic SAD.

SECURITY

Communication Security Procedures

4.4 Whenever a radio is used for communication it must be assumed that the enemy can intercept it and any information gained could be used against you. It is also very important that there is no unnecessary chatter over the radio net. Therefore users need to observe the following:

a. Think before speaking. Is your transmission essential? Ensure it is short and precise. Check for information that must be concealed, for example:

(1) Never refer to units, positions, appointments or equipment in plain language.

(2) Location of troops must be guarded; names and ranks must not be used.

(3) Never link nicknames for topographical features with grid references.

b. Use correct procedure (as set out in this manual).

Security Rules

4.5 Following are some basic rules that are essential to transmission security and are to be strictly enforced:

a. Only authorised transmissions are to be made;

b. The following practises are specifically forbidden:

(1) Unofficial communication between operators.

(2) Transmitting operators personal sign or name.

(3) Use of plain language in place of suitable prowords.

(4) Obscene language.

c. The following practises are to be avoided:

(1) Use of excessive transmitting power.

(2) Excessive time spent in changing frequency or adjusting equipment.

(3) Transmitting at speed beyond the capability of the receiving operators.

Jargon

4.6 Jargon is not permitted. Jargon includes unofficial and clumsy reference to:

a. People;

b. Equipment;

c. Appointment for an individual; or

d. Organisation.

Code-words

4.7 A code-word is a single word used to safeguard information. Allocation of code-words and their meanings are registered. Use of unauthorised code-words is prohibited.

ACCURACY

4.8 It is important that letters and figures are accurate and legible to ensure messages are transmitted correctly. Accuracy via voice is covered under RSVP.

4.9 To avoid confusion between similar letters and figures, there are some basic rules to follow:

a. The figure one (1) is printed with a line under it to differentiate it from the letter I, e.g. 1;

b. The letter Z is printed with a short horizontal line through it to differentiate from the figures two (2) and seven (7), e.g. Ƶ;

c. The letter U has square corners to differentiate it from the letter V;

d. The figure five (5) is written carefully to ensure it is different from the letter S;

e. The letter E is printed with one stroke so it looks like a backwards 3 e.g. ε;

f. The figure zero (0) has a slant through it to differentiate it from the letter O e.g. ∅

DISCIPLINE

4.10 Discipline is important to ensure efficient working over the radio net. Radio discipline includes:

a. Correct use of RATEL procedures;

b. Using correct frequencies; and

c. Constant watch by all stations.

4.11 Only one station can transmit at a time. To prevent confusion the following rules must be applied:

a. Ensure no one else is transmitting before starting a transmission;

b. Leave a short pause at the end of a conversation;

c. Answer all calls immediately and in the correct order; and

d. Ensure you return radio to RECEIVE mode after each transmission.

RSVP

4.12 To avoid wasting time with repetitions and incorrect messages there are some easy steps to take to ensure transmissions are heard clearly. Operators must remember and use the following:

a. Hold the microphone close to the mouth when transmitting;

b. Use the correct manner of rhythm, speed, volume and pitch as follows:

(1) **Rhythm.** Keep the rhythm natural. Break the call into logical sequences of no more than 30 seconds.

(2) **Speed.** Speak slightly slower than normal conversational speed.

(3) **Volume.** Keep voice to normal conversational volume, yelling into the radio will only distort the transmission and make it hard for the recipient to understand.

(4) **Pitch.** The voice needs to be pitched slightly higher than normal conversation but still comfortable for both the transmitter and receiver.

SECTION 2 - Letters and Figures

Phonetic Alphabet

4.13 When it is necessary to identify a letter of the alphabet the authorised Phonetic Alphabet is to be used as outlined below. The syllables shown in bold type carry the emphasis. Difficult words or phrases to spell are preceded with the prowords I SPELL. If the transmitter can pronounce the word they will do so before and after to identify the word, for example: 'Papadopoulos – I SPELL Papa Alpha Papa Alpha Delta Oscar Papa Oscar Uniform Lima Oscar Sierra – Papadopoulos'.

Letter	Phonetic	Spoken As
A	Alpha	**Al**-fah
B	Bravo	**Brah**-voh
C	Charlie	**Char**-lee
D	Delta	**Dell**-tah
E	Echo	**Eck**-oh
F	Foxtrot	**Foks**-trot
G	Golf	Golf
H	Hotel	Hoh-**tell**
I	India	In-**dee**-**ah**
J	Juliet	**Jew**-lee-**ett**
K	Kilo	**Key**-loh
L	Lima	**Lee**-mah
M	Mike	Mike
N	November	No-**vem**-ber
O	Oscar	**Oss**-car
P	Papa	Pah-**Pah**
Q	Quebec	Keh-**beck**
R	Romeo	**Ro**-me-o
S	Sierra	See-**air**-rah
T	Tango	**Tang**-go
U	Uniform	**You**-nee-form
V	Victor	**Vik**-tah
W	Whiskey	**Wiss**-key
X	X-Ray	**Ecks**-ray
Y	Yankee	**Yang**-key
Z	Zulu	**Zoo**-loo

Figures

4.14 To distinguish figures from similar words being used in the transmission they are preceded with the Proword FIGURES. See the table below for the correct pronunciation for each figure:

Number	Spoken As
1	Wu**n** (with emphasis on N)
2	**T**oo (With sharp T and long O as in Moo)
3	Thuh-**ree** (with short U, slight rolling of R and E)
4	**Fo**-wer (with long O as in FOE)
5	**Fi**-yiv (emphasising the consonants, with a long I for the first syllable [as in PIE] and a short one for the second [as in GIVE')
6	Si**x** (with emphasis on X)
7	**Se**ven
8	**A**te (with long A as in MATE)
9	**Nin**er (with lone I [as in PIE] and emphasising each N)
0	**Z**ero

4.15 Numbers are transmitted digit by digit, however in good condition hundreds and thousands maybe spoken as such. Figures in a text – except for Grid References and target indicators – may be spoken as in normal speech. Under poor conditions figures are spoken individually and preceded by Proword FIGURES as below.

Number	Good Conditions	Bad Conditions
44	Forty-four	FIGURES Four Four
57	Fifty-seven	FIGURES Five Seven
90	Ninety	FIGURES Nine Zero
136	One hundred and thirty six	FIGURES One Three Six
500	Five hundred	FIGURES Five Zero Zero
1478	Fourteen Seventy Eight	FIGURES One Four Seven Eight
2008	Two tousand and eight	FIGURES Two Zero Zero Eight
2359 hours	Twenty-three fifty-nine hours	FIGURES Two Three Five Nine Hours
2700	Two seven hundred	FIGURES Two Seven Zero Zero
16000	Sixteen tousand	FIGURES One Six Zero Zero Zero
812681	Eight one two six eight one	FIGURES Eight One Two Six Eight One

4.16 The Proword FIGURES is not used with call-sign, address groups, Grid References, time checks, date time group (DTGs) or time group.

4.17 Thousand is pronounced Tousand, i.e. 1000 is spoken as wun tousand.

4.18 The decimal point is written as POINT but is to be spoken as DECIMAL (pronounced DAY-SEE-MAL). For example, 123.4 should be written as such, however, is spoken as One Two Three DECIMAL Four.

4.19 Dates are spoken date by date and the month in full in good or bad conditions, e.g. 25 Aug is spoken as Two Five August.

4.20 Roman Numerals are transmitted in Arabic form but with the Proword ROMAN e.g. VII is spoken as 'ROMAN Seven'.

SECTION 3 - Radio Telephone Procedures

Radio Appointment Titles

4.21 Radio Appointment titles are used to refer to specific appointments. They are not classified and only conceal the level of the headquarters (i.e. the person in command of a Section and the person in command of a Company would have the same Radio Appointment title). The title designates the senior representative or the appointment holder in that unit. The title is not to be qualified in anyway except:

a. To indicate appointments next in seniority, in which case MINOR may be added, for example STARLIGHT MINOR is the next most senior Medic; and

b. When it is necessary to distinguish between similar appointments holders in each unit MY, OUR, YOUR, HIS or THEIR may be used before the title, e.g. MY STARLIGHT, YOUR STARLIGHT or OUR NOMAD.

4.22 Following are some of the common Radio Appointment Titles:

Appointment	Title
Adjutant	SEAGULL
Air Reconnaissance	SPYGLASS
Aviation	HAWKEYE
Chaplain	SKYPILOT
Deputy Commander, Second in Command	SUNRAY MINOR
Executive Officer	MOONBEAM
Ground Transport	PLAYTIME
Armour	IRONSIDE
Infantry	FOXHOUND
Intelligence Staff	ACORN
Medical	STARLIGHT
Military Police	WATCHDOG
Movements	CONTRACTOR
Navigation	NOMAD
Officer in Command, Commander of Section	SUNRAY
Signals	PRONTO
SWO, Sgt Major, Ships Coxswain	PACESTICK

Call-Signs

4.23 A CALL-SIGN is a combination of three letters and figures used on the Net to hide the unit or sections plain language address (unit name), establish order of answering and maintain discipline on the net.

4.24 Figures used in call-signs are spoken digit by digit and individual letters are spoken phonetically.

Nicknames

4.25 Nicknames can be allocated at the beginning of each operation. Nicknames can be used for:

a. Closing down a net, changing frequency;

b. Overcoming unpronounceable names, for example, CAT JEWEL in place of the town PEEDAMULLAGH; and

c. Reference to geographical features such as objectives, bounds, routes and report lines.

4.26 Nicknames are to consist of two distinct un-associated words neither of which is to be a colour.

Note: A call-sign refers to the whole unit not an individual person. A Radio Appointment Title refers to a particular appointment. Names for individual persons are Nick names.

Prowords

4.27 A Proword is a pronounceable phrase or word used to make radio communications more efficient. This assists in keeping Radio Communications short, clear and concise by allowing a word or phrase to be used instead of whole sentences e.g.:

a. ROGER means 'I have received your last transmission satisfactorily'; and

b. OUT means 'I have finished transmitting, no reply required'.

4.28 A list of common prowords follows:

Proword	Meaning
CORRECT	You are correct, or, what you have transmitted is correct.
CORRECTION	g. What has been said is wrong, the correct version follows. h. An error has been made in transmission (or message indicated). The correct version is…. i. That which follows is a correct version in answer to your request for verification.
DISREGARD THIS TRANSMISSION	Used to cancel a message during its transmission.
FETCH	Followed by an appointment/title to indicate to whom the caller wishes to speak.
FIGURES	Used before sending groups of figures digit by digit. Not used for call-signs, grid references, time checks, authentication and DTG.
GRID	Used before giving a grid reference.
I READ BACK	Use by receiving station to satisfy themselves they have received the transmission or part of correctly.
I SAY AGAIN	Used by sender of a message to repeat a section for emphasis or in response to say again.
I SPELL	Used before spelling words phonetically.
I VERIFY	What follows has been verified as per your request. Used only in response to verify.

Proword	Meaning
OUT	This is the end of my transmission, no reply required.
OUT TO YOU	This is the end of my transmission to you, no reply required. Transmission to another station follows.
OVER	This is the end of my transmission, reply required.
RADIO CHECK	Report signal strength and readability.
READ BACK	Repeat the entire transmission back to me entirely as received.
ROGER	I have received your last transmission satisfactorily.
SAY AGAIN	Request repetition of last transmission or part of.
SEND	I am ready to receive your message.
SPEAKING	Used with title/appointment to indicate who is speaking.
THIS IS	Indicates identification of calling station.
VERIFY	Verify portion indicated with originator and send correct version.
WAIT	I must pause for up to five seconds before replying. No one else is transmit in this time.
WAIT OUT	I must pause for more than five seconds and a transmission will follow on the same subject later. Others may transmit as normal.
WILCO	Have received your last transmission and will comply.

Common Mistakes

4.29 Ensure that you don't use more prowords than required. Common errors are:

a. 'OVER and OUT' – this is telling the receiver that 'this is the end of my transmission, reply required, end of transmission, no reply required'. It is either OVER or OUT – it can not be both; and

b. 'ROGER WILCO' – this is saying 'I have received your last transmission, I have received your last transmission and will comply'. WILCO incorporates ROGER so ROGER is not required.

CALLING AND ANSWERING

4.30 Before you start to transmit, ensure there is no other communications transmitting. This is particularly important on the frequencies used for Emergency Messages.

Calling

4.31 A station wishing to transmit on the net is to make an initial transmission which consists of the following:

a. **Initial Call:**

(1) The initial CALL-SIGN which indicates the station being called.

(2) The prowords THIS IS indicating the CALL-SIGN of who is calling is about to follow.

(3) The last CALL-SIGN which indicates the calling station.

b. **Text:** The message is then sent;

c. **Ending of Call:** The transmission is then ended with one of the following prowords:

(1) OVER – signifying that I have completed the transmission, you can speak now.

(2) OUT – end of transmission, no reply required or expected.

Answering

4.32 Should the initial transmission require an immediate answer (having ended with Proword OVER) the station replies in the following format.

a. **Answering Call:** Same as the initial call is in three parts:

(1) CALL-SIGN of the station being called.

(2) The prowords THIS IS indicating called stations CALL-SIGN to follow.

(3) CALL-SIGN of the station calling.

b. **Text:** The reply or message to be transmitted. Include the working frequency you are going to change to.

c. **Ending Call:** In addition to OVER and OUT, you may use any of the following endings:

(1) WAIT OUT – means I must pause for more than five seconds and will start another transmission in reply. Other stations may transmit as normal.

(2) OUT TO YOU – my transmission to you has been completed and no reply is required. A transmission to another station follows immediately.

4.33 When a transmission ends with OUT, OUT TO YOU or WAIT OUT it indicates the end of that series of transmissions and any further transmission will be new. When a transmission ends with the Proword OVER, then the following calls will follow the answering sequence till the final transmission is terminated by OUT, OUT TO YOU or WAIT OUT.

SECTION 4 - Aviation Emergency Signals

4.34 There are two different types of Emergency calls. It is important that you use the correct type of call and procedure for the level of the emergency or situation.

Distress

4.35 A Distress call is used when a ship, aircraft or person is threatened by grave and imminent danger and requires IMMEDIATE assistance.

4.36 An aircraft (otherwise referred to as a station) in Distress can use any means to attract attention to its situation, to let people know it's position and obtain help, including activation of the SSR transponder.

4.37 The radio distress signal is MAYDAY and its use is **absolutely forbidden** except in the case of distress.

4.38 The distress call has absolute priority over all other traffic on the radio.

4.39 The format of a Distress Call:

a. The pro-word MAYDAY repeated three times indicating this is a Distress Call;

b. The name of the station being called;

c. The CALLSIGN of the station in distress; and

d. The message containing particulars of the station in distress:

(1) Nature of the distress condition.

(2) Intention of the pilot-in-command

(3) Present position, heading and height.

(4) Other useful information i.e. number of people on board, weather conditions.

Note: If insufficient time then the present position, heading and height take priority in transmission.

4.40 The station addressed will normally be the station communicating with the aircraft or in whose area the aircraft is operating.

4.41 Upon hearing a Distress message, all other stations must cease traffic unless:

a. The distress traffic has been transferred to other frequencies;

b. The station controlling the communication gives permission; and

c. It can offer assistance.

4.42 Any station which has knowledge of distress traffic, and which isn't able to assist the station in distress, must continue to listen until it is evident that assistance is being provided.

Control of Distress Traffic

4.43 The control of distress traffic is the responsibility of either the Aircraft in distress or the station in the area that the aircraft is operating in.

Calling for Silence

4.44 The aircraft in distress, or the station in control of distress traffic, is permitted to impose silence either on all stations or on any station that interferes with the distress traffic. It must address these instructions to 'all stations' or to the station interfering.

4.45 In either case the station ceasing other traffic must use:

a. MAYDAY; and

b. STOP TRANSMITTING.

Resuming Normal Traffic

4.46 When the distress communications have ceased, the controlling station transmits a message to terminate the Distress call on the frequency or frequencies being used for the distress traffic. The pro-word is DISTRESS TRAFFIC ENDED.

4.47 This message may only be originated by the station controlling communications when it is authorised to do so by the appropriate authority.

Urgency Calls

4.48 Urgency calls are used to indicate that an aircraft has a very urgent message to transmit regarding the safety of an aircraft or other vehicle, or of some person on board or within sight but which does not require immediate assistance.

4.49 The pro-word PAN PAN is given three times. These calls take precedence over all other traffic except distress calls. Upon hearing the PAN PAN call stations must take care not to interfere with the transmission of the message.

4.50 The format for an Urgency call is:

a. The pro-word PAN PAN repeated three times to show an urgency call follows;

b. The name of the station being called;

c. The CALLSIGN of the aircraft in distress; and

d. The message containing particulars of the aircraft in distress:

(1) Nature of the distress condition.

(2) Intention of the pilot-in-command.

(3) Present position, heading and height.

(4) Other useful information i.e. number of people on board, weather conditions.

Note: If insufficient time then the present position, heading and height take priority in transmission.

4.51 The station addressed will normally be the station communicating with the aircraft or in whose area the aircraft is operating.

4.52 Once the station responsible for making the Urgency call is satisfied that the situation has been resolved they transmit another message canceling the original message.

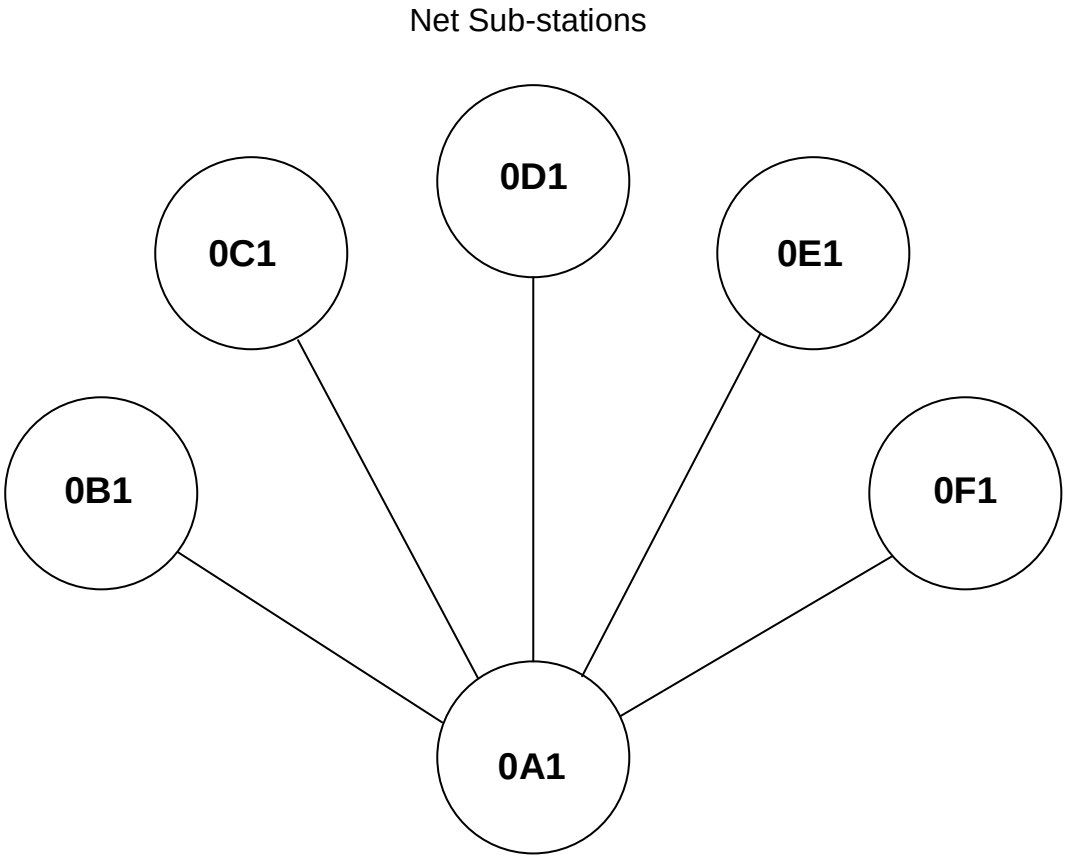
4.53 Below is a table showing examples of all calls:

Type of Call	Calling Stations	Message
Distress Call	Echo Victor Bravo (station in distress)	MAYDAY, MAYDAY, MAYDAY – AUCKLAND TOWER - THIS IS – ECHO VICTOR BRAVO,– engines failing – heading for open paddock approximately one mile ahead – Position fifty nautical miles south of Auckland Airport, passing 1500ft, heading 030 – three people on board.
Control Station calling for Silence	Auckland Tower	MAYDAY – ALL STATIONS – THIS IS - AUCKLAND TOWER – STOP TRANSMITTING – OVER.
Resuming Normal working Conditions	Auckland Tower	MAYDAY – ALL STATIONS – THIS IS – AUCKLAND TOWER – DISTRESS TRAFFIC ENDED – OUT.
Urgency Call	Echo Victor Bravo (Station in distress)	PAN PAN, PAN PAN, PAN PAN – AUCKLAND TOWER – THIS IS ECHO VICTOR BRAVO,– one engine failing – request priority landing on approach – position 1500 feet – Ten nautical miles north of Auckland Airport, heading 030 – three people on board.

SECTION 5 - Radio Nets

Basic Radio Nets

4.54 The following net diagram is used throughout this manual:



Radio Nets

4.55 A radio net is a group of radio stations operating on the same frequency for the purpose of communicating with one another.

4.56 A Net consists of one NCS and two or more subordinate stations (sub-stations).

Net Control Station (NCS)

4.57 The Net Control Station is responsible for the discipline and efficient clearing of traffic over the net. It is normally collocated with the headquarters but the NCS can be based within any station that is capable of carrying out the duties required.

Sub-Stations

4.58 All other stations on the net are subordinate stations, referred to as sub-stations. They must comply with all communications from the NCS.

Net Identification Call-Signs (NIC)

4.59 The Net Identification Call Sign is a tactical call-sign which is allocated to each unit and formation net. As the name implies, the NIC is used to identify the net and also to identify all the stations on the net. It can be used by any of the stations to address all stations on the net. A NIC can be used with the Proword EXEMPT followed by one of the individual call-signs for a station that is excluded from the all stations call.

Establishing A Net

4.60 The establishing of a radio net is conducted in certain procedures to ensure all stations are able to set up communications with one another on the same frequency.

4.61 The procedure outlined is to be followed when setting up a new net or reopening a net. Proper control by the NCS and adherence to the rules by the sub-stations will ensure the net commences operation with minimum delay. The NCS is responsible for maintaining security on the net.

4.62 Establishing a net is conducted in the following sequence:

a. Preliminary instructions;

b. Tuning of the radio (if applicable);

c. Initial calls; and

d. Amplifying reports.

Preliminary Instructions

4.63 It is essential that operators are supplied with all the preliminary instructions regarding the working of the net. The instructions are to contain the following information:

a. The net organisation in the form of a diagram which identifies all stations on the net;

b. The frequency being transmitted on;

c. Any alternate frequencies to be used if required;

d. The call-signs and other net identification information;

e. Code-words and nicknames;

f. The time the net is to open; and

g. The net security measures.

4.64 The operator is to ensure they have enough stationary to establish communications.

Tuning the Radio

4.65 Tuning of radios varies with each type and the instructions with the radio should be followed. However most of the radios will fall into the following categories:

a. **Pre-tuned Radios.** These are automatically tuned to different frequencies or channels by the action of a selector switch;

b. **Manually Tuned Radios.** These incorporate their own crystal calibrators, which enable accurate tuning to any frequency within the range of the radio; and

c. **Automatically Tuned Radios.** As the name suggests, these radios are tuned automatically by the radio.