



AAC CADET INSTRUCTOR'S HANDBOOK

RADIOTELEPHONE PROCEDURE (RATEL)

2006

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AMENDMENT CERTIFICATE

1. Proposals for amendments or additions to the text of this pamphlet should be made through the normal channels to the sponsor. To facilitate this, there are amendment proposal forms at the back of this publication.

2. It is certified that the amendments promulgated in the undermentioned amendment lists have been made in this pamphlet.

<i>Amendment List</i>		<i>Amended By (Printed Name and Initials)</i>	<i>Date of Amending</i>
<i>Number</i>	<i>Date</i>		
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PREFACE

Aim

1. The aim of this pamphlet is to standardise the radiotelephone (ratel) procedures for operators and users throughout the Australian Army including the Australian Army Cadets (AAC).

Scope

2. The pamphlet is designed to ensure maximum compatibility with joint and combined procedures without impairing the speed and efficiency of the land force nets.

3. This pamphlet has been extracted from LWP-G 6-1-4 Radio Communications Procedures (All Corps), 1999 for use by the AAC with sections not applicable left out. The chapter and paragraph numbering have been left the same for ease of referencing. It has been produced by the Training Cell, HQ NT AAC BN.

Gender

4. Words importing gender refer to both male and female, unless specifically stated otherwise.

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GLOSSARY

The terms listed below are used in this pamphlet. Definitions which appear in *Australian Defence Force Publication 101 – Glossary* or other joint force and allied communications publications are shown verbatim in normal type. The definitions or portions of definitions shown below in italics have not been accepted for joint Services use.

Action Addressee. *The activity or individual to whom a message is directed by the originator for action.*

Address Group. A group of four letters assigned to represent command(s), authority(ies), activity(ies), unit(s), or geographic location(s) used primarily for the addressing of communications.

Address Indicator Group. An address group which represents a specific set of action and/or information addressees. The identity of the originator may also be included.

Addressee. *The activity or individual to whom a message is directed by the originator. Addressees are indicated as either 'action' or 'information'.*

Alternate Frequency. *The spare frequency which is used when the primary frequency becomes unusable for any reason.*

Antenna. *Any structure or device used to collect or radiate electromagnetic waves.*

Beadwindow Procedure. *Beadwindow procedure is used by operators to police the security of insecure voice radio nets.*

Call. A transmission made for the purpose of identifying the transmitting station and the station for which the transmission is intended.

Call-sign. Any combination of characters or pronounceable words which identify a communication facility, a command, an authority, an activity, or a unit; used primarily for establishing and maintaining communications.

Called Station. *The station to which a transmission is directed.*

Calling Station. *The station initiating a transmission.*

Challenge. Any process carried out by one unit or person with the objective of ascertaining the friendly or hostile character or identity of another. *The answer to a challenge is a reply.*

Cipher. Any cryptographic system in which arbitrary symbols or groups of symbols represent units of plain text of regular length. The cryptographic system usually comprises single letters or units of plain text which are rearranged, or indeed, both used in accordance with certain predetermined rules.

Circuit Discipline. *The component of transmission security which includes the proper use of communications equipment, the adherence to the prescribed frequencies and operation procedure, remedial action, net control, monitoring and training.*

Clear Text. *Text or language which conveys an intelligible meaning in the language in which it is written with no hidden meaning: clear text is the intelligible text underlying encrypted text.*

Code-word. A word which has been assigned a classification and a classified meaning to safeguard intentions and information regarding a classified plan or operation. A cryptonym is used to identify sensitive intelligence data.

Codress Message. *A type of message in which the entire address is contained only within the encrypted text.*

Communications Security. The protection resulting from the application of cryptographic security, transmission security and emission security measures to telecommunications and from the application of physical security measures to communications security (comsec) information. These measures are taken to deny information of value to unauthorised persons which might be derived from the possession and study of such telecommunications, or to ensure the authenticity of such telecommunications.

Cryptographic Security. That component of communications security which results from the provision of technically sound cryptosystems and their proper use.

Cryptogram. *An encrypted communication in visible writing.*

Deception. *In electronic warfare, the deliberate radiation, reradiation, alteration, or reflection of electromagnetic energy in a manner intended to mislead an enemy in the interpretation or use of information received by electronic systems.*

Decode. *To convert encoded text into its equivalent plain text by means of a code. (This does not include solution by cryptanalysis.)*

Decrypt. To convert a cryptogram into plain text by a reversal of the encryption process.

Directed Net. *In a directed net, stations obtain permission from the net control station prior to communicating with other stations in the net.*

Drill. *Drill messages are those intended for training communications personnel. Drill messages are identified by the inclusion of the word 'DRILL' at the beginning and end of the text.*

Dummy Load. *A dissipative impedance-matched network used at the end of a transmission line to absorb all incident power, usually converted to heat.*

Electronic Attack. *That division of electronic warfare involving actions taken to prevent or reduce any enemy's effective use of the electromagnetic spectrum. Electronic attack includes jamming and deception, and is the offensive component of electronic warfare.*

Electronic Jamming. The deliberate radiation, reradiation or reflection of electromagnetic energy with the object of impairing the use of electronic devices, equipment or systems being used by an enemy.

Electronic Protective Measures. *That division of electronic warfare involving actions taken to ensure friendly, effective use of the electromagnetic spectrum despite the enemy's use of electronic warfare.*

Electronic Silence. A period during which all or certain equipment which is capable of electromagnetic radiation are kept inoperative. The following equipment may be affected:

- a. communication equipment,
- b. radars and surveillance devices,
- c. infra-red and electronic countermeasure equipment, and
- d. beacons.

Electronic Warfare. *Any military action involving the use of electromagnetic and directed energy, to control the electromagnetic spectrum or to attack the enemy.*

Electronic Support. *That division of electronic warfare involving actions taken to search for, intercept, locate, record and analyse radiated electromagnetic energy for the purpose of exploiting such radiations in support of military operations.*

Emergency Silence. *A measure imposed to enforce transmission security.*

Encode. *To convert a plain text message into its coded form. That section of the code book in which the plain text equivalents of the code groups are in alphabetical, numerical or systematic order.*

Encrypt. *To convert a plain text message into disguised form by means of a cryptosystem.*

NOTE: The term 'encrypt' covers the meanings of 'encipher' and 'encode'.

Exercise. *Messages sent during and relating to training exercises are exercise messages and are prepared and handled in the same manner as normal traffic except that the exercise identification, preceded by the word 'EXERCISE', is to be inserted by the originator as the first word of the message.*

Formal Message. *A registered message written on a message form.*

Formatted Message Text. *A message text composed of several sets ordered in a specified sequence, each set characterised by an identifier and containing information of a specified type, coded and arranged in an ordered sequence of character fields in accordance with the Australian Defence Formatted Message System formatting rules. It is designed to permit both manual and automated handling and processing.*

Free Net. *The net control station authorises sub-stations to transmit traffic to other stations in the net without obtaining prior permission.*

Frequency Designator. *A frequency designator is a random group comprising a combination of three characters which changes daily.*

Informal Message. *A short, unregistered message, either verbal or consisting only of written text, of which no file copy is kept.*

Listening Watch. *A continuous receiver watch established for the reception of traffic addressed to, or of interest to, own unit, with complete log optional.*

Low-grade Cryptographic System. *A system designed to provide temporary security.*

Meaconing. *A system of receiving radio beacon signals and rebroadcasting them on the same frequency to confuse navigation. The meaconing stations cause inaccurate bearings to be obtained by aircraft or ground stations.*

Message. *Any thought or idea expressed briefly in a plain, coded or secret language, prepared in a form suitable for transmission by any means of communication.*

Message Text. *That part of a message which contains the thoughts or ideas which the originator intends to convey to the addressee. It may also contain instructions for the receiving agency to ensure special handling or disposal of the message.*

Net Call-sign. *A call-sign which represents all stations within a net.*

Net (Communications). *An organisation of stations capable of direct communications on a common channel or frequency.*

Net Control Station. *A station designated to control traffic and enforce circuit discipline within a given communications net.*

Nickname. *Words assigned formally or informally by any appropriate authority to an event, project, manoeuvre, exercise, test or other activity for purposes other than to provide security.*

NODUF. *The term used during exercises and training to denote a real incident rather than exercise play.*

Operator's Log. (See Radio Log.)

Originator. *The command by whose authority a message is sent. The originator is also responsible for the functions of the drafter and releasing officer.*

Precedence. *A designation assigned to a message by the originator to indicate to communications personnel the relative order of handling and to the addressee the order in which the message is to be noted.*

Primary Frequency. *A frequency assigned for normal use on a particular net on which the net control station is operating and on which the net would operate if retransmission were not in use.*

Procedure Word (Proword). *A word or phrase limited to radiotelephone procedure and used in lieu of a prosign (used in ratg).*

Radio Direction Finding. The procedure by which only the direction of a station is determined by means of its emissions.

Radio Log. *A chronological record of events relating to the operation of a particular circuit.*

Radio Silence. A condition in which all or certain radio equipment capable of radiation is kept inoperative.

Radio Telegraphy. The transmission of telegraphic codes by means of radio.

Radio Telephony. The transmission of speech by means of modulated radio waves.

Retransmission. Signals received at a station are retransmitted simultaneously, on a different frequency, in a retransmission system. The connection between the receiver and the transmitter, at the retransmission location, is by line and may be automatically or manually controlled.

Security Classification. A category or grade assigned to Defence information or materiel to indicate the degree of danger to NATO/national security that would result from its unauthorised disclosure and the standard of protection required to guard against unauthorised disclosure.

Signal Operating Instructions. Signal operating instructions contain frequently changing information of interest to operators and users of communication systems. Signal operating instructions include current call-signs, frequency assignments (including frequency designators), address groups and voice codes.

Simplex Operation. This involves communication between two points in both directions on the same frequency, but not simultaneously.

Standard Interference and Jamming Warning Report. *A report to higher headquarters of an incident of interference in the reception of radio signals.*

Standard Signal Instructions. *A series of instructions explaining the use of items included in the signal operating instructions. This also includes the technical instructions required to coordinate and control the operation of signal communication equipment, agencies and means of command. Standard signal instruction information is generally of a permanent nature.*

Station Authentication. *A security measure designed to establish the authenticity of a transmitting or receiving station, either by challenge and reply or transmission authentication method.*

Subordinate Station (sub-station). *This term refers to any station on a link which is controlled by a control station.*

Telegraphy. *A system of telecommunication for the transmission of information by the use of a signal code.*

Transmission Authentication. *A collective term which includes self authentication, station authentication, and message authentication. Under this procedure a station may establish the authenticity of its own transmission.*

Transmission Security. *This refers to that component of communications security which results from all measures designed to protect transmissions from unauthorised interception, traffic analysis and imitative deception.*

User. *A person, organisation or other entity, who/that employs the services provided by a telecommunication system for transfer of information to others.*

ABBREVIATIONS

The following abbreviations are used in this publication. Their sources are as indicated:

ADFP 301

ACP	Allied Communications Publication
AD	Air Defence
ADF	Australian Defence Force
ADFP	Australian Defence Force Publication
AIG	address indicator group
AM	amplitude modulated
Arty	Artillery
BDE	Brigade
BN	Battalion
bomrep	bombing report
CAIRS	close air support
CO	Commanding Officer
COMD	Commander
comsec	communications security
CPL	corporal
C/S	call-sign
CW	continuous wave
DF	direction finding
DIV	Division
DTG	date time group
ECM	electronic countermeasures
emcon	emission control
EPM	electronic protection measures
EW	electronic warfare
FH	frequency hopping
FM	frequency modulated
FO	forward observer
freq	frequency
hr	hour(s)
helo	helicopter
HF	high frequency
HQ	headquarters
ICD	imitative communications deception
Inf	Infantry
JSP	Joint Service Publication
LO	liaison officer
Loc	location
NATO	North Atlantic Treaty Organisation
OC	Officer Commanding
opord	operation order
RAAF	Royal Australian Air Force
RAN	Royal Australian Navy
ratel	radio telephone
ratg	radio telegraphy
regt	regiment
RF	radio frequency
RSI	radiation status indicator
SDS	signals dispatch service
SIC	subject indicator code
SIJWR	standard interference jamming warning report
sitrep	situation report
SOI	signal operating instructions
SOP	standing operating procedures
SSI	standing signal instructions
unclas	unclassified
VHF	very high frequency

Common Military Usage

bt	battery
CC	collective call-sign
DR	dispatch rider
EA	electronic attack
EEFI	essential element of friendly information
EMS	electromagnetic spectrum
EP	electronic protection
ES	electronic support
ESM	electronic support measures
FCS	frequency calling schedule
INFO	information
LCD	liquid crystal display
MLW	Manual of Land Warfare
msg	message
NCS	net control station
NIC	net identification call-sign
1 RAR	1st Battalion, Royal Australian Regiment
prosigns	procedure signs
prowords	procedure words
retrans	retransmission
RSVP	rhythm, speed, volume and pitch
SIG REGT	Signal Regiment
TI	transmission identification
VOGAD	voice-operated gain adjustment device

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PART ONE. BASIC PROCEDURES

CHAPTER 1

Security and Discipline

Section 1-1. Introduction

1.1 The successful use of radio communications requires standard radio telephone (ratel) and radiotelegraph (ratg) procedures, constant practice and good radio discipline.

1.2 This pamphlet has been designed to standardise the ratel and ratg procedures for operators and users throughout the Australian Army, in a form which provides maximum compatibility with procedures used for joint and combined working, without seriously impairing the speed and efficiency of operation of Land Forces nets.

1.3 The procedures outlined in this manual are based on the principles of:

- a. security,
- b. accuracy, and
- c. discipline.

1.4 These principles can be remembered by the mnemonic SAD. This chapter will cover the basic rules for security and radio discipline. Further details for ratel are described in parts 2.

Section 1-2. Security

1.5 Radio transmissions are valuable sources of intelligence for the enemy. Information intercepted from radio nets could help opposing forces to discover friendly disposition and deduce plans for battle.

1.6 Despite the comparatively short range of radio sets used by units in forward areas, their transmissions are liable to interception.

1.7 In addition, the enemy uses direction finding (DF) devices to locate friendly headquarters and units, and long transmissions make this task simpler. Telephone calls connected over radio relay links are subject to the same security implications as normal radio transmissions.

Communications Security Procedures

1.8 If a user is uncertain whether the contents of a message will be of use to the enemy, the message must be encoded prior to transmission. The user should check with the originator of the message and confirm the security classification. The only exception occurs when the need for speed outweighs the need for security. In such circumstances, approval is required from the formation headquarters if the message is going to be sent in clear text.

1.9 It must be assumed that any indiscretion or slip will reach the enemy instantaneously, and counteraction may be almost immediate. Users must observe the following rules in the interests of security:

- a. Think before speaking. Is the transmission really necessary? Having produced the shortest possible message, think again about the details in the message which must be concealed from the enemy, for example:
 - (1) Levels or types of formations and units must never be referred to in clear language, as frequently occurs through reference to sub-units, ranks and appointments, or equipment peculiar to certain arms such as mortars or bridging.

- (2) Locations of troops must be guarded; names of officers or other ranks must never be given in clear language, as this would provide one of the best ways of following the movements of units and formations.
- (3) Never link nicknames for topographical features with encoded grid references.
- b. Use correct procedure.
- c. If the action involved in the message is immediate and there is no time to encode it, transmit in clear language.
- d. Use authorised low-grade tactical codes.
- e. Use formal messages when time and circumstances permit. This affords greater security protection than unregistered messages.

Security Rules

1.10 The following basic rules, essential to transmission security, are to be strictly enforced on land force circuits or nets:

- a. Only authorised transmissions are to be made.
- b. The following practices are specifically forbidden:
 - (1) violations of communications silence (radio, electronic and emergency);
 - (2) unofficial conversation between operators;
 - (3) transmitting on a directed net without permission;
 - (4) excessive testing and tuning;
 - (5) transmitting the operator's personal sign or name;
 - (6) unauthorised use of plain language;
 - (7) use of unauthorised prowords;
 - (8) use of plain language in place of suitable prowords;
 - (9) use of jargon;
 - (10) compromising classified call-signs and address groups by association with plain language equivalents or unclassified (unclas) call-signs; and
 - (11) obscene language.
- c. The following practices are to be avoided:
 - (1) use of excessive transmitting power;
 - (2) excessive time spent in changing frequency or adjusting equipment; and
 - (3) transmitting at speeds beyond the capability of the receiving operator(s).

1.11 Jargon. The use of jargon is not permitted. Jargon includes unofficial and clumsy references to :

- a. people by personal nicknames,
- b. equipment,
- c. an appointment to designate an individual, and
- d. organisations.

1.12 There is no security value in the use of colloquial expressions to describe other corps.

1.13 Any station noticing a violation of transmission security on the net is to notify the net control station (NCS) or the station concerned by other means or by encrypted message. Beadwindow procedure is only to be used during training and where approved on exercises.

Radio Interception

1.14 Radio interception is constant, in both peace and in war. Although in war the results may be more dramatic, interception of transmissions in peacetime can give away details of tactical doctrine, friendly forces' weapons and their wartime employment, and idiosyncrasies of operators and users.

1.15 The types of information that may be obtained by enemy interception are classified as:

- a. long-term, and
- b. short-term.

Long-term Information

1.16 Long-term information is information gained from:

- a. direct breaches, and
- b. indirect breaches.

1.17 Direct Breaches. Direct breaches of security are related to the order of battle, movement of formations, and future intentions. The transmission of names of units or formations in plain language or any transmission made as to their nature, composition, employment or deployment constitutes a direct security breach. This pamphlet discusses a number of measures to keep that information from the enemy. These measures prevent identification of a particular unit or formation by not allowing it to be associated with any unique feature, personality, or specialised function of the unit.

1.18 Indirect Breaches. The central feature of any intercept organisation is a comprehensive filing system, containing information about operators' and users' peculiarities and special operating techniques. For example, the operator or user who commences every transmission with 'HURRUP', or pronounces THREE as 'FREE', SIX as 'SEX', or who begins each sentence with 'AH', is easily identified. Idiosyncrasies can help to identify an operator and also a unit, much the same as fingerprints can identify individuals. Transmissions, each of which on their own appear harmless, may form a clear picture when put together by an intelligence agency.

1.19 Every possible measure must be taken to ensure that long-term intelligence is denied to the enemy. There must be no compromise of long-term security under any circumstances. Long-term information is **not** to be encoded in low-grade tactical code except under emergency circumstances and only after every other secure means of transmission, including those non-electronic such as dispatch rider (DR) or runner, have been considered. Given time, any low-grade tactical code can be broken.

Short-term Information

1.20 Short-term information is defined as that information sent during the actual battle, the possession of which would give the enemy an advantage.

1.21 Short-term security is concerned with matters relating to tactical operations already under way. The commander must weigh the need for speed against security. To strike the right balance between the need for security and speed is a tactical commander's responsibility. It must be assumed that anything transmitted in clear will immediately become known to the enemy. Anyone deciding to transmit in clear must accept this risk. Only the tactical commander can decide what the enemy reaction time will be in any given set of circumstances. If there is any doubt about the enemy's reaction time, current tactical codes must be used to deny the enemy tactical information.

1.22 Defences against interception are detailed in chapter 2, section 2-5.

Aids to Security

1.23 The proper use of the following measures will aid security in radio communications:

- a. code-words,
- b. nicknames,
- c. low-grade tactical codes,
- d. radio appointments titles,
- e. address groups and call-signs, and
- f. veiled speech.

1.24 Code-words. A code-word is a single word which has been assigned a classification and a classified meaning. It is used to safeguard intentions and information regarding the establishment of a condition, an alert or the implementation of a plan or operation. The allocation of code-words and their meanings is registered and safeguarded. The use of unauthorised code-words is prohibited.

1.25 The procedure for requesting and controlling code-words is detailed in *SECMAN 4*, Chapter 9.

1.26 Nicknames. Nickname allocations may be issued by formation or units as appropriate. Signal operating instructions (SOI) are to include a number of nicknames for each purpose. Nicknames may be used for:

- a. communication drill for closing down, imposing/lifting or breaking radio silence, and for changing frequency;
- b. overcoming unpronounceable names, for example, CAT JEWEL in place of the town PEEDAMULLAGH; or
- c. provision of low-grade security cover for reference to geographical features such as objectives, bounds, routes and report lines.

1.27 Nicknames are to consist of two distinct unassociated words neither of which is to be a colour or a word used in Australian Aboriginal dialects. Once a nickname is used in conjunction with a procedure, it is **not** to be used again as it only provides limited short-term security and is easily compromised if used frequently.

1.28 Low-grade Tactical Codes. Only those tactical codes which are officially authorised are to be used. Current authorised codes are as follows:

- a. *Operations Code.* The operations code is used for encoding complete texts (qualitative information - what, who, why and how) of informal and formal messages containing classified short-term information.

- b. *Numeral Code.* The numeral code is used for encoding numeral portions (quantitative information – when, where and how many) of informal and formal messages. The numeral code is also used for challenge and reply authentication.
- c. *Authentication Table.* The authentication table is a system designed to establish the authenticity of a transmission or message (refer to part 2, chapter 6, section 3).

1.29 Radio Appointment titles. To avoid disclosing the level of a headquarters by referring to specific appointments, standard radio appointment titles are used throughout the Australian Defence Force (ADF). These titles are not classified and only conceal the level of the headquarters. The titles used and their equivalent appointments are given in annex A. The title designates the senior representative or appointment holder of the branch of the headquarters or unit concerned. The title is not to be qualified in any way except:

- a. to indicate appointments next in seniority, in which case MINOR may be added, for example PRONTO MINOR is the next most senior Signals Corps representative;
- b. when it is necessary to distinguish between similar appointment holders of different formations, MY, YOUR, HIS, OUR or THEIR, may be used before the title, for example, MY PRONTO, YOUR PRONTO or OUR WATCHDOG may be used before the title;
- c. when the address group of a call-sign may follow the title, for example, 'STARLIGHT call-sign Zulu Three Four' or 'SUNRAY ADDRESS GROUP Alfa Delta November Mike'; and
- d. when confusion is likely between similar appointment holders of different services, one of the following may be used before the title:
 - (1) SEA is used to designate the Royal Australian Navy.
 - (2) LAND is used to designate the Army.
 - (3) AIR is used to designate the Royal Australian Air Force.

1.30 Address Groups and Call-signs. When referring to a unit or formation, the address group must be used. If the unit or formation is on the same net, its call-sign may be used. Further information on address groups and call-signs is in chapter 3.

1.31 Veiled Speech. Veiled speech is the art of referring to a future event by reference to the past and consists of reference to events of which the enemy has no knowledge. It is a **poor aid** to security and should be used sparingly. Operators and users can never be sure that an enemy has no knowledge of past events referred to in their transmission.

Net Security Measures

1.32 Net security measures are those actions taken to prevent the enemy electronic warfare (EW) organisation mounting both passive and active electronic support (ES) against friendly radio communications.

1.33 Net security measures are detailed in formation standing signal instructions (SSI), SOI and repeated as necessary in unit standing operating procedures (SOPs). They include the instructions for:

- a. no contact,
- b. opening and closing communications,
- c. authentication,
- d. radio and electronic silence,

- e. action in cases of jamming and other forms of interference,
- f. change of frequency, and
- g. action in cases of compromise.

1.34 Information that is subject to periodic change and which is required to implement net security measures, is detailed in SOI and includes:

- a. nicknames,
- b. code-words,
- c. call-signs,
- d. address groups, and
- e. frequencies.

Section 1-3. Accuracy

Legibility of Letters and Figures

1.35 Legibility is important to ensure that messages are transmitted accurately and radio log books are neat, accurate and readable. Military printing of letters and figures is shown in annex B.

Basic Rules

1.36 To avoid confusion of similar letters and figures the following rules are to be adopted:

- a. The figure one (1) has a line under it to differentiate it from the letter I.
- b. The letter Z has a short horizontal line through the middle to differentiate it from the figures two (2) and seven (7).
- c. The letter U has square corners to differentiate it from the letter V.
- d. The figure five (5) is to be printed carefully to avoid confusion with the letter S.
- e. The letter E is printed with one stroke.
- f. The figure zero (0) has a slant through it to differentiate it from the letter O.

Section 1-4. Radio Discipline

1.37 Discipline is essential for the efficient working of radio nets. The NCS operator, irrespective of rank, is in charge of the net and is responsible for radio discipline. Radio discipline includes:

- a. correct use of ratel procedure,
- b. use of the correct frequency, and
- c. constant radio watch by all stations on the net.

1.38 Only one station may transmit at a time. To prevent confusion, the following rules must be obeyed:

- a. Before speaking, listen to ensure that the frequency is clear to avoid cutting in on other transmissions. Allowances must be made for transmissions where only one of the participants in a conversation can be heard.

- b. Leave a short pause at the end of a conversation.
- c. Answer all calls immediately and in the correct order.
- d. Ensure that the radio set returns to RECEIVE MODE after each transmission.

Radio Operator's Log

1.39 Radio operators' logs are to be maintained, when practicable, by operators or users on all radio nets or circuits. Instructions for maintaining a radio operator's log are shown in annex C. Instructions for keeping the log, including logging abbreviations, are provided inside the front cover of the *Radio Operator's Log (OC 114)*.

1.40 The message log book (small) may be used by mobile stations such as infantry sections, as it is more practical for man-pack operations.

1.41 When circumstances are such that it is impractical to maintain radio logs at the operating position, consideration is to be given to monitoring such nets elsewhere.

Log Data

1.42 The log is to include the following data:

- a. the handover of the radio station from one operator or user to another;
- b. the time of opening and closing of the station;
- c. all procedural transmissions;
- d. causes of delays in 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 (the entry is to be underlined);
- g. call-signs of other stations that cause interference (so that unsatisfactory frequency allocation may be corrected, if possible);
- h. unusual occurrences, such as procedural and security violations;
- i. handover/takeover of the radio shift;
- j. generator refuels;
- k. record of formal messages passed over the net (to serve as a message register if there is no communications centre);
- l. record of informal messages and voice conversations sent to other stations on the net (recorded as completely as possible); and
- m. where intrusion, jamming and interference is experienced or suspected, full details to assist in the completion of the Standard Interference Jamming Warning Report (SIJWR).

1.43 Entries of unusual occurrences, security violations and electronic interference should be headed ENTRY and reported to the supervisor immediately they occur. Sample log entries are shown in annex D.

Reference

1.44 The relevant prosigns and operating signals are printed above each section in this pamphlet to avoid the need for constant reference to the annexes.

Annexes:

- A. Radio Appointment Titles
- B. Military Printing of Letters and Figures
- C. Instructions for Maintaining a Radio Operator's Log
- D. Sample Operator's Log Entries

Radio Appointment Titles

1. Table 1-1 contains a list of standard radio appointment titles and their equivalent appointments.

TABLE 1-1. Radio Appointment Titles

<i>Serial (a)</i>	<i>Service (b)</i>	<i>Appointment (c)</i>	<i>Title (d)</i>
1.	Joint	Administrative Staff	MANHOLE
2.	Joint	Air Contact Officer	VESTMENT
3.	Joint	Air Defence Representative	CONROD
4.	Joint	Air Liaison Officer	KINGFISHER
5.	Joint	Air Reconnaissance	SPYGLASS
6.	Joint	Air Traffic Controller/Air Direction Officer	BASEBALL
7.	Joint	Armour	IRONSIDE
8.	Army	Army Air Transport Support Representative	PELICAN
9.	Joint	Army Engineers/RAAF	HOLDFAST
10.	Joint	Artillery Locating Staff (including Army Artillery Intelligence Staff)	CRACKER
11.	Army	Chaplain	SHEPHERD
12.	Joint	Chief of Staff, Chief Staff Officer, Executive Officer	MOONBEAM
13.	Army	Deputy Commander, Second-in-Charge	SUNRAY MINOR
14.	Joint	Electronic Warfare Staff	RAVEN
15.	Joint	Forward Air Controller (Air)	SPINDLE
16.	Joint	Forward Air Controller (Ground)	FORTUNE
17.	RAAF	Ground Defence	FIREGUARD
18.	Joint	Ground Liaison Officer	GLOWORM
19.	Joint	Ground Transport	PLAYTIME
20.	Joint	Gunnery Staff, Artillery	SHELLDRAKE
21.	Joint	Intelligence Staff	ACORN
22.	Joint	Infantry	FOXHOUND
23.	Joint	Logistics Officer/Staff	MOLAR
24.	Joint	Medical	STARLIGHT
25.	Joint	Movements	CONTRACTOR
26.	Joint	Navigation	NOMAD
27.	Joint	Nuclear, Biological and Chemical Staff	BOXWOOD
28.	Joint	Offensive Support Operations Representative	OFFSET

<i>Serial (a)</i>	<i>Service (b)</i>	<i>Appointment (c)</i>	<i>Title (d)</i>
29.	Joint	Officer in Command/ Commander of Formation/Unit/Sub-unit	SUNRAY
30.	Joint	Operations Staff	SEAGULL
31.	Joint	Ordnance/Supply	RICKSHAW
32.	Army	Quartermaster Staff	NUTSHELL
33.	Joint	RAN Aviation Officer, Army Aviation	HAWKEYE
34.	RAN/Army	RAN Marine Engineers/ Army Electrical and Mechanical Engineers	BLUEBELL
35.	Joint	RAN Shore Patrol, RAN Police/Military Police/RAAF Police	WATCHDOG
36.	Joint	Signals	PRONTO
37.	Joint	Transport Support Operations Representative	ATOLL

Military Printing of Letters and Figures

- The standard for printing military letters and figures is shown in the example in figure 1-1.

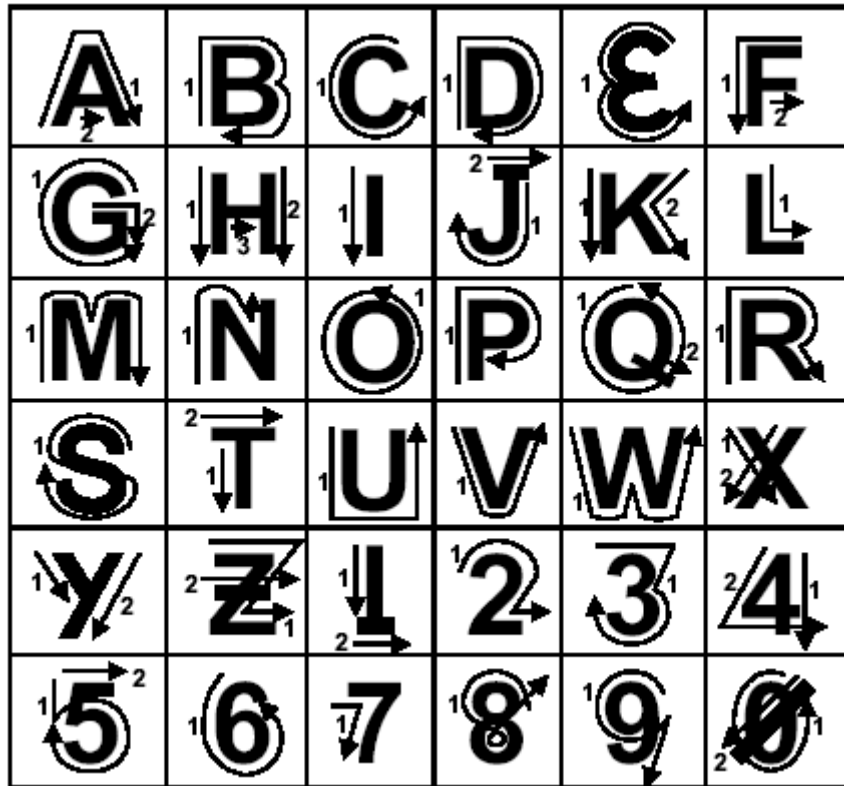


Figure 1-1. An Example of Military Printing of Letters and Figures

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Instructions for Maintaining a Radio Operator's Log

1. All entries are to be made in **pencil**.
2. Log entries **must not** be erased. Any necessary changes are to be made by drawing a single line through the original entry and indicating the changed version adjacent to the lined-out entry. Such changes **must be** initialled by the radio operator.
3. The log is to show a complete and continuous record of transmitted and received traffic and operating conditions which occur during the day.
4. When operating conditions permit, every transmission heard by the radio operator, regardless of source or completeness, is to be recorded, and is termed 'single line logging'.
5. When a message is addressed to, or is to be relayed by, the receiving station, the message is to be written in full on a message form. The log should be brief and concise requiring only sufficient detail to identify the message.
6. During **quiet** periods, entries are to be made in the log at 15 minute intervals to ensure adequate circuit attention.
7. Occurrences other than transmissions that are important to the continuous operation of the radio net and are to be logged under the heading 'ENTRY'. Examples are:
 - a. handover/takeover of shift including codes/SOIs,
 - b. generator change details, and
 - c. changes to antennas.
8. Signal strengths of each station heard are to be logged at the first opportunity after the operator comes on watch. Changes in signal strengths are also to be logged.
9. When opening a new circuit or starting a new day's log, the radio operator is to write his name and rank in full. When relieved or closing the circuit, he is to sign the log. The oncoming radio operator is to write his name and rank in full in the log.
10. The log entries include details as follows in the designated columns:
 - a. CALL FROM - the call-sign of the calling station;
 - b. CALL TO - the call-sign of the called station;
 - c. MESSAGE NUMBER IN - the incoming number from the calling station;
 - d. MESSAGE NUMBER OUT - the outgoing number to the called station, to include the message centre OUT register serial number for outgoing formal messages (if applicable);
 - e. OPERATOR'S NUMBER - to be recorded on all occasions, the operator's number is made up of the first letter of the operator's surname and the last two numbers from the regimental number;
 - f. MESSAGE TEXT/IDENTITY/EVENT - all message details, answers, operating signals, prosigns transmitted or received on the frequency in use;
 - g. TIME - the time of receipt and transmission of all actions taken pertaining to the circuit; all timings are to be in Zulu time; and
 - h. UNREGISTERED - unregistered messages are to be logged in full.

11. The log may be used for the registration of formal messages on a simplex circuit **only**. The operator's IN and OUT check sheet may, therefore, be dispensed with.

12. Where jamming is suspected, full details must be logged. Details should include time, nature of jamming signal, duration, strength, frequency spread and whether the jamming is continuous or intermittent. A competent authority must be notified immediately. Every effort should be made to continue working the frequency until directed otherwise.

13. The duty signals officer or supervisor communications is responsible for ensuring proper maintenance of radio logs.

14. The log must be held in a secure place until destruction is authorised.

15. To assist radio operators in keeping the log, the list of logging abbreviations in table 1-2 may be used.

TABLE 1-2. Logging Abbreviations

<i>Serial (a)</i>	<i>Logging Term (b)</i>	<i>Abbreviation (c)</i>
1.	Acknowledge	ACK
2.	All After	AA
3.	All Before	AB
4.	Answer	ANS
5.	Break	//
6.	Correction	C
7.	Disregard This Transmission	DISC
8.	Distorted	D
9.	Do Not Answer	F
10.	Exempt	XMT
11.	Groups	GR
12.	Information	INFO
13.	Interrogative	INT
14.	Number	NR

<i>Serial (a)</i>	<i>Logging Term (b)</i>	<i>Abbreviation (c)</i>
15.	Out	AR
16.	Over	K
17.	Read Back	G
18.	Roger	R
19.	Say Again	IMI
20.	Service Message	SVC
21.	Speak Slower	SSL
22.	Through Me	THM
23.	That Is Correct	C
24.	Unknown Station	AA (barred)
25.	Verify	J
26.	Wait	AS
27.	Wait Out	AS AR
28.	Word After	WA
29.	Wrong	WG
30.	Word Before	WB

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Sample Operator's Log Entries

1. Table 1-3 provides a sample of log entries made by an operator.

TABLE 1-3. Operator's Log Entries

Date		17 JUN 95		Call-sign	BP7	Place	DERBY	Frequency	46.550
Call		Message Number		Operator's Number	Message Text/Identity/Event			Time (Z)	
From	To	In	Out						
		ENTRY		G48	SIG Gilbert on shift, sighted SOIs and Codes, using RC-292. <i>M Gilbert</i>			1730	
BP7				G48	R/C K (ESTAB NET)			1733	
DE3				G48	R K			1733	
IMM				G48	R K			1734	
T3Q				G48	LOUD WITH DISTORTION K			1734	
Z8N				G48	R K			1734	
BP7				G48	R AR			1735	
		ENTRY		G48	Net Established, Generator Started.			1736	
BP7				G48	Resup of Ammo will arrive at approx 1945 hr K			1741	

NOTE:

1. Z and Q signals may be substituted for plain text where appropriate. Z and Q signals can be found in the back of the radio operator's log book.

Date		17 JUN 95		Call-sign	BP7	Place	DERBY	Frequency	46.550
Call		Message Number		Operator's Number	Message Text/Identity/Event			Time (Z)	
From	To	In	Out						
T3Q	BP7	011/17		G48	OPS 014 DTG 171630Z (P) R AR			1750	
		ENTRY		G48	Received msg 023/17 for transmission			1759	
BP7	IMM			G48	FETCH STARLIGHT K			1805	
IMM	BP7			G48	AS AR			1805	
IMM	BP7			G48	Conversation Sunray - Starlight ref medical resup				
BP7	SM 5		023/17	G48	OPS 009 DTG 171725Z (O) K (10 min delay due to other immediate traffic on net, staff informed).			1834	
DE4	BP7			G48	R AR			1834	
				G48	R AR			1835	
				G48	R AR			1835	
				G48	R AR			1836	

CHAPTER 2

Electronic Warfare

Section 2-1. Introduction

2.1 An enemy in war and a potential adversary in peace will seek to discover everything possible from friendly tactical communication systems by intercept and analysis. In peace, there is time for analysis in great depth, providing the composition of forces, state of training, operational deployments and weapon systems. In war, an enemy will continue these activities and may, in addition, jam or confuse friendly communication systems when it will provide the most benefit.

2.2 The enemy can intercept and locate from well inside their own territory, from aircraft or from ships. Through the use of computers to break codes, the enemy can also intrude into a radio net and issue false orders.

Electronic Warfare Activities

2.3 Peacetime EW operations are designed to target friendly communications during training, which includes everything from detachment to formation exercises. It is vital therefore, that all operators of communications equipment are aware at all times of the EW threat, and take all practicable precautions to deny a potential adversary information which one day may be used against friendly forces.

2.4 EW is defined as: *'Any military action involving the use of electromagnetic and directed energy, to control the electromagnetic spectrum (EMS) or to attack the enemy'* (Australian Defence Force Publication [ADFP]24).

2.5 EW consists of three key components: exploitation, disruption and denial. These three components give rise to the following activities:

- a. ES, formerly electronic support measures (ESM), which involves intercept, DF and analysis;
- b. electronic attack (EA), formerly electronic countermeasures (ECM), which includes jamming and deception; and
- c. electronic protection (EP), formerly electronic protection measures (EPM), which involves the protection of friendly communications from exploitation by a potential adversary's use of ES and EA.

Conduct of Electronic Warfare Activities by the Australian Defence Force

2.6 Within the ADF, ES and EA are carried out by specialist units, while EP is the responsibility of all operators and users of electronic equipment. EP procedures should be included in unit SOPs.

Section 2-2. Electronic Support

2.7 A friendly operator or user will not know when a potential adversary is conducting ES activities. As a consequence, the operator **must** always assume the enemy is conducting the following activities:

- a. *Intercept*. Intercept involves a potential adversary conducting a search of the spectrum to find friendly nets and record transmissions.
- b. *Direction Finding*. The enemy can locate friendly forces by sourcing transmitters using DF equipment.
- c. *Analysis*. Enemy intelligence staff analyse intercepted traffic to establish:
 - (1) locations and deployment patterns;

- (2) intentions;
- (3) important communications;
- (4) frequencies and modes of operation;
- (5) traffic flow patterns; and
- (6) net structures, including the identification of control stations.

2.8 Through ES, a potential adversary can quickly gain intelligence about friendly activities. This information can then be used to target EA activities, in order to cause maximum disruption to communications.

Section 2-3. Electronic Attack

Electronic Disruption to Communications

2.9 Reception of radio signals is often hindered, confused, or prevented by interference from unwanted signals. Such interference may be unintentional or the result of deliberate enemy activity, in which case it would be classified an EA. Radio operators should not assume that disruption to their nets is the result of an enemy's EA, as there are often other more likely sources of electromagnetic interference. Disruption to a net may be caused by:

- a. *Electronic Attack.* EA involves the use of electromagnetic or directed energy to attack personnel, facilities or equipment with the intent of degrading, neutralising or destroying enemy combat capability. EA is the offensive component of EW which includes jamming and deception.
- b. *Interference.* Interference is caused by extraneous power from natural or man-made sources which disrupts the reception of desired signals. Electromagnetic radiation from local equipment such as generators and arc welders or other emitters can cause interference.

2.10 It is often difficult to distinguish between jamming and interference. As a result, it may take specialists to identify a source of interference or EA.

Electronic Attack

2.11 The aim of EA is to prevent or reduce an enemy's effective use of the EMS through the use of electromagnetic energy. Priority of effort is usually given to disrupting command and control, fire control and intelligence communication systems. This can be achieved by:

- a. *Jamming.* Jamming is the deliberate obliteration or disruption of the friendly use of a particular frequency or block of frequencies. Jamming is intended to prevent or limit the use of a friendly communications system or device at a critical time.
- b. *Deception.* Deception includes:
 - (1) *Meaconing.* Meaconing is the transmission of false navigational signals to aircraft, ships and ground stations (for example, Global Positioning Systems) to confuse or hinder navigation.
 - (2) *Intrusion.* Intrusion is the intentional insertion of radio signals into friendly transmissions to confuse or deceive friendly operations (for example, imitative communications deception [ICD]).

Jamming

2.12 Jamming is an effective way to disrupt control of the battle. To jam friendly communications, the enemy transmits a signal on a frequency being used by friendly forces, with sufficient power to block out the friendly signal. While jamming is extremely effective, this action denies the attacker use of the frequencies being jammed. The enemy will often jam secure or data transmissions in order to force the stations to change to clear voice or morse, as it is easier for the enemy to gather intelligence from clear voice or morse traffic than from data or encrypted traffic. Data and teletypewriter communication systems are most susceptible to jamming. Voice is less vulnerable than data systems, and morse code is the least affected.

2.13 The methods of jamming most often encountered are:

- a. *Spot Jamming.* Spot jamming occurs when the enemy jams one channel or frequency at a time, concentrating all of the power from the jammer onto the given frequency.
- b. *Sweep Jamming.* Sweep jamming, like spot jamming, only attacks one frequency at a time; however, the jammer rapidly steps from one frequency to the next within a given band.
- c. *Barrage Jamming.* Barrage jamming is conducted simultaneously over a broad band of frequencies. The distribution of the jammer's power across a number of frequencies may make it easier for friendly operators to work through the jamming signal.

Types of Jamming Signals

2.14 Before defensive measures can be taken, the interfering signal must be recognised as jamming. When reporting jamming, it is important that the type of jamming experienced is described accurately. The more commonly used types of jamming are described below:

- a. *Intentional noise.* This may take one of the following forms:
 - (1) *Spark.* A spark signal of short duration and high intensity is repeatedly transmitted at a rapid rate. The time required for receiver circuitry and the human ear to recover after each spark burst makes this signal effective in disrupting all types of radio communications.
 - (2) *Wobbler.* The wobbler signal is a single frequency, modulated by a low and slowly varying tone. The result is a howling sound which causes a nuisance effect on voice communications.
 - (3) *Preamble Jamming.* The synchronisation tone of speech security equipment is continually broadcast over the operating frequency of secure radio nets locking the set into receive mode. Preamble jamming is especially effective against radio nets using the current series of speech security devices.
- b. *Noise/Static.* Noise/static is synthetic radio noise, random in amplitude and frequency. The noise may sound like a very high frequency (VHF) receiver without squelch control or normal background noise. Operators often mistake it for receiver or atmospheric noise and fail to take counter-EA action.
- c. *Tones.* A tone signal is a single frequency at constant tone. It is used to jam manually keyed continuous wave (CW), voice or radio carrier circuits.
- d. *Bagpipes (Stepped Tones).* Stepped tones are tones transmitted in increasing and decreasing pitch which resemble the sound of bagpipes. 'Bagpipes' are normally used against single-channel amplitude modulated (AM) or frequency modulated (FM) voice circuits.

- e. *Continuous Wave/Random Pulse.* Random pulses of varying amplitude, duration and rate are transmitted to disrupt teletypewriter, radar and all types of data transmission systems.
- f. *Analogue.* Recorded sounds are any audible sounds, of a variable nature, that can be used to distract operators and disrupt communications. Previously recorded traffic, music, propaganda speeches, screams, applause, whistles, machinery noise and laughter are some examples.

Imitative Communications Deception

2.15 In addition to jamming, the enemy may deceive operators and users of communication systems by intruding into their nets and introducing false information. ICD is likely to be most effective during periods of high activity or when communications difficulties are being experienced. ICD can be achieved in the following two ways:

- a. Previously recorded traffic may be transmitted by the enemy on a friendly frequency so that the transmission will appear either as a friendly net on the same frequency, or a friendly station trying to pass traffic.
- b. An enemy operator may pretend to be a friendly station and introduce false and misleading traffic onto the net. This requires linguists with a good knowledge of friendly forces' slang and accents, and they must be highly competent with friendly forces' communications procedures. Because of this, it is essential that authentication procedures are enforced.

Section 2-4. Electronic Protection

2.16 The greatest danger from enemy EW lies in the confusion, dismay and frustration it can induce in inexperienced or inadequately trained units and personnel. Lack of EW training leads to poor emission control (emcon) and excessive use of communications. This increases the risk of the enemy gaining intelligence through ES.

2.17 EP is designed to:

- a. minimise friendly vulnerability to enemy ES operations, therefore reducing the ability to derive intelligence from friendly emissions; and
- b. facilitate the continued effective operation of friendly electromagnetic systems by reducing friendly vulnerability to EA.

Divisions of Electronic Protection

2.18 EP is divided into two areas:

- a. *Active Electronic Protection.* With active EP, detectable measures, such as altering transmitter parameters (for example, War Mode), are employed to ensure friendly effective use of the EMS.
- b. *Passive Electronic Protection.* Passive EP are undetectable measures such as operating procedures and built-in technical features of the equipment (frequency hoppers, variable power settings) which are designed to ensure the friendly use of the EMS.

2.19 The counter-ES and EA procedures detailed in section 2-5 are passive EP techniques.

Section 2-5. Counter-electronic Support

2.20 The following measures are designed to reduce the amount of information an enemy may learn from friendly communications. To reduce the friendly risk from enemy ES, the following procedures should be adopted:

- a. minimise transmissions by:
 - (1) using radio as least-preferred means of communication with signals dispatch service (SDS), line and liaison officer (LO) used where possible, particularly for long orders or instructions;
 - (2) avoiding unnecessary operator chit - chat and unauthorised transmissions;
 - (3) reducing transmission time to a minimum;
 - (4) minimising communications checks and equipment testing; and
 - (5) avoiding transmitting at speeds beyond the capability of the net, thus reducing the need to retransmit traffic.

- b. using approved ratel procedures including the use of:
 - (1) good frequency-changing drills in accordance with SOIs and unit SOPs;
 - (2) codewords and nicknames;
 - (3) tactical codes and cryptographic equipment;
 - (4) radio appointment titles;
 - (5) prowords; and
 - (6) address groups and call-signs.

- c. avoiding operator idiosyncrasies;

- d. ensuring that traffic is not more highly classified than the encryption system is accredited to protect and never using unauthorised (home-made) codes;

- e. maintaining net discipline;

- f. keeping plain language to a minimum to avoid compromising:
 - (1) call-signs, address groups, codewords, prowords, and nicknames by associating them with the plain language equivalents; and
 - (2) the identity of specific personnel by referring to them by name or operator number; and

- g. considering technical factors such as:
 - (1) using the minimum transmission power required to maintain communications with a net, for example, if communications with one or several call-signs on a net cannot be established at the minimum power level, the power level should only be increased when it is necessary to communicate with those particular call-signs;
 - (2) using directional antennas;
 - (3) using terrain features such as hills, vegetation and buildings to screen the transmissions from the enemy; and
 - (4) regularly inspecting lines for signs of tampering.

Section 2-6. Counter-electronic Attack

Identification of Jamming Signals

2.21 Interference can be caused by deliberate enemy EW activity or other forms of natural or 'man-made' electrical interference. Prior to implementing anti-jamming procedures, it must be verified that EA is occurring. This can be confirmed by the following:

- a. *Disconnecting the Antenna.* If the signal continues after disconnecting the antenna, it is most likely that the interference is being caused by the radio itself.
- b. *Varying the Frequency Setting.* If interference is concentrated on the frequency of the net, it may be jamming. If it is more widespread and of the same type, it may still be jamming. The presence of local interference must still be eliminated.
- c. *Eliminating Local Interference.* To eliminate local interference, the operator should move to a new location. If the signal strength varies greatly, the radio may have been too close to power lines, generators or other emitters. If signal strength does not vary, jamming is a probable cause.
- d. *Recognising the Signal as a Jamming Signal.* To recognise the signal as a jamming signal requires a sound knowledge of such signals. Previous enemy use of such signals is a useful indicator.

Counter-jamming Immediate Action Drill

2.22 The enemy can only gauge the effectiveness of his jamming by friendly reaction; therefore, the continuation of communications is essential. This is achieved best by trying to work through the jamming. The following immediate action drill will aid an operator to work through jamming:

- a. Carry on working if possible.
- b. Re-site or alter the antenna. In the case of VHF antennas, temporary relief can sometimes be obtained if the receiving antenna is kept as low as possible, or the antenna polarisation is changed from the vertical to the horizontal.
- c. Reduce operating speed by:
 - (1) using the words twice procedure and making maximum use of the phonetic alphabet (consider implementing ratel discipline as per part 1, chapter 1); and
 - (2) changing to ratg if the facility exists (hand-speed morse can be read through considerable jamming levels).
- d. Increase transmitting power where possible. This may be the only method available for the NCS to inform the net an out-station is being jammed.

Counter-jamming Procedure

2.23 If all attempts to evade or work through jamming fail, using the immediate action drill, the following procedures may be successful:

- a. *Alternative Mode.* Change to a mode that is harder for the enemy to jam (for example, data to voice or voice to morse).
- b. *Alternate Means.* Change type of communications (for example VHF to high frequency (HF), to line or SDS).

- c. *Change Frequency.* Orders to change frequency may be directed in the following ways:
 - (1) over alternative means;
 - (2) by use of a nickname detailed in SOIs (the procedure should be detailed in unit SOPs); or
 - (3) by pre-arranged plan (for example, change to alternative frequency after 20 minutes of jamming).
- d. *Deception of the Enemy.* Deception may be achieved by:
 - (1) *Use of Old Frequency.* Specified stations can remain on the old frequency (using spare equipment, if available) to pass dummy traffic thereby simulating an unaffected net.
 - (2) *Simultaneous Transmissions.* Simultaneous transmissions can be effected by transmitting on the primary means (being jammed) and alternate means at the same time. Consequently, traffic may be passed down the alternate means while giving the enemy the impression that the primary net is unaffected by the jamming. This may cause the enemy to discontinue the jamming. The procedure may be done either by the complete net or by a single station when the jamming is not too severe,
 - (3) *Pre-arranged Plan.* A pre-arranged plan can be activated. When it is impossible to transmit the nickname, cease transmission on the net long enough, approximately 10 minutes, to deceive the enemy into thinking that a frequency change has been made. Attempt to re-establish the net on the original frequency.

Counter-imitative Communications Deception

2.24 In the past, defence against ICD has relied on skilled operators being able to recognise the voices of all the other operators and thus detect intruders into the net. As the ADF is conducting more joint and combined operations, the chances of an operator knowing the voices of all the other operators on a net are diminishing. Consequently, it is vital that counter-ICD plans be prepared before deployment, to ensure effective counter-ICD measures are employed in the event of an attack. Codewords or nicknames should be prepared and these plans should indicate specified ICD states or counter-ICD plans to be initiated. The use of challenge/reply and transmission authentication procedures is an important tool to counter ICD attacks. Equipment constraints will place limitations on the type and complexity of counter-ICD measures which can be employed; however, it is vital that operators practise counter-ICD plans to ensure their effectiveness.

2.25 Even if ICD activity has not been identified, an NCS should activate counter-ICD plans during exercises or operations to increase the chances of identifying enemy ICD activity (that is, if a plan is activated and a call-sign does not re-establish on the new net, the call-sign may have been an undetected intruder).

Counter-imitative Communications Deception Immediate Action Drill

2.26 Strict net discipline is the best way of preventing enemy intrusions onto friendly nets. Operators must be wary of any transmission that appears to be out of the ordinary, either in format or content. If an operator suspects a net is under ICD attack, the operator should conduct the following actions:

- a. authenticate the suspicious call-sign;
- b. ignore the intruding call-sign and warn the rest of the net (via other means if possible); and
- c. carry out ICD plan (if directed by NCS);

2.27 Remember the objective of EA is to create **confusion**. It is imperative that all drills and procedures are practised regularly and are well coordinated.

Standard Interference and Jamming Warning Report

2.28 Reserved

CHAPTER 3

The Radio Net

Section 3-1. The Radio Net

Definition

3.1 A radio net is a group of radio stations operating on the same frequency for the purpose of communicating with one another. Stations being retransmitted to the net frequency are considered part of the net.

3.2 A net consists of:

- a. an NCS; and
- b. two or more subordinate stations (sub-stations).

3.3 The call-signs used throughout this pamphlet are identified in figure 3-1.

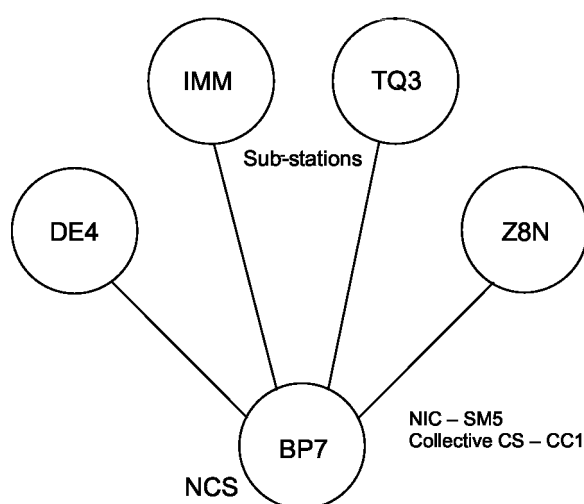


Figure 3-1. The Layout of a Simple Radio Net Consisting of the Net Control Station and Four Sub-stations

Net Control Station

3.4 The NCS is responsible for radio discipline and the efficient clearance of traffic on the net. The station collocated with the senior headquarters on the net is, under normal circumstances, deemed to be the NCS; however, any station which can carry out the responsibilities efficiently can be designated the NCS.

Sub-stations

3.5 The remaining stations on the net are called sub-stations. All sub-stations must comply with all communication instructions issued by the NCS.

Section 3-2. Callsigns, Net Identification Call-signs and Address Groups

Callsigns

3.6 Callsigns are a combination of **three** letters and figures (for example, T3Q) and are used by stations on a net to hide their plain language address (unit name), establish seniority (order of answering) and to establish and maintain communications on a net. When making reference to a call-sign, the call-sign itself may be preceded by the proword CALLSIGN.

3.7 The following examples illustrate the use of the proword CALL-SIGN:

- a. Meet CALL-SIGN Bravo Papa Seven (BP7) at GRID Two Three Seven - Six Five Seven.
- b. CALL-SIGN Zulu Eight November (Z8N) is to meet CALL-SIGNS Delta Echo Four (DE4) and India Mike Mike (IMM) at GRID Six Five Seven - Seven Two Five.
- c. Relay to CALL-SIGN Tango Three Quebec (T3Q).

3.8 Figures used in call-signs are spoken digit by digit and letters are pronounced phonetically.

3.9 The following types of call-signs are authorised for use on land force nets:

- a. tactical,
- b. collective,
- c. net,
- d. fixed, and
- e. net identification.

Tactical Callsigns

3.10 A tactical call-sign generally consists of three characters in a combination of letters and figures, for example, CALLSIGN Z8N. In joint service use, single-word, tactical call-signs (such as ARCHWAY) may also be used. Tactical call-signs for individual stations should be used at all levels; however, their use above unit level is compulsory. These call-signs are classified and are to be changed daily. Whenever possible, stations are to be issued a different tactical call-sign for each individual frequency allocated. Tactical call-signs may be abbreviated by using the first two characters only, for example, CALLSIGN Z8N abbreviated will be Z8.

3.11 The complete tactical call-sign is used:

- a. when reporting into a previously established net;
- b. in the transmission instruction and address component of a message, when that message is required to be relayed to a station on a different net;
- c. when interference is experienced from another net using similar call-signs; and
- d. when directed by the NCS.

Fixed Callsigns

3.12 Fixed call-signs may be used at unit and sub-unit level at the commander's discretion; however, commanders should be aware of the escalation in ES threat. Fixed call-signs for particular corps and units, and the use of arms indicators are detailed in *Manual of Land Warfare (MLW) Two 1.2, Tactical Communications Net (All Corps)*.

Collective Call-signs

3.13 A collective call-sign, which may be either tactical or fixed, identifies a predetermined group of two or more, **but not all**, stations of a net. For example, it may identify the commanders and all subordinate commanders of a regiment.

3.14 When using the fixed call-sign system, the collective call-sign is prefixed by the letters CC followed by a figure call-sign.

Net Identification Call-signs

3.15 The net identification callsign (NIC) is a tactical call-sign which is allotted to every unit and formation net. It changes daily at all levels. As the name implies, the NIC is used to identify the net and is also used to represent/identify all stations on a net. Stations on a net are to use the same NIC which may be abbreviated to the first two characters only. The NIC can be used by any station on a net when a response is required from all other stations. An NIC may also be used in conjunction with the proword EXEMPT followed by an individual callsign to exclude those stations from the all-station call.

3.16 The NIC may be used in conjunction with a fixed callsign:

- a. when establishing a unit net or as a means of identifying a unit net on the first transmission for the NCS,
- b. when interference is experienced from another net,
- c. when a station joins a previously established net, and d. after a period of electronic or radio silence.

3.17 Indiscriminate and unnecessary use of the NIC prejudices security.

Address Groups

3.18 An address group is a classified group of four letters used to disguise the plain language designation of a headquarters or unit and, in some cases, a sub-unit. Address groups are used in voice conversations and in the heading and/or text of messages which are addressed to, or make reference to, stations which are not on the net. When referring to sub-stations on the same net, call-signs are used and not address groups. When used for reference purposes, the address group may be preceded by the prowords ADDRESS GROUP. The following examples illustrate the use of the prowords ADDRESS GROUP:

- a. Information is to be passed to ADDRESS GROUP – Alfa Zulu X-ray Romeo.
- b. SUNRAYADDRESS GROUP– Charlie Delta Echo Papa – is in my area.

3.19 Where no address group has been allotted, the call-sign is to be used.

Sequence of Callsigns and/or Address Groups

3.20 Callsigns and/or address groups used in a call should be arranged in alphabetical order in the form in which they are to be transmitted, either plain or encrypted. Figures 1 through 0 will be considered as the twenty-seventh to thirty-sixth letters of the alphabet (for example, DE4, IMM, T3Q, Z8N). When abbreviated call-signs are used, the order of answering remains the same as if the full call-signs were in use.

The Daily Change

3.21 The daily changes of callsigns, including NIC and address groups, are to be made at the same time. Operators should also change the message number daily. Numbers revert to zero at the same time in order to make it more difficult for the enemy to link together the old and new call-signs and address groups. These changes are to be coupled with frequency changes.

3.22 It is important to emphasise that all tactical frequencies, call-signs and address groups are to change simultaneously. In addition to the daily change, formations and units should endeavour to make additional changes to enhance security further.

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PART TWO. RADIOTELEPHONE PROCEDURES

CHAPTER 4

Standard Radiotelephone Procedures

Section 4-1. Introduction

Aim

4.1 The aim of part 2 of this pamphlet is to standardise the ratel procedure for operators and users throughout the Australian Army, in a form which provides maximum compatibility with procedures used for joint and combined working, without seriously impairing the speed and efficiency of operation of Land Army nets.

4.2 The ratel procedure used is based on normal working conditions. The procedures for poor to bad working conditions are contained in chapter 8.

4.3 In all examples, optional words and phrases are contained in brackets and a pause between phrases is represented by a dash (–).

Joint and Combined Procedures

4.4 The ratel procedures for joint and combined working are contained in *Allied Communications Publication (ACP) 125, Communication Instructions, Radiotelephone Procedure*.

Types of Radio (Voice) Communications

4.5 The three types of radio (voice) communication are:

- a. voice conversations,
- b. informal messages, and
- c. formal messages.

4.6 **Voice Conversation.** A voice conversation is a series of alternate voice transmissions between two or more users in which subjects may be discussed, questions answered and information exchanged, subject to restrictions imposed by security.

4.7 **Informal Messages.** Frequently, a user may wish to ask a question and send information without discussion. This can be achieved through passage of a verbal message to the operator, or written message for transmission. An informal message consists simply of the user's text with an indication of the addressee(s).

4.8 **Formal Messages.** A formal message is one that is written down on a message form, (OC-33) signed by the releasing officer, registered, and passed to the operator for transmission and filing.

Radiotelephone Procedures

4.9 The successful use of voice radio requires a standard ratel procedure, constant practice and good radio discipline.

4.10 Ratel procedure is a set of simple rules based on the principles of:

- a. security,
- b. accuracy, and
- c. discipline.

4.11 The principles of security, accuracy and discipline can be remembered by the mnemonic SAD. Security and discipline procedures are described in detail in chapter 1.

How to Speak Clearly

4.12 To avoid wasting time on repetitions and corrections, ratel messages must be sent clearly. Operators and users must remember the following points:

- a. Hold the microphone close to the mouth when transmitting.
- b. Use the correct manner of rhythm, speed, volume and pitch (RSVP) which is explained as follows:
 - (1) *Rhythm.* Keep a natural rhythm. Divide the message into sensible phrases.
 - (2) *Speed.* Speech should be slightly slower than for normal conversation.
 - (3) *Volume.* Speak only as loudly as in normal conversation. Shouting causes over-modulation which results in a distorted signal. If the set is fitted with voice-operated gain adjustment device (VOGAD), also known as whisper, the volume may be reduced.
 - (4) *Pitch.* The voice should be pitched higher than usual, but discomfort should be avoided.

Phonetic Alphabet

4.13 When it is necessary to identify any letter of the alphabet, the authorised phonetic alphabet as listed in table 4-1 is to be used. The syllables shown in the table in bold type carry the accent. Difficult words or groups within the text of plain text messages may be spelled using the phonetic alphabet and preceded by the prowords I SPELL. If the operator can pronounce the word to be spelled, he will do so before and after the spelling to identify the word, for example: 'Papadopoulos' – I SPELL Papa Alpha Papa Alpha Delta Oscar Papa Oscar Uniform Lima Oscar Sierra – 'Papadopoulos'.

TABLE 4-1. The Phonetic Alphabet

Serial	Letter	Phonetic	Spoken as
1	A	ALPHA	Al -fah
2	B	BRAVO	Brah -voh
3	C	CHARLIE	Char -lee
4	D	DELTA	Dell -tah
5	E	ECHO	Eck -oh
6	F	FOXTROT	Foks -trot
7	G	GOLF	Golf
8	H	HOTEL	Hoh- tell
9	I	INDIA	In -dee-ah
10	J	JULIET	Jew -lee- ett
11	K	KILO	Key -loh
12	L	LIMA	Lee -mah
13	M	MIKE	Mike
14	N	NOVEMBER	No- vem -ber
15	O	OSCAR	Oss -cah
16	P	PAPA	Pah- Pah
17	Q	QUEBEC	Keh- Beck
18	R	ROMEO	Ro -me-o
19	S	SIERRA	See- air -rah
20	T	TANGO	Tang -go
21	U	UNIFORM	You -nee-form
22	V	VICTOR	Vik -tah
23	W	WHISKEY	Wiss -key
24	X	XRAY	Ecks -ray
25	Y	YANKEE	Yang -key
26	Z	ZULU	Zoo -loo

4.14 Where a text is composed of pronounceable words, they will be spoken as such. Where a text is encrypted, the groups, even though occasionally pronounceable, are to be transmitted by the phonetic equivalents of the individual letters and without the prowords I SPELL. For example, the encrypted group AGRSU is spoken as Alfa Golf Romeo Sierra Uniform, and counted as one group.

Pronunciation of Figures

4.15 To distinguish numerals from words that are similarly pronounced in the text, the proword FIGURES is used preceding such numbers.

4.16 When numerals are transmitted by ratel, the rules given in table 4-2 for their pronunciation are to be observed. Accented syllables are shown in the table in bold type.

TABLE 4-2. Pronouncing Numerals

<i>Serial (a)</i>	<i>Numeral (b)</i>	<i>Good Conditions (c)</i>	<i>Poor Conditions (d)</i>
1.	44	Forty-four	FIGURES Four Four
2.	57	Fifty-seven	FIGURES Five Seven
3.	90	Ninety	FIGURES Nine Zero
4.	136	One hundred and thirty-six	FIGURES One Three Six
5.	500	Five hundred	FIGURES Five Zero Zero
6.	1 478	Fourteen seventy-eight	FIGURES One Four Seven Eight
7.	2 008	Two thousand and eight	FIGURES Two Zero Zero Eight
8.	2359 hours	Twenty-three fifty-nine hours	FIGURES Two Three Five Nine Hours

<i>Serial (a)</i>	<i>Numeral (b)</i>	<i>Spoken As (c)</i>
1.	1	Wun (with emphasis on N)
2.	2	T oo (with sharp T and long O as in MOO)
3.	3	Thuh- ree (with short U, slight rolling of R and long E)
4.	4	Fo -wer (with long O as in FOE)
5.	5	F -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.	6	Six (with emphasis on X)
7.	7	Seven
8.	8	A te (with long A as in MATE)
9.	9	N iner (with long i [as in PIE] and emphasising each N)
10.	0	Zero

4.17 Numbers are transmitted digit by digit; however, exact multiples of hundreds and thousands may be spoken as such under good conditions. Figures in the text of a message, except grid references and target indications, may be spoken as in normal speech. Under poor or difficult conditions, figures are sent digit by digit preceded by the proword FIGURES. Examples of the use of the proword FIGURES are given in table 4-3.

TABLE 4-3. Examples of Numeral Transmissions

<i>Serial (a)</i>	<i>Numeral (b)</i>	<i>Good Conditions (c)</i>	<i>Poor Conditions (d)</i>
9.	2 700	Two seven hundred	FIGURES Two Seven Zero Zero
10.	16 000	Sixteen thousand	FIGURES One Six Zero Zero Zero
11.	812 681	Eight one two six eight one	FIGURES Eight One Two Six Eight One

4.18 The proword FIGURES is not used with call-signs, address groups, grid references, time checks, date time groups (DTGs) or time groups. Call-signs and address groups contained in the heading of a formal message are always sent character by character.

4.19 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.

4.20 Dates are to be spoken digit by digit (in bad or good conditions), with the months in full. For example, 20 Aug is spoken as Two Zero August (this procedure places an emphasis on the transmission of dates which may be of tactical importance). Roman numerals are transmitted as the corresponding Arabic numerals preceded by the proword ROMAN, for example, VII is spoken as ROMAN Seven.

Rules for Grid References

4.21 All grid references, including those encoded in numeral code, are preceded by the proword GRID. They are sent digit by digit and letters are pronounced phonetically. A grid reference is easier to interpret if a natural pause is allowed between the eastings and northings. Examples of the use of the proword GRID are as follows:

- a. *Example A.* A grid reference in clear language is: 'Enemy at GRID Three Two Six – Eight Four Seven'.
- b. *Example B.* A grid reference encoded is: 'In location at GRID Bravo Yankee – Mike Charlie Bravo – Oscar Tango Mike'.

Rules for Mixed Groups

4.22 In good conditions, mixed groups are sent as normal speech. The following are examples:

- a. generators 5 kVA is sent as 'Generators Five kay-vee-ay';
- b. 2½ 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'.

4.23 In poor or difficult conditions, the same information in paragraph 4-22 is sent as:

- a. 'Generators FIGURES Five I SPELL Kilo Victor Alfa';
- b. 'FIGURES Two Hyphen One Slant Two metres by FIGURES One Slant Two metre'; and
- c. 'FIGURES One Two volt battery'.

Abbreviations in the Text

4.24 Abbreviations in the text are transmitted as follows:

- a. Letters used alone or in conjunction with short titles are spoken phonetically, except under the circumstances detailed in paragraph 4.27. For example:
 - (1) Para A is sent as Para Alfa, and
 - (2) ACP may be sent as Alfa Charlie Papa.

4.25 Personal initials are to be spoken phonetically prefixed by the proword INITIALS, but note that such transmissions should be made in the secure mode only. For example, G. M. Smith is sent as 'INITIALS Golf Mike Smith'.

4.26 **Abbreviations.** Although designed to save writing time, abbreviations can also save time in speech. Some commonly spoken abbreviations frequently used in normal speech may be used in the same manner when transmitted by voice, for example, HQ, NCO, NATO, ACP, SOI and SOP. The use of abbreviations as part of ratel conversations and transmissions is encouraged, providing there is no possibility of confusion. To avoid any misunderstanding, the following common sense rules should be applied:

- a. *In Good Conditions.* In good conditions, common abbreviations are spoken as in normal conversation, for example, 'recon' instead of 'I SPELL Romeo Echo Charlie Oscar November'.
- b. *In Poor or Difficult Conditions.* In poor or difficult conditions abbreviations should only be used when they save considerable transmission time. In all other cases the abbreviations should be pronounced in full. For example:
 - (1) HQ as headquarters is shorter than I SPELL Hotel Quebec, and
 - (2) TOT as time over target is shorter than I SPELL Tango Oscar Tango.

Expanding Abbreviations

4.27 A radio operator transmitting a message under poor conditions, on behalf of the originator, may expand common abbreviations appearing in the text if he is in no doubt as to the originator's intention. For example, he may expand 'bty' to battery and 'hr' to hours. If in any doubt, the abbreviation is not to be expanded but is to be spelt phonetically, for example, EW might mean EW or early warning. Unless it is obvious from the text which one is meant, it should be transmitted as 'I SPELL Echo Whisky', leaving the addressee to decide the meaning.

Prowords

4.28 Prowords are pronounceable words or phrases which have been assigned a meaning for the purpose of expediting message handling on circuits between users. This enables one word or phrase to be used in place of a complete sentence. For example:

- a. ROGER is used to signify, 'I have received your last transmission satisfactorily';
- b. SEND is used to signify, 'I am ready to receive your message'; and
- c. OUT is used to signify, 'This is the end of my transmission to you and no answer is required or expected'.

4.29 A proword or a combination of prowords is not to be substituted for the text of a message. A complete list of commonly used prowords and their meanings is at annex A.

Punctuation

4.30 Punctuation is rarely necessary in normal voice communications but may be required in formal messages (chapter 10) or to clarify a difficult point. The following prowords are used to describe punctuation:

- a. FULL STOP is used for a period.
- b. PAREN and UNPAREN are used for left-hand and right-hand brackets.
- c. SLANT is used for an oblique stroke.
- d. QUOTE and UNQUOTE are used for quotation marks.
- e. HYPHEN is used for a hyphen (used to connect words or part of words).
- f. DASH is used for a dash (indicates a break or pause in a sentence).

Annex:

- A. Commonly Used Prowords

Commonly Used Prowords

1. Prowords are pronounceable words or phrases which have been assigned a meaning for the purpose of expediting message handling on circuits between users. The commonly used prowords are shown in table 4-4.

TABLE 4-4. Prowords

Serial (a)	Proword (b)	Meaning (c)
1	ACKNOWLEDGE	Instruction to a station on the net to acknowledge that it has heard a message which may not have been specifically addressed to it. When used in the text of a message, instruction to the addressees that message must be acknowledged.
2	ADDRESS GROUP	That which follows is an address group.
3	ALL AFTER ALL BEFORE	Used with reference to a catchword or phrase when requesting or giving repetitions or corrections.
4	ANSWER AFTER	Used to instruct a station that joins an established net, the order in which to answer calls.
5	ASSUME CONTROL	Order a sub-station to assume control of a net.
6	AUTHENTICATE	The station called is to reply to the challenge which follows.
7	AUTHENTICATION IS...	The transmission authentication is ..
8	BOMREP	A standard message follows, reporting enemy bombing.
9	BREAK	Text begins or ends (used only when passing formal messages).
10	CALL-SIGN(S)	That which follows is a call-sign.
11	CANCEL	Cancel the message or, or a part of the message or a transmission.
12	CHECK	Used when a receiving station wishes to check the number of the group count or code count of a message.
13	CLOSE DOWN	Stations called are to close down when indicated. Acknowledgements are required.
14	CLOSING DOWN	May I close down (until ...)
15	CORRECT	You are correct or what you have transmitted is correct.
16	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.
17	CRYPTO MESSAGE	Offer of a crypto or coded message.
18	DISREGARD THIS TRANSMISSION	Used to cancel a message during its transmission.
19	DO NOT ANSWER	Used when it is imperative that the called stations do not answer a transmission. When this proword is used, the transmission is to end with the proword OUT.
20	EXEMPT	The call-signs that follow are excluded from a collective or all-stations call.
21	FETCH	Used in conjunction with an appointment title to indicate to whom the caller wishes to speak.
22	FIGURES	Used before sending groups of figures digit by digit. Not used for call-signs, grid references, time checks, authentication and DTG.
23	FORMAL MESSAGE	Offer of a formal message. Must be qualified by the precedence and may be qualified by LONG (message).
24	FROM	Used by a relaying station to indicate the station originating the message. The originator of this message is indicated by the address designator immediately following.
25	GRID	Used before any grid reference, encoded or in clear.
26	I AM ASSUMING CONTROL	Used when a sub-station takes over all the duties of the NCS.

Serial (a)	Proword (b)	Meaning (c)
27	I AUTHENTICATE	The group that follows is a reply to your challenge to authenticate.
28	INPLAIN	Used when a station does not have cipher equipment or when it has broken down.
29	I READ BACK	Used by receiving station to satisfy himself that he has received a transmission, or portion of it, correctly introduces a response to instruction to read back.
30	ISAY AGAIN	Used by sender when making repetitions for emphasis or in response to request to say again.
31	I SPELL	Used when spelling out a word or letter group.
32	I VERIFY	That which follows has been verified at your request and is repeated. To be used only as a reply to VERIFY.
33	LOCREP	A standard message follows reporting the location of hostile batteries.
34	LONG MESSAGE	A long unregistered message (will take more than 30 seconds to send).
35	MESSAGE	An unregistered message that needs to be written down.
36	MORTREP	A standardised message follows, reporting a mortar attack.
37	NOTHING HEARD	Indication that no signals have been received from a particular station.
38	OUT	This is the end of my transmission. No reply is required or expected.
39	OUT TO YOU	This is the end of my transmission to you. No reply is expected and a call to another station follows immediately.
40	OVER	This is the end of my transmission to you; a reply or acknowledgement is required, go ahead and transmit.
41	RADIO CHECK	Report signal strength and readability.
42	READ BACK	Repeat this entire transmission back to me entirely as received.
43	RETRANSMIT CALL-SIGN(S)	Control orders a retransmission station to retransmit the call-signs named.
44	RELAY THROUGH	Instruction to a station to relay through another.
45	REPORT STRENGTHS AND READABILITY	Call by NCS for sub-stations to report how they hear one another.
46	ROGER	I have received your last transmission satisfactorily.
47	SAY AGAIN	Request for repetition of all, or portions indicated, of a message.
48	SEND	I am ready to receive your message.
49	SHELREP	A standardised message follows, reporting shelling.
50	SILENCE LIFTED	Silence has lifted.
51	SILENCE SILENCE SILENCE	Cease transmission on this net immediately.
52	SPEAKING	Used in conjunction with an appointment title, to indicate who is speaking.
53	STOP TRANSMISSION	Originator orders a retransmission station to stop retransmission.
54	THIS IS	Indicates identity of calling station.
55	THIS IS A DIRECTED NET	All calls must be offered through control.
56	THIS IS A FREE NET	Used to cancel a directed net.
57	THIS IS A RETRANS NET	A retransmission station tells all stations that he is starting a retransmission.
58	THROUGH ME	Invitation by a station to relay through him.
59	TIME	Used when passing a formal message. That which immediately follows is the time or DTG of the message. For example, when synchronising time: 'The time now is ...'
60	TIME CHECK AT	An exact (on the minute) time signal follows.
61	... TO ...	Used to identify part of a message.
62	UNKNOWN STATION	The identity of the station I am calling is unknown to me.
63	USE ABBREVIATED CALL-SIGNS	Abbreviated call-signs are to be used.
64	USE ABBREVIATED PROCEDURE	Abbreviated procedure is to be used.
65	USE FULL CALL-SIGNS	Full call-signs are to be used.
66	USE FULL PROCEDURE	Full procedure is to be used.
67	VERIFY	Verify portion indicated with originator and send correct version.

Serial (a)	Proword (b)	Meaning (c)
68	WAIT	I must pause for up to five seconds before replying. No other station is to transmit during this period even if my set is not transmitting.
69	WAIT OUT	Your transmission is received; a further transmission on the same subject will follow later. Other stations may continue transmitting as normal.
70	WILCO	Message received, understood and will be complied with.
71	WORD BEFORE WORD AFTER	Used to identify part of message.
72	WORDS TWICE	Communication is difficult. Transmit each phrase or code group twice. This proword may be used as an order, a request, or as information.
73	WRONG	What has been said is wrong; the correct version is . . .
74	YOUR CALL-SIGN IS	Allocation of a call-sign to a station which has newly joined a working net, and which has asked for a call-sign.

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CHAPTER 5

Calls on Radio Nets

Section 5-1. Calling and Answering

Calling

5.1 A station wishing to communicate on a net is to make an initial transmission which consists of the following sections:

- a. *Initial Call.* The initial call indicates which station(s) is being called and which is the calling station. The call consists of:
 - (1) the initial CALLSIGN which identifies the station(s) being called;
 - (2) the prowords THIS IS, used to indicate that the CALLSIGN of the calling station follows; and
 - (3) the last CALLSIGN which identifies the station calling.
- b. *Text.* The text is the information to be passed.
- c. *Ending.* One of the following prowords is used to denote that the transmission has ended:
 - (1) *OVER.* OVER means, 'This is the end of my transmission to you and a reply or acknowledgement is required. Go ahead and transmit'.
 - (2) *OUT.* OUT means, 'This is the end of my transmission. No reply is required or expected'.

Answering

5.2 Should the initial transmission require an immediate answer, (that is, it ends with the proword OVER), the stations called reply with an answering transmission consisting of the following:

- a. *Answering Call.* The answering call consists of the following three parts:
 - (1) *CALLSIGN.* CALLSIGN identifies the station which requires a response.
 - (2) *THIS IS.* The proword THIS IS is used to indicate that the call-sign of the station answering follows. This is compulsory in the initial reply.
 - (3) *CALLSIGN.* The CALLSIGN identifies the station answering. This is compulsory in initial reply.
- b. *Text: Answer or Receipt.* One of the following prowords may be used to indicate that the message has been received:
 - (1) *ROGER.* ROGER means, 'I have received your last transmission'.
 - (2) *WILCO.* WILCO means, 'I have received your last transmission, understand it and will comply'. ('ROGER' is included in WILCO; therefore, the two prowords are not to be used together.)
 - (3) *WAIT.* WAIT means, 'I must pause for up to five seconds before replying. No other station is to transmit during this period'.
- c. *Ending.* In addition to the prowords OVER and OUT, the following may be used to indicate the end of the transmission:

- (1) *WAIT OUT*. *WAIT OUT* means, 'I must pause longer than five seconds, your transmission has been received; a further transmission on the same subject will follow later'.
- (2) *OUT TO YOU*. *OUT TO YOU* means, 'This is the end of my transmission to you and no answer is required or expected and a call to another station follows immediately'.

5.3 In the event that the answering transmission ends with the prowords *OUT*, *WAIT OUT*, or *OUT TO YOU*, that series of transmission is completed and further intercommunication on the net is achieved by a new initial transmission. When the answering call ends with the proword *OVER*, then the subsequent transmissions will follow the format of the answering call until the conversation or message is terminated by *OUT*, *WAIT OUT* or *OUT TO YOU*.

Order of Answering

5.4 Formation Nets. Where tactical call-signs are used, the order of answering is in alphabetical and/or numerical sequence in the format detailed in chapter 3, paragraph 3.20.

5.5 Unit Nets. On unit or sub-unit nets where there may or may not be other arms representatives attached, stations are to answer in the following order:

- a. Unit elements answer in numerical and alphabetical sequence (for example, 11, 11A, 11B, 12 and 12A).
- b. Representatives of other arms using arms indicators, answer in alphabetical order of arms indicators.
- c. Stations using NIC to qualify their call-signs, answer in the order in which they join the net.

5.6 If a station fails to answer in proper sequence, the next station in order waits five seconds and then answers. The station which failed to answer in proper sequence must then wait until all other stations have answered and it then answers. A period of five seconds, for each station which failed to answer the initial call, is allocated after the last station has answered in order, before any further action is taken by NCS.

5.7 If a station still does not respond, the NCS waits a further five seconds, after the last response, and then initiates a new initial call to that station.

Unknown Station

5.8 A station may hear another station calling but fail to hear the call-sign of the calling station. If this occurs, the procedure in the following example is to be used:

DE4 – THIS IS – BP7 – Convoy departed – OVER.

UNKNOWN STATION – THIS IS – DE4 – SAY AGAIN CALLSIGN – OVER.

DE4 – THIS IS – BP7 – OVER.

BP7 – THIS IS – DE4 – ROGER OUT.

Section 5-2. Types of Calls

5.9 The following are the five main types of calls:

- a. the single call,
- b. the multiple call,
- c. the net call,
- d. the collective call, and
- e. the exempt call.

Single Call

5.10 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:

IMM – THIS IS – BP7 – Move now – OVER.

BP7 – THIS IS – IMM – Cannot move for ten minutes – OVER. IMM – THIS IS – BP7 – ROGER – OUT.

Multiple Call

5.11 A multiple call is a call to two or more stations, but not all stations on the net. The individual call-signs are separated by a distinct pause, as in normal speech. The following example illustrates the multiple call procedure:

IMM – T3Q – Z8N – THIS IS – DE4 – I am moving now – OVER.

DE4 – THIS IS – IMM – ROGER – OUT.

DE4 – THIS IS – T3Q – ROGER – OUT.

DE4 – THIS IS – Z8N – ROGER – OUT.

Net Call

5.12 A net call is a call to all stations on the net from either the NCS or a sub-station. The following example illustrates a net call when the NCS of a formation net is calling all stations. The NIC is SM5:

SM5 – THIS IS – BP7 – Convoy departed – OVER.

BP7 – THIS IS – DE4 – ROGER – OUT.

BP7 – THIS IS – IMM – ROGER – OUT.

BP7 – THIS IS – T3Q – ROGER – OUT.

BP7 – THIS IS – Z8N – ROGER – OUT.

Collective Call

5.13 A collective call is a call to certain designated stations on the net. This combination of stations is arranged prior to the net deploying. It is not essential for all nets to have a collective call-sign.

5.14 On a formation net, a tactical call-sign is allocated for each collective call designation.

5.15 On unit nets using fixed call-signs, this type of call is commonly made when the commander wishes to speak to all his sub-unit commanders without using their individual call-signs. The prowords CHARLIE CHARLIE are used to denote this type of call. Where there is a requirement for an additional collective call, the prowords CHARLIE CHARLIE are qualified by a figure (for example, CHARLIE CHARLIE One). Although collective calls are normally made by the NCS, they may be initiated by any sub-station on the net. The NCS always answers first, unless instructions for the net exclude him from answering. The following example shows the NCS making a collective call (DE4, T3Q and Z8N have been designated to answer the CHARLIE CHARLIE One call):

CC1 – THIS IS – BP7 – Moving now – OVER.

BP7 – THIS IS – DE4- ROGER OUT.

BP7 – THIS IS – T3Q – ROGER OUT.

BP7 – THIS IS – Z8N – ROGER OUT.

Exempt Call

5.16 An exempt call is the call made when all the stations normally concerned with the net or collective call are not required. The proword EXEMPT is used to denote this type of call. The following example illustrates an exempt call where the NCS using the NIC (SM5) wishes to contact all sub-stations other than call-sign T3Q:

SM5 – EXEMPT T3Q – THIS IS – BP7 – Move now – OVER.

BP7 – THIS IS – DE4 – ROGER – OUT.

BP7 – THIS IS – IMM – ROGER – OUT.

BP7 – THIS IS – Z8N – ROGER – OUT.

Section 5-3. Normal and Adverse Working Conditions

Abbreviated Procedure

5.17 Under normal working conditions, use is made of abbreviated procedure to save time and improve security by omitting the call-sign of the called station other than in the initial call, and any non-essential prowords. In a single call, all call-signs may be omitted after the initial call and reply.

5.18 Those parts of a call or prowords which may be omitted are shown in brackets through the remainder of the pamphlet, except when deliberately retained or deleted for illustrative purposes. The following example of a call from an NCS to a sub-station illustrates the abbreviated procedure:

DE4 – THIS IS – BP7 – Move now – OVER.

(BP7) – (THIS IS) – DE4 – Cannot move for 10 minutes – OVER.

(DE4) – (THIS IS) – (BP7) – ROGER – OUT.

The next example of a call from a sub-station to a sub-station further illustrates the abbreviated procedure:

IMM – THIS IS – Z8N – Is my SUNRAY with you – OVER.

(Z8N) – (THIS IS) – IMM – No – He left five minutes ago – OVER.

(IMM) – (THIS IS) – (Z8N) – Has he gone to CALL-SIGN Delta Echo Four – OVER.

(Z8N) – (THIS IS) – (IMM) – Yes – OUT.

Full Procedure

5.19 When conditions deteriorate to such a degree that the use of abbreviated procedure is causing unnecessary repetitions, the NCS is to order the use of full procedure. The use of call-signs and prowords that were previously optional, then becomes mandatory. The following example illustrates the method used to order the use of full procedure on a net:

SM5 – THIS IS – BP7 – USE FULL PROCEDURE – OUT.

Reverting to Abbreviated Procedure

5.20 When conditions return to normal, the NCS is to order that the net revert to abbreviated procedure. The following example illustrates the method used to order a net to revert to abbreviated procedure:

SM5 – THIS IS – BP7 – USE ABBREVIATED PROCEDURE – OUT.

Abbreviated Call-signs

5.21 Provided no confusion arises, the NCS may order the net to use abbreviated call-signs. Nets using tactical and fixed call-signs are to use abbreviated call-signs (abbreviated to the first two characters). The net must continue to use either full or abbreviated procedure, whichever is in force. To order the use of abbreviated call-signs when full call-signs are in force, the following is transmitted by the NCS:

SM – THIS IS BP – USE ABBREVIATED CALL-SIGNS – OUT.

Full Call-signs

5.22 When conditions deteriorate and/or confusion arises through the use of abbreviated call-signs, the NCS may order that full call-signs be used. Full call-signs may be used with either full or abbreviated procedure. The following example illustrates the use of full call-signs:

SM5 – THIS IS – BP7 – USE FULL CALL-SIGNS – OUT.

Full Procedure and Full Call-signs

5.23 Conditions may be such that the NCS considers the use of both full procedure and full call-signs is necessary for the efficient working of the net. In this case, the NCS is to direct the net by the prowords USE FULL CALL-SIGNS AND PROCEDURE.

5.24 When conditions warrant it, the NCS may subsequently order the net to use abbreviated procedure or abbreviated call-signs. The NCS may order the net to abbreviate entirely by using the prowords USE ABBREVIATED CALL-SIGNS AND PROCEDURE.

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CHAPTER 6

Establishing a Net

Section 6-1. General Instructions

6.1 The establishment of a net is carried out in the form of a set preliminary procedure drill. It ensures that all stations on a radio net are able to set up communications with one another on the same frequency. The importance of this drill cannot be over-emphasised. If the preliminary instructions and procedure are not adhered to, excessive tuning may result, which makes the task of enemy interception and DF so much easier.

6.2 The procedure prescribed in this section is to be followed either when opening a net for the first time or when reopening a net. Proper control by the NCS and adherence to operating rules by the stations within the net will enable the net to commence operating with minimum delay. The NCS is responsible for maintaining security on the net.

6.3 Establishing a net is conducted in the following four distinct phases:

- a. preliminary instructions;
- b. tuning of the radio (if applicable);
- c. initial calls; and
- d. amplifying reports.

Preliminary Instructions

6.4 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 the stations on the net and a strength and readability chart;
- b. the frequencies assigned to the net, lost communications procedures, and the frequency calling schedule (FCS) for HF operation;
- c. the call-signs, including collective call-signs, address groups and other net identification information;
- d. the operations codes, numeral codes and authentication tables;
- e. code-words and nicknames;
- f. the time the net is to open; and g. the net security measures.

6.5 The operator is to ensure that he has adequate stationery such as message forms, radio log-books and user handbooks prior to establishing communications.

Tuning the Radio

6.6 The tuning procedure varies with each type of radio and is laid down in the appropriate handbook. The majority of radios in the Army fall into one of the following categories:

- a. *Pre-tuned Radios.* Pre-tuned radios are automatically tuned to a specified frequency or channel by the action of a selector switch.
- b. *Manually Tuned Radios.* Manually tuned radios incorporate their own crystal calibrators, which enable accurate tuning to any frequency within the range of the radio.

- c. *Automatically Tuned Radios.* The tuning process for the automatically tuned radios is, as the name implies, carried out automatically within the radio and requires no operator interface.

Selecting the Frequency

6.7 Very High Frequency. Unless otherwise specified prior to deployment, VHF nets, under normal circumstances, will commence operation on the primary frequency. The primary frequency is identified in the information supplied as part of the preliminary instructions.

6.8 High Frequency. The frequency to be selected for commencement of operation on an HF net is dependent upon many factors; these may include, time of day, terrain, distance or direction. There are circumstances (for example, short distance day or night working over a short period of time) where opening on a primary frequency can be achieved; however, in most cases, the frequency that should be used at a given time will be identified in the FCS supplied as part of the preliminary instructions.

Initial Call

6.9 As soon as the radio is adjusted, the NCS is to determine whether its transmissions are being received by the sub-stations on the net.

6.10 The NCS initially orders sub-stations to report the strength and readability of its signal by using the prowords RADIO CHECK, which means 'What is my signal strength and readability?'; that is, the NCS is asking the sub-stations, 'How do you hear me?' The sub-stations answer the call in turn, giving their report of signal strength and readability of the NCS. If the answer is 'LOUD AND CLEAR', the proword ROGER will suffice to indicate that reception. A full description of prowords used to report signal strength and readability is at paragraph 6.17 and 6.18.

6.11 When the NCS wishes to know the clarity of communications between its station and the sub-stations, it initiates an initial call to all stations, followed by an amplifying report (paragraph 6.26), thus obtaining a clear picture of the communications state of the net.

6.12 At the designated time, or when ready to establish/re-establish a net, the NCS initiates the following procedures:

SM5 – THIS IS – BP7 – RADIO CHECK – OVER.

(BP7) – (THIS IS) – DE4 – (ROGER) – OVER.

(BP7) – (THIS IS) – IMM – (ROGER) – OVER.

(BP7) – (THIS IS) – T3Q – (ROGER) – OVER.

(BP7) – (THIS IS) – Z8N – (ROGER) – OVER.

(SM5) – (THIS IS) – BP7 – (ROGER) – OUT. or

(SM5) – (THIS IS) – BP7 – (ROGER) USE ABBREVIATED CALL-SIGNS – OUT.

6.13 When a sub-station fails to answer a net call in proper sequence, the sub-station must wait until all other sub-stations answer before transmitting. If a sub-station fails to answer after the last response, the NCS will wait five seconds and then initiate a new preliminary call specifically to that sub-station. If the NCS does not receive a reply from a sub-station to his final request for a report, he indicates this fact by using the prowords NOTHING HEARD.

6.14 In this example, call-sign IMM is unable to answer the net call:

SM5 – THIS IS – BP7 – RADIO CHECK – OVER.

(BP7) – (THIS IS) – DE4 – (ROGER) – OVER.

(T3Q hearing no reply from call-sign IMM waits five seconds then transmits.)

(BP7) – (THIS IS) – T3Q – (ROGER) – OVER.

(BP7) – (THIS IS) – Z8N – (ROGER) – OVER.

(SM5) – (THIS IS) – BP7 – (ROGER) – IMM – NOTHING HEARD – OUT.

(Call-sign IMM, when able to join the net, does so using the procedure outlined in chapter 9.)

6.15 When a station reports late into a net, this station is to be challenged to authenticate, unless transmission authentication has been used.

6.16 After the net is established and before conducting regular traffic over the net, it may be necessary to make contact with the station or other stations involved to ascertain that communication is possible.

6.17 The prowords used to report signal strength are:

- a. *LOUD*. LOUD indicates that the sender's signal strength is excellent.
- b. *GOOD*. GOOD indicates that the sender's signal strength is good.
- c. *WEAK*. WEAK indicates that the sender's signal strength is weak.
- d. *VERY WEAK*. VERY WEAK indicates that the sender's signal strength is very weak.
- e. *FADING*. FADING indicates that at times the signal strength fades to such an extent that continuous reception cannot be relied upon.

6.18 The prowords used to report readability are:

- a. *CLEAR*. CLEAR indicates that the transmission is of excellent quality.
- b. *READABLE*. READABLE indicates that the quality of transmission is good.
- c. *UNREADABLE*. UNREADABLE indicates that the quality of the sender's transmission is so bad that the receiver cannot read the sender.
- d. *DISTORTED*. DISTORTED indicates that there is trouble understanding the transmission due to distortion.
- e. *WITH INTERFERENCE*. WITH INTERFERENCE indicates that there is trouble understanding the transmission due to interference.

6.19 The NCS waits for all stations on the net to reply before giving its reports to sub-stations.

6.20 The NCS always acknowledges the report of the sub-stations by indicating, in its transmission, the strength of the unsatisfactory stations.

6.21 A summary of sample transmissions to establish a net (figure 6-1), is provided in table 6-1.

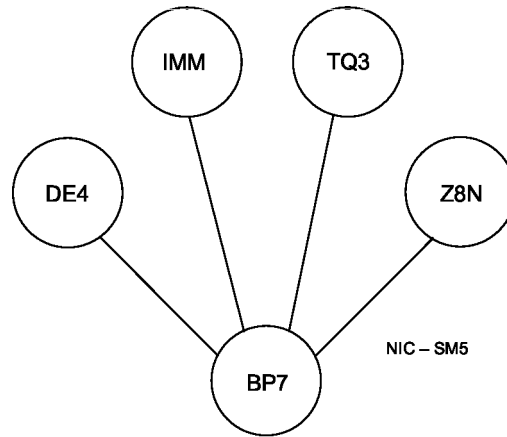


Figure 6-1. Radio Net Diagram

TABLE 6-1. Establishing a Net (Initial Call)

<i>Serial (a)</i>	<i>Sample Station (b)</i>	<i>Calling (c)</i>	<i>Call Made (d)</i>	<i>Remarks (e)</i>
1.	Example A: on a satisfactory net.	NCS	SM5 – THIS IS – BP7 – RADIO CHECK – OVER.	
		DE4	(BP7) – (THIS IS) – DE4 – (ROGER) – OVER.	The NCS is loud and clear.
		IMM	(BP7) – (THIS IS) – IMM – WEAK BUT READABLE – OVER.	
		T3Q	(BP7) – (THIS IS) – T3Q – (ROGER) – OVER.	The NCS is loud and clear.
		Z8N	(BP7) – (THIS IS) – Z8N – LOUD WITH INTERFERENCE – OVER.	
		NCS	(SM5) – (THIS IS) – BP7 – IMM – WEAK WITH INTERFERENCE – OUT.	The NCS hears all stations loud and clear except IMM
2	Example B: A sub-station on a unit net fails to answer in the correct sequence	NCS	SM5 – THIS IS – BP7 – RADIO CHECK – OVER	
		DE4	(BP7) – (THIS IS) – DE4 – (ROGER) – OVER.	
		IMM	(BP7) – (THIS IS) – IMM – (ROGER) – OVER.	
		T3Q	(.....)	(no reply)
		Z8N	(5 seconds pause) (BP7) – (THIS IS) – Z8N – LOUD WITH SLIGHT INTERFERENCE – OVER	
		T3Q	(BP7) – (THIS IS) – T3Q – WEAK BUT READABLE - OVER	Answers last.
		NCS	SM5 – (THIS IS) – BP7 – (ROGER) – OUT.	NCS hears all stations loud and clear.

<i>Serial (a)</i>	<i>Sample Station (b)</i>	<i>Calling (c)</i>	<i>Call Made (d)</i>	<i>Remarks (e)</i>
3.	Example C: A sub-station on a net fails to answer a preliminary call.	NCS	SM5 – THIS IS – BP7 – RADIO CHECK – OVER.	
		DE4	(BP7) – (THIS IS) – DE4 – (ROGER) – OVER.	
		IMM	(BP7) – (THIS IS) – IMM – (ROGER) – OVER.	
		T3Q	(-----)	(no reply)
		Z8N	(5 second pause) (BP7) – (THIS IS) – Z8N – LOUD WITH SLIGHT INTERFERENCE – OVER.	
		T3Q	(-----)	(no reply)
		NCS	(5 second pause) T3Q – THIS IS – BP7 – RADIO CHECK – OVER.	NCS makes another call to T3Q.
		T3Q	(BP7) – (THIS IS) – T3Q – WEAK BUT READABLE – OVER.	
		NCS	SM5 – (THIS IS) – BP7 – (ROGER) – OUT.	
4	Example D: A sub-station on a unit net fails to answer the NCS final request for a report.	NCS	(5 second pause) T3Q – THIS IS – BP7 – RADIO CHECK – OVER.	
		T3Q	(.....)	(no reply)
		NCS	T3Q – (THIS IS) – BP7 – NOTHING HEARD – OUT.	NCS indicates that it did not hear T3Q and advises remaining stations of their strengths.
		NCS	SM5 – EXEMPT T3Q – THIS IS – BP7 – ROGER – OUT.	
5	Example E: A sub-station reports late into the net.	T3Q	BP7 – THIS IS – T3Q – REPORTING INTO NET – OVER.	
			(T3Q) – (THIS IS) – BP7 – AUTHENTICATE AB – OVER. (Short pause while authentication is calculated)	NCS requests T3Q to authenticate.
		T3Q	(BP7) – (THIS IS) – T3Q – I AUTHENTICATE CHARLIE – OVER.	T3Q authenticates correctly.
		NCS	(T3Q) – (THIS IS) – BP7 – ANSWER AFTER – IMM – OUT.	
6	Example F: NCS replies to sub-stations of varying strengths and readability.	NCS	(SM5) – (THIS IS) – BP7 – DE4 – WEAK WITH INTERFERENCE – T3Q – WEAK BUT READABLE – OUT.	

6.22 When a calling station requests a radio check with one or more stations, the calling station will, in its reply, give a signal strength and readability to the other stations called.

6.23 The following example illustrates a radio check when good conditions prevail:

DE4 – (THIS IS) – BP7 – RADIO CHECK – OVER.

(BP7) – (THIS IS) – DE4 – (ROGER) – OVER.

(DE4) – (THIS IS) – (BP7) – (ROGER) – OUT.

6.24 The next example illustrates a radio check in poor conditions:

Z8N – THIS IS – BP7 – RADIO CHECK – OVER.

BP7 – THIS IS – Z8N – WEAK BUT READABLE – OVER.

Z8N – THIS IS – BP7 – WEAK BUT READABLE – WITH INTERFERENCE – OUT.

6.25 The final example illustrates a radio check during difficult conditions:

DE4 – DE4 – THIS IS BP7 – THIS IS BP7 – RADIO CHECK – RADIO CHECK – OVER.

BP7 – BP7 – THIS IS DE4 – THIS IS DE4 – VERY WEAK BUT READABLE – VERY WEAK BUT READABLE – OVER.

DE4 – DE4 – THIS IS BP7 – THIS IS BP7 – WEAK BUT READABLE – WEAK BUT READABLE – WITH INTERFERENCE – WITH INTERFERENCE – OUT.

Amplifying Report

6.26 Once the net has been established and the NCS wishes to know how sub-stations are hearing one another, the NCS requests signal strengths and readability by use of the prowords REPORT STRENGTHS AND READABILITY. Such reporting on an established net should only be necessary when conditions are bad or after communications silence as shown in table 6-2.

TABLE 6-2. Establishing a Net (Amplifying Report)

<i>Serial (a)</i>	<i>Sample Station (b)</i>	<i>Calling (c)</i>	<i>Call Made (d)</i>	<i>Remarks (e)</i>
1.	Example A: Satisfactory reports from all stations on a formation net. Initial call RADIO CHECK has been made.	NCS	SM5 – THIS IS – BP7 – IMM – WEAK BUT READABLE – REPORT STRENGTHS AND READABILITY – OVER.	NCS hears all stations loud and clear except IMM and then requests all stations to report strengths of all other stations.
		DE4	(BP7) – (THIS IS) – DE4 – (ROGER) – OUT.	
		IMM	(BP7) – (THIS IS) – IMM – (ROGER) – OUT.	
		T3Q	(BP7) – (THIS IS) – T3Q – DE4 WEAK BUT READABLE – OUT.	
			(BP7) – (THIS IS) – Z8N – (ROGER) – OUT.	After final response NCS may authorize use of abbreviated call-signs.
		NCS	SM5 – THIS IS – BP7 – USE ABBREVIATED CALL-SIGNS – OUT.	
2	Example B: Unsatisfactory combined report on a unit net.	NCS	SM5 – THIS IS – BP7 – RADIO CHECK – OVER.	
		DE4	(BP7) – (THIS IS) – DE4 – LOUD BUT DISTORTED – OVER.	
		IMM	(BP7) – (THIS IS) – IMM – (ROGER) – OVER.	
		T3Q	(BP7) – (THIS IS) – T3Q – WEAK BUT READABLE – OVER.	
		Z8N	(BP7) – (THIS IS) – Z8N – LOUD WITH INTERFERENCE – OVER.	
		NCS	(SM5) – (THIS IS) – BP7 – LOUD WITH DISTORTION – T3Q – WEAK BUT READABLE – REPORT STRENGTHS AND READABILITY – OVER.	NCS hears IMM and Z8N loud and clear but signals from all other stations are varying in strength.
		DE4	(BP7) – (THIS IS) – DE4 – Z8N NOTHING HEARD – T3Q LOUD BUT DISTORTED – OUT.	
		IMM	(BP7) – (THIS IS) – IMM – DE4 – WEAK BUT READABLE – T3Q – LOUD BUT DISTORTED – OUT.	
		T3Q	(BP7) – (THIS IS) – T3Q – DE4 – WEAK BUT READABLE – OUT.	
		Z8N	(BP7) – (THIS IS) – Z8N – WEAK – WITH INTERFERENCE – OUT.	Z8N hears all stations fairly well with interference.

6.27 A sub-station reports only those stations which are not LOUD AND CLEAR. When another station cannot be heard, the prowords NOTHING HEARD, preceded by the call-sign of that station, is used.

6.28 A station wishing to indicate that it is experiencing interference, or that the incoming signal is fading or distorted may amplify its report by use of the prowords:

- a. *WITH (strength of interference) INTERFERENCE.* WITH INTERFERENCE indicates that a station is having trouble reading transmissions due to slight, moderate, severe or extreme interference.
- b. *FADING.* FADING indicates that at times the signal strength fades to such an extent that continuous reception cannot be relied upon.
- c. *DISTORTION.* DISTORTION indicates that a station is having trouble reading a transmission because the signal is distorted.

6.29 Where the NCS is not satisfied with the signal strength and/or readability of a sub-station, and believes that it can be improved by ordering the sub-station to retune, the NCS orders the defaulting station to retune or relocate the set. This is followed by a call from the NCS to the defaulting station for a radio check.

Section 6-2. No Contact Procedure

6.30 No contact procedure is designed to obtain or regain communications on a radio net when a sub-station(s) cannot be contacted by the NCS or any other sub-station. This procedure is used when:

- a. establishing a net, and
- b. a net is established and communications are lost with all stations.

Immediate Action Drill

6.31 When initially trying to establish communications, all stations are to adopt the following measures to obtain contact:

- a. use the most efficient antenna,
- b. resite the antenna if required,
- c. test radio equipment for serviceability,
- d. use a higher power setting, and
- e. use alternate means to inform the NCS of any problems.

Procedure

6.32 If communications with a station are not established within 15 minutes, the no contact procedure is to be initiated using the time and frequency schedule detailed in table 6-3.

TABLE 6-3. Time and Frequency

Serial (a)	Time Past the Hour (b)	Number of Frequencies Allotted		
		Two (c)	Three (d)	Four (e)
1.	00-15 minutes	Primary	Primary	Primary
2.	15-30 minutes	Alternate	Alternate 1	Alternate 1
3.	30-45 minutes	Primary	Alternate 2	Alternate 2
4.	45-60 minutes	Alternate	Primary	Alternate 3

6.33 Depending on the operational situation and equipment availability, the NCS may:

- a. use alternate means if available, to determine the cause of the loss of contact;
- b. commence calling using spare radio equipment on the appropriate frequency as per the time and frequency schedule detailed in table 6-3;
- c. direct one of the sub-stations to commence calling using spare equipment on the appropriate frequency as detailed in table 6-3;
- d. direct one of the sub-stations to leave the net in search of lost stations allocating a time period in which the substation must return to the net; or
- e. leave the net in search of lost stations. If leaving the net, the NCS is to delegate control of the net to another station.

6.34 At the same time, the no contact procedure is to be adopted by the lost sub-station(s). Depending on the time, the sub-station starts calling on the appropriate frequency using the time and frequency schedule detailed in table 6-3. This is to continue until communications are re-established. This is an example of what may be contained in SOIs; however, the FCS can be modified to suit the required conditions (extra frequencies require a different time schedule).

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CHAPTER 7

Normal Procedure

Section 7-1. Introduction

7.1 Information requiring expeditious delivery is prepared for transmission in the form of brief and concise messages.

7.2 There are two main types of messages:

- a. informal or unregistered messages, and
- b. formal or registered messages.

Informal Messages

7.3 Informal messages provide the simplest and quickest means of sending orders and short-term information in the field. These are short operational messages in either verbal or written form. The written version needs only to contain the address and the text.

Formal Messages

7.4 Formal message procedures are detailed in chapter 10.

Section 7-2. Arranging a Voice Conversation

Procedure

7.5 The user can speak to a specific individual at another station by calling the person concerned to the set. The user will arrange this by advising the operator that he wishes to speak to a particular person by use of the radio appointment title (annex A to chapter 1); for example, 'I want to speak to SUNRAY 6 RAR'. The operator calls the station concerned using the proword FETCH followed by the appointment title. However, in the case of fixed call-sign nets, the use of radio appointments titles is not necessary, as the fixed call-sign is sufficient. The receiving operator replies 'WAIT – OUT' and he fetches the nominated individual. When the nominated individual has come to the radio set and is ready to begin conversation, he is to give his identity using the appointment title followed by the proword SPEAKING. The user at the calling station will then give his identity using his appointment title followed by the proword SPEAKING and then carry on with his message or conversation.

7.6 The following example illustrates the use of the proword FETCH. The Operations Officer of a formation headquarters wishes to speak to the RSO of DE4:

DE4 – (THIS IS) BP7 – FETCH PRONTO – OVER. BP7 – (THIS IS) DE4 – WAIT OUT.

(As the RSO is not immediately available – on arrival, the RSO transmits.)

BP7 – (THIS IS) DE4 – PRONTO SPEAKING – OVER.

DE4 – (THIS IS) BP7 – SEAGULL SPEAKING – Can you provide (etc) . . .

Section 7-3. Transmission of Messages

Offering a Message

7.7 An offer is a short transmission made to warn a station that a message follows. An offer is to be made when:

- a. the calling station wishes to ascertain whether the called station is ready to receive a message;
- b. in poor and difficult conditions, it is necessary for the sender to satisfy himself that communications are sufficiently good for the entire message to be received;
- c. it is necessary for the message to be written down;
- d. the net is directed;
- e. when orders are to be given over the radio, they must be received by a detachment commander (or equivalent); and
- f. the information to be passed is in a standardised form requiring the completion of a proforma (for example, an OC – 33 Message Form or SITREP).

7.8 A message may be offered by means of the prowords:

- a. *MESSAGE*. MESSAGE is used for informal plain text message.
- b. *CRYPTO MESSAGE*. CRYPTO MESSAGE is used for formal or informal message encoded using tactical codes.
- c. *BOMREP, MORTREP, SITREP* and *SHELREP*. BOMREP, MORTREP, SITREP and SHELREP are used for a warning of the type of message and proforma.
- d. *FORMAL MESSAGE*. FORMAL MESSAGE is used for plain dress and code dress messages.

7.9 The offer may take one of the forms illustrated in the example below. To ascertain whether the called station is ready to receive an informal message which is not required to be written down, a normal call without the use of the above prowords is then made as shown in the following example:

T3Q – THIS IS BP7 – OVER.

(BP7) – (THIS IS) – T3Q – (SEND) – OVER.

(T3Q) – (THIS IS) – (BP7) – Have you received fresh batteries – OVER.

(BP7) – (THIS IS) – (T3Q) – No – We need them urgently – OVER.

(T3Q) – (THIS IS) – (BP7) – Will check and let you know – Can you last for thirty minutes – OVER.

(BP7) – (THIS IS) – (T3Q) – Yes – OVER.

(T3Q) – (THIS IS) – (BP7) – (ROGER) – OUT.

7.10 The prowords FORMAL MESSAGE are not used for joint or combined working, all messages are offered using the proword MESSAGE to indicate to the recipient that he will have to take down an informal message. This is shown in the following example of a plain text informal message:

Z8N – THIS IS – BP7 – MESSAGE – OVER. (BP7) – (THIS IS) – Z8N – (SEND) – OVER.

(Z8N) – (THIS IS) – (BP7) – Move to GRID Alfa Echo – Mike Sierra Alfa – Juliett Bravo X-ray – TIME One Zero Two Four Zulu – AUTHENTICATION IS Echo Zulu OVER.

(BP7) – (THIS IS) – Z8N – (ROGER) – OUT.

7.11 Another illustration of this is in the following example of an encoded informal message:

IMM – THIS IS – BP7 – CRYPTO MESSAGE – OVER.

(BP7) – (THIS IS) – IMM – (SEND) – OVER.

(IMM) – (THIS IS) – (BP7) – Alfa Delta Golf – Yankee Echo Papa– X-ray Uniform Victor– Tango November Delta– Victor Victor India – Uniform Papa Uniform – Romeo Sierra Golf – Lima Victor Echo – Mike Tango Yankee – Sierra Yankee Echo – Figures One Zero Slant One Two – OVER.

(BP7) – (THIS IS) – IMM – (ROGER) – OUT.

7.12 A receipt is employed in direct station-to-station traffic handling. No message is considered delivered until a receipt is obtained. A receipt is effected by the receiving station transmitting the proword ROGER or WILCO. In the interests of good communications, the use of the proword is optional. Should either the transmitting or receiving station wish to indicate that it has further messages to transmit to the other station, this may be done by using the prowords MORE TO FOLLOW in the message ending or receipt, as shown in the example below. In the sample collective call CC1 designates call-signs DE4, IMM and T3Q. NCS has one message for all CC1 stations and one message for IMM and T3Q:

CC1 – THIS IS – BP7 – Batteries have been dispatched – MORE TO FOLLOW – for IMM and T3Q – OVER.

(BP7) – (THIS IS) – DE4 – (ROGER) – OUT. (BP7) – (THIS IS) – IMM – (ROGER) – OVER. (BP7) – (THIS IS) – T3Q – (ROGER) – OVER.

IMM – T3Q – (THIS IS) – BP7 – Direct Support Specified in VIOLIN now available – OVER.

(BP7) – (THIS IS) – IMM – (ROGER) – OUT. (BP7) – (THIS IS) – T3Q – (ROGER) – OUT.

(If the called station was not prepared to accept the message immediately, it would have transmitted, 'WAIT OUT'.)

Indicating Precedence in an Offer

7.13 Precedence may be indicated in an offer as shown in the following example:

Z8N – THIS IS BP7 – PRIORITY MESSAGE – OVER.

7.14 To indicate a number of messages of one or more precedence in an offer, the number of messages is followed by the precedence proword as per the following example:

Z8N – THIS IS – BP7 – One PRIORITY and One ROUTINE MESSAGE – OVER.

(BP7) – (THIS IS) – Z8N – (SEND) – OVER.

(Z8N) – (THIS IS) – (BP7) – PRIORITY – END OF MESSAGE – MORE TO FOLLOW – OVER.

(BP7) – (THIS IS) – (Z8N) – (ROGER) – OVER. (Z8N) – (THIS IS) – (BP7) – ROUTINE OVER.

7.15 Prior to the transmission of each message, the NCS should pause for five seconds to allow any other station to transmit a message of higher precedence.

Pause in Transmission

7.16 The proword WAIT made during a transmission and without an ending sign (proword OUT) indicates a short pause. A station having received 'WAIT' is to wait for 'OVER' before transmitting, unless it has been given a message of higher precedence to transmit, or it appears to have been overlooked. When ready to resume, the station completes the transmission commencing with a repetition of the last word, phrase or groups of prowords transmitted, as shown in the following example:

IMM – THIS IS – BP7 – MESSAGE – OVER.

(BP7) – (THIS IS) – IMM – (SEND) – OVER.

(IMM) – (THIS IS) – (BP7) – Join convoy at rendezvous point at WAIT (pause – 5 sec) at FIGURES Ten Hundred hours – OVER.

(BP7) – (THIS IS) – IMM – (ROGER) – OUT.

7.17 The proword WAIT followed by the proword OUT means, 'You are to wait' or 'I am obliged to wait', as applicable. A station resuming transmission of a message after transmitting 'WAIT – OUT' will, after the call, identify the message, transmit the prowords ALL AFTER and the last word, phrase, group or proword transmitted, and resume transmission of the original message, as shown in the following example:

IMM – THIS IS – BP7 – Join convoy at rendezvous point at – WAIT OUT.

IMM – THIS IS – BP7 – Ref my last transmission – ALL AFTER point – point FIGURES Ten Hundred hours – OVER.

(BP7) – (THIS IS) – IMM – (ROGER) – OUT.

Section 7-4. Long Message Procedure

Procedure

7.18 A long transmission is one which will take more than 30 seconds to transmit. As long transmissions usually require writing down, the following procedure is to be used:

- a. The message is to be sent in sections, each lasting not more than 30 seconds and each section, except for the last section, is to be terminated with the prowords MORE TO FOLLOW.
- b. The receiving stations are to receipt each section and if necessary, request repetitions.
- c. After receiving a receipt for each section from all or selected receiving stations, the sender is to pause for five seconds to allow any other station to transmit an urgent message.
- d. The transmitting station may interrupt its own message to send a more urgent one. If there is no interruption the next section will be transmitted by using the prowords ALL AFTER followed by the last word or phrase of the section previously transmitted. This procedure is continued until the complete message is transmitted.

7.19 The following example illustrates the procedure for a message transmission where there is no interruption by the transmitting station:

DE4 – T3Q – THIS IS – BP7 – MESSAGE – OVER.

(BP7) – (THIS IS) – DE4 – (SEND) – OVER.

(BP7) – (THIS IS) – T3Q – (SEND) – OVER.

(DE4 – T3Q) – (THIS IS) – BP7 – Tanks advancing from scrub supported by infantry – Mortar firing on buildings with smoke – MORE TO FOLLOW – OVER.

(BP7) – (THIS IS) – DE4 – (ROGER) – OVER.

(BP7) – (THIS IS) – T3Q – (ROGER) – OVER.

(NCS pauses for five seconds to allow for higher precedence traffic.)

(DE4 – T3Q) – (THIS IS) – BP7 – ALL AFTER – Smoke – Smoke no indication of attack from that direction but advise SUNRAY CALL-SIGN DE4 to move with caution – OVER.

(BP7) – (THIS IS) – DE4 – (ROGER) – OUT. (BP7) – (THIS IS) – T3Q – (ROGER) – OUT.

7.20 The following example illustrates the procedure for a message transmission where there is an interruption by the transmitting station:

DE4 – T3Q – THIS IS – BP7 – SDS delayed due to mechanical problem – WAIT OUT TO YOU.

(NCS initiates a transmission with higher priority.)

Z8N – THIS IS – BP7 – Move to ACE HIGH – AUTHENTICATION IS Kilo Golf – OVER.

(BP7) – (THIS IS) – Z8N – WILCO – OUT.

(The NCS pauses for five seconds to allow for higher precedence traffic.)

DE4 – T3Q – THIS IS – BP7 ALL AFTER problem – problem will arrive your loc in ten minutes – OVER.

(BP7) – (THIS IS) – DE4 – (ROGER) – OUT. (BP7) – (THIS IS) – T3Q – (ROGER) – OUT.

7.21 The following example illustrates the procedure for message transmission where there is an interruption by another station:

IMM – Z8N – THIS IS – BP7 – All supplies will be delivered by road – MORE TO FOLLOW – OVER.

(BP7) – (THIS IS) – IMM – (ROGER) – OVER. (BP7) – (THIS IS) – Z8N – (ROGER) – OVER. (DE4 transmits a message of higher priority.) BP7 – THIS IS – DE4 – Moving now – OVER.

DE4) – (THIS IS))– BP7 – (ROGER) – OUT TO YOU IMM – Z8N– THIS IS BP7– ALL AFTER– All supplies will be delivered by road – Blue route expected be to used ...– OVER.

(BP7) – (THIS IS) – IMM – (ROGER) – OUT. (BP7) – (THIS IS) – Z8N – (ROGER) – OUT.

(Call-sign 1 could authenticate its message by transmission authentication or the NCS would challenge 1 if it was in any doubt.)

Section 7-5. Corrections and Repetitions

7.22 A sender may make a mistake in a transmission and have to correct it. Similarly, the receiver may have to ask the sender to repeat some part or all of the message.

Correction During Transmission

7.23 When an error is made by a sender the proword CORRECTION will be transmitted followed by the last word, phrase group or proword correctly transmitted, and the transmission then continues as shown in the following example:

BP7 – THIS IS – Z8N – Enemy tanks advancing from tree line – CORRECTION – ALL BEFORE Advancing – Enemy armoured cars advancing – OVER.

(Z8N) – (THIS IS) – BP7 (ROGER) – OUT.

7.24 If the methods explained in paragraphs 7.22 and 7.23 are liable to be confusing or ambiguous, then the proword CORRECTION may be qualified by one of the following prowords such as CALL-SIGN, GRID or TIME.

Repetitions

7.25 In the text of a plain language message, difficult portions may, at the discretion of the sender, be repeated for emphasis or to ensure correct reception of a word, phrase or group that has just been transmitted by using the prowords I SAY AGAIN. This means, 'I am going to repeat the difficult portion just transmitted', as shown in the following example:

Z8N – THIS IS – BP7 – Move via LUCKY STRIKE – CALLSIGN 2 – Will guide you through to AUGATHELIA – I SAY AGAIN – AUGATHELIA – OVER.

(BP7) – (THIS IS) – Z8N – (ROGER) – OUT.

7.26 When a station fails to receive all or part of a message or doubts words received, repetitions are requested by that station before receipting the message by using the prowords SAY AGAIN. The prowords SAY AGAIN are used alone or in conjunction with a suitable proword as listed in paragraph 7.25. In complying with the request(s) for repetition(s), the sender is to identify that portion which is being repeated as shown in the following example:

SM5 – THIS IS – BP7 – Enemy tanks entering at GRID One Six Seven – Nine Five Three – supported by infantry – area to the north-west reported clear – OVER.

(BP7) – (THIS IS) – DE4 – SAY AGAIN – OVER.

(SM5)– (THIS IS)– BP7– I SAYAGAIN – Enemy tanks entering at GRID One Six Seven – Nine Five Three – supported by infantry – area to the north-west reported clear – OVER.

(BP7) – (THIS IS) – DE4 (ROGER) – OUT.

(BP7) – (THIS IS) – IMM – SAY AGAIN ALL BEFORE entering – OVER.

(IMM) – (THIS IS) – BP7 – I SAY AGAIN ALL BEFORE entering – enemy tanks entering – OVER.

(BP7) – (THIS IS) – IMM – (ROGER) – OUT. (BP7) – (THIS IS) – T3Q – (ROGER) – OUT.

(BP7) – (THIS IS) – Z8N – SAY AGAIN WORD AFTER supported by – ALL AFTER west – OVER.

(Z8N) – (THIS IS) – BP7 – I SAY AGAIN – WORD AFTER supported by – Supported by infantry – ALL AFTER west – west reported clear – OVER.

(BP7) – (THIS IS) – Z8N – (ROGER) – OUT.

(BP7) – (THIS IS) – DE4 – SAYAGAIN FM supported TO area – WORD BEFORE clear – OVER.

(DE4) – (THIS IS) – BP7 – I SAY AGAIN – FM supported TO area – supported by infantry area – WORD BEFORE clear – reported clear – OVER.

(BP7) – (THIS IS) – DE4 – (ROGER) – OUT.

Section 7-6. Checking the Group Count, Questioning Doubtful Portions and Verifications

Checking the Group Count

7.27 When an encoded message is being received and the number of groups actually received does not correspond with the group count of the message, the receiving station requests a check by transmitting the phrase 'CHECK GROUPS .. .', stating the number of groups actually received. The transmitting station will then check and indicate that the number of groups received is correct by using the proword CORRECT. If the number of groups received is incorrect the transmitting station will notify the receiving station which must then alter the group count accordingly, as shown in the example below. The NCS transmits an encoded informal message and DE4 notices that the group count and the number of groups received are at variance:

DE4 – THIS IS – BP7 – CRYPTO MESSAGE – OVER.

(BP7) – (THIS IS) – DE4 – (SEND) – OVER.

(DE4) – (THIS IS) – (BP7) – Delta Golf India – Lima Oscar Papa – Juliett Tango X-ray – Romeo Oscar Tango – Foxtrot Mike X-ray – Oscar Papa India – Tango Romeo Sierra – Mike Delta Golf – Delta Echo India – Sierra Tango Delta – Golf Bravo X-ray – Oscar Mike Bravo – FIGURES One Three Slant Two Four – OVER.

(The group count indicates the actual number of code groups in the message followed by the date of encoding.)

(BP7) – (THIS IS) – (DE4) – CHECK GROUPS One Two – OVER.

(The NCS operator checks and finds that the code group count should be 12.)

(DE4) – (THIS IS) – (BP7) – CORRECT – OVER. (BP7) – (THIS IS) – DE4 (ROGER) – OUT.

7.28 If, after checking, the receiving station finds that the number of groups received differs from the group count or there is an indication that groups have not been transmitted or have not been received, the transmitting station repeats the group count followed by the first letter of each group. This will enable the receiving station to discover which groups are missing and request a repetition of them as per the following example:

DE4 – THIS IS – BP7 – CRYPTO MESSAGE – OVER.

(BP7) – (THIS IS) – DE4 – (SEND) – OVER.

(DE4) – (THIS IS) – (BP7) – [Kilo] Echo November – [Golf] Uniform November – [Sierra] Tango Oscar – [November] Echo India – [Sierra] Bravo Oscar – [Romeo] Echo Delta – [Sierra] Hotel India – [Tango] Lima Echo – [Sierra] Sierra Delta – [Oscar] India November – [Golf] Tango Hotel – [India] Sierra Sierra – FIGURES One Two Slant Two Four – OVER.

(BP7) – (THIS IS) – (DE4) – CHECK GROUPS One One – OVER.

(The NCS operator checks and finds that the code group count (12) is correct.)

(DE4) – (THIS IS) – (BP7) – GROUPS One Two – Kilo – Golf– Sierra – November – Sierra – Romeo – Sierra – Tango – Sierra – Oscar – Golf – India – OVER.

(The DE4 operator can now see which group he has missed and would change the code group count to read 12/24.)

(BP7) – (THIS IS) – (DE4) – SAY AGAIN GROUP Five – OVER.

(DE4) – (THIS IS) – (BP7) – I SAYAGAIN– GROUP Five – Sierra Bravo Oscar – OVER.

(BP7) – (THIS IS) – DE4 – (ROGER) – OUT.

7.29 In all messages with a group count exceeding 30 groups, if the receiving station considers the group count to be incorrect, the transmitting station repeats the original group count and transmits the identity of the first, eleventh, and every subsequent tenth group followed by the initial letter of that group as shown in the following example:

DE4 – THIS IS – BP7 – CHECK GROUPS Five Five – OVER.

(BP7) – (THIS IS) – DE4 – GROUPS Five Five – One Echo – Eleven Zulu – Twenty One Sierra – Thirty One Charlie – Forty One Hotel – Fifty One Alfa – OVER.

(The NCS then may request the first letter of each group within the range of 10 or request a repetition of the ten groups in which it has a miscount.)

(DE4) – (THIS IS) – (BP7) – SAY AGAIN Forty One TO Fifty – OVER.

(BP7) – (THIS IS) – (DE4) – I SAY AGAIN Forty One TO Fifty – Hotel Charlie X-ray – etc etc – OVER.

(DE4) – (THIS IS) – BP7 – (ROGER) – OUT.

Questioning Doubtful Portions

7.30 A station may question the reception of doubtful portions of a message by means of the proword CHECK, with identifying data as shown in the following example:

DE4 – THIS IS – BP7 – CHECK GROUP Forty One – Hotel Charlie X-ray – OVER.

(BP7) – (THIS IS) – DE4 – CORRECT – OVER. (DE4) – (THIS IS) – BP7 – (ROGER) – OUT. or

(DE4) – (THIS IS) – BP7 – CHECK GROUP Forty One – Hotel Charlie X-ray – OVER.

(BP7) – (THIS IS) – DE4 – CORRECTION – GROUP Forty One Hotel Oscar X-ray – OVER.

(DE4) – (THIS IS) – BP7 – (ROGER) – OUT.

Verifications

7.31 At times, it is necessary to query a message some time after it has been received; and this frequently occurs in an encoded informal message or messages containing code-words, numeral codes or figures such as grid references. An error may have been introduced into a message by:

- a. incorrect initial data,
- b. incorrect encoding,

- c. incorrect decoding,
- d. incomplete or incorrect transmission, or e. incomplete or incorrect reception.

7.32 When an error has occurred and the message fails to make sense, it must be checked by all concerned in the transmission. The process of verifying the sense of the message must not be confused with the procedure for requesting a repetition where only the reception of the message is in doubt. **Only the originator can verify the text of a message.**

7.33 In carrying out the verifying process, the originator must be given the opportunity to check whether the receiving station has taken down the message correctly in the first instance. The receiving station, therefore, refers to the message by use of the proword VERIFY. When used after a call without identifying data, the proword VERIFY means, 'Verify with originator and say again your last message'. VERIFY, followed by identification data means, 'Verify with originator and say again your last message' or 'verify with originator and say again message or portion thereof as indicated', as shown in the following example:

SM5 – THIS IS – BP7 – Alfa Bravo Charlie – Foxtrot Golf Alfa – Lima Charlie Delta – Xray Yankee Delta – Charlie Delta Xray – Foxtrot Lima Golf – Charlie Oscar Lima – Mike Papa Golf – FIGURES Eight Slant One Two – OVER.

(BP7) – (THIS IS) – DE4 – (ROGER) – OUT.

(BP7) – (THIS IS) – IMM – (ROGER) – OUT.

(BP7) – (THIS IS) – T3Q – (ROGER) – OUT.

(BP7) – (THIS IS) – Z8N – (ROGER) – OUT.

(Later DE4 requests a verification of group 1.)

BP7 – THIS IS – DE4 – VERIFY Your Groups Eight Slant One Two – GROUP One (Alfa Bravo Charlie) – OVER.

(DE4) – (THIS IS) – BP7 – WAIT – OUT.

(The BP7 operator verifies with the originator and, the group being correct, transmits.)

DE4 – THIS IS – BP7 – I VERIFY – My Groups Eight Slant One Two GROUP One – Alfa Bravo Charlie – OVER.

(BP7) – (THIS IS) – DE4 – (ROGER) – OUT. or

(The DE4 operator has transposed Group 1 in error to read ACB instead of ABC. In this case, verification with the originator would not be necessary.)

BP7 – THIS IS – DE4 – VERIFY – Your Groups Eight Slant One Two GROUP One Alfa Charlie Bravo – OVER.

(DE4) – (THIS IS) – BP7 – WAIT – OUT.

(The BP7 operator checks and finds that an error was made in reception by the DE4 operator.)

DE4 – THIS IS – BP7 – Reference – My Groups Eight Slant One Two – CORRECTION Group One – Alfa Bravo Charlie – OVER.

(BP7) – (THIS IS) – DE4 – (ROGER) – OUT.

7.34 When verification of a message, or a portion thereof, has been requested, the originating station operator is to verify with the originator. If the message is found to be incorrect, the correct version must be sent. If the message is to a number of addressees, the corrected version must be sent to all addressees as shown in the example below. In this case, DE4 requests a verification, and the transmission by the NCS is found to be incorrect; that is, Group 1 (ABC) had been transmitted as ABG in the original message:

BP7 – THIS IS – DE4 – VERIFY – YOUR Groups Eight Slant One Two Group One – Alfa Bravo Golf – OVER.

(DE4) – (THIS IS) – BP7 – WAIT – OUT.

(The BP7 operator verifies with the originator that the group is incorrect and should read ABC. The operator then transmits a correction to all stations.)

SM5 – THIS IS – BP7 – CORRECTION – My Groups Eight Slant One Two GROUP One – Alfa Bravo Charlie – OVER.

All stations receipt the transmission (ROGER) – OUT.

7.35 In some circumstances, the addressee may be collocated with the operator and therefore able to initiate a request for a verification before a receipt is given.

Section 7-7. Acknowledging, Cancelling of Messages and Do Not Answer

Acknowledgement of Messages

7.36 An acknowledgement is a message from the addressee informing the originator that the message has been received. An acknowledgement should not be confused with a reply or receipt. A prompt reply referring to the message may serve in lieu of an acknowledgement. It is the prerogative of the originator to request an acknowledgement to a message from any or all addressees of that message, by using the proword ACKNOWLEDGE. The request for an acknowledgement is normally included in the text of that message. If the message has already been transmitted, the request for an acknowledgement will constitute a new message. Acknowledgements are originated only by the addressee to whom the request was made:

IMM – THIS IS – DE4 – Search area Delta ACKNOWLEDGE – OVER.

(DE4) – (THIS IS) – IMM – ROGER – WAIT OUT.

(The IMM operator, having shown the message to the commander or duly authorised representative, and having been ordered to acknowledge the message by him, transmits.)

DE4 – THIS IS – IMM Reference your last – ACKNOWLEDGED – OVER.

(IMM) – (THIS IS) – DE4 – (ROGER) – OUT.

Cancelling Messages

7.37 During the transmission of a message and prior to the transmission of the proword OVER or OUT, the transmission may be cancelled by use of the prowords DISREGARD THIS TRANSMISSION – OUT. For example during the transmission of a message, the NCS realises that the transmission is being sent in error and therefore cancels it:

IMM – THIS IS – BP7 – CRYPTO MESSAGE – OVER.

(BP7) – (THIS IS) – IMM – (SEND) – OVER.

(IMM) – (THIS IS) – BP7 – Delta Golf India – Lima Oscar Papa – Juliett Tango X-ray – DISREGARD THIS TRANSMISSION – OUT.

7.38 A message which has been completely transmitted can only be cancelled by another

message. For example, the NCS realises that the transmission was in error and wishes to cancel the message; transmission authentication is to be used:

IMM– THIS IS – BP7– CANCEL My Message FIGURES One Three Slant One Two – AUTHENTICATION IS Kilo Golf – OVER.

(BP7) – (THIS IS) – IMM – (WILCO) – OUT.

Do Not Answer

7.39 When it is imperative that the called station(s) does not answer a transmission, the prowords DO NOT ANSWER will be transmitted immediately following the call. The complete transmission is then repeated; the full transmission ending with the proword OUT. It is mandatory that these transmissions be authenticated:

SM5 – THIS IS – BP7 – DO NOT ANSWER – Act in accordance with Plan Charlie – AUTHENTICATION IS Kilo Golf– I SAY AGAIN – SM5 – THIS IS – BP7 – DO NOT ANSWER – Act in accordance with Plan Charlie – AUTHENTICATION IS Kilo Golf – OUT.

Clear Procedure

7.40 In tactical operations, simulated or actual, when speed of delivery is so essential that time cannot be spared for encryption and the transmitted information cannot be acted upon by the enemy in time to influence current operations, messages of any classification except TOP SECRET may be transmitted in plain language (clear) over any circuit. In such cases, transmission in clear must be authorised separately for each message by the commanding officer or his authorised representative. Linkage to previously encrypted messages should be avoided. These messages will not be given a security classification but will be identified by the prowords IN CLEAR transmitted at the beginning of the text. This is an indication that the message contains classified information and has been authorised to be sent in clear. Original copies marked CLEAR shall be handled as confidential material by the operator. The message, when received, should be marked with the phrase 'RECEIVED IN CLEAR, TREAT AS CONFIDENTIAL' prior to delivery to the addressee. Messages so marked are not to be readdressed. Should the addressee desire the information to be forwarded to another addressee, a new message must be originated, appropriately classified and handled as the situation dictates.

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CHAPTER 8

Procedures for Bad Working Conditions

Section 8-1. Free and Directed Net

Free Net

8.1 Under normal conditions, once a net has been established it is **free** and the NCS will not usually intervene in communications between sub-stations.

Directed Net

8.2 When conditions are difficult and the flow of traffic is heavy, the NCS may order the net to be directed. Thereafter, all messages between sub-stations must be offered. The NCS is the first to answer their offers and thus is able to regulate all traffic on the net. Permission is not required for the transmission of FLASH messages which are to be sent direct.

8.3 The use of directed net procedure must be kept to a minimum as directions slow down net working. In bad conditions, the first consideration must be to improve or eliminate those conditions rather than to make the net a directed one. A net should not be declared directed as a means of correcting bad net discipline.

Prowords

8.4 The prowords used to change the state of the net are as follows:

- a. THIS IS A DIRECTED NET, and
- b. THIS IS A FREE NET.

8.5 Examples of the NCS ordering a directed net and a free net are as follows:

SM5 – THIS IS – BP7 – THIS IS A DIRECTED NET – OVER.

(BP7) – (THIS IS) – DE4 – (ROGER) – OUT.

(BP7 – (THIS IS) – IMM – (ROGER) – OUT.

(BP7) – (THIS IS) – T3Q – (ROGER) – OUT.

(BP7) – (THIS IS) – Z8N – (ROGER) – OUT.

8.6 **Free Net.** When conditions on the net improve, the NCS transmits:

SM5 – THIS IS – BP7 – THIS IS A FREE NET – OVER. All stations answer ROGER – OUT.

Directed Net – Replies by Control

8.7 When a message has been offered by one sub-station to another on a directed net, the NCS can use the following prowords:

- a. SEND YOUR MESSAGE (SITREP, BOMREP, etc);
- b. WAIT OUT;
- c. THROUGH ME – OVER;
- d. RELAY THROUGH – OUT.

8.8 SEND YOUR ... – OUT. SEND YOUR ... – OUT indicates that the NCS has given permission for the particular message to be sent and will take no part in the transmission. This is illustrated in the following example, where IMM has a sitrep for Z8N, and transmits the following:

Z8N – THIS IS – IMM – SITREP OVER.

IMM – (THIS IS) – BP7(NCS) – SEND YOUR SITREP– OUT.

(IMM)– (THIS IS)– Z8N– (SENDYOUR SITREP)– OVER.

(Z8N) – (THIS IS) – IMM – SITREP etc.

8.9 WAIT OUT. WAIT OUT indicates that the sub-station must wait until permission is given by the NCS to continue with its transmission. This is illustrated in the following example, where DE4 initiates the call:

IMM – THIS IS – DE4 – (MESSAGE) – OVER.

(As more urgent traffic is to be passed, the NCS transmits:)

DE4 – THIS IS – BP7 – WAIT OUT.

(When the more urgent traffic has been sent, the NCS transmits:)

DE4 – THIS IS – BP7 – SEND YOUR MESSAGE – OUT.

IMM – THIS IS – DE4 – (MESSAGE) – OVER.

(DE4) – (THIS IS) – IMM – (SEND) – OVER.

(DE4 continues until the message is completed).

8.10 THROUGH ME. THROUGH ME procedure is used when conditions between sub-stations are unsatisfactory, although the NCS is in contact with all stations. Once the NCS has ordered this procedure, it assumes complete responsibility for disposal of the message, and may send it by any means available. The NCS is to:

- a. provide a receipt for the message;
- b. check whether the addressee has received the message;
- c. retransmit the message if it was not received by the addressee, or, if the addressee has received part of the message, send corrections as requested; and
- d. ensure delivery by other means if communications are not possible.

8.11 An example of THROUGH ME procedure is as follows. Z8N offers a message to T3Q, NCS knows that T3Q receives Z8N weak with interference, and offers to relay:

T3Q – THIS IS – Z8N – (MESSAGE) – OVER.

Z8N – THIS IS – BP7 – THROUGH ME – OVER.

(BP7) – (THIS IS) – Z8N – FOR T3Q – Have reached BIG APPLE – OVER.

(Z8N) – (THIS IS) – BP7 – ROGER OUT TO YOU – T3Q – THIS IS BP7 – Did you receive the message from Z8N – OVER.

(BP7) – (THIS IS) – T3Q – NO – OVER.

(T3Q) – (THIS IS) – BP7 – FROM Z8N – Have reached BIG APPLE – OVER.

(BP7) – (THIS IS) – T3Q – (ROGER) – OUT.

8.12 RELAY THROUGH. RELAY THROUGH procedure is used when a sub-station offers the NCS a message for another sub-station which has lost contact with both the calling station and the NCS, but is in contact with another station. For example, DE4 offers a message to IMM:

IMM – THIS IS – DE4 – (MESSAGE) – OVER.

(DE4) – (THIS IS) – BP7 – RELAY THROUGH T3Q – OUT.

T3Q – THIS IS – DE4 – RELAY TO IMM – (Message... etc....)

(DE4 sends the message to IMM via T3Q using normal relay procedure.)

Formal Traffic

8.13 A net passing a high volume of formal traffic will require an additional control when the net is directed to ensure the smooth flow of precedence messages. The following example shows how the NCS organises the net traffic for transmission. NCS initiates the call to the net:

SM5 – THIS IS – BP7 – Of what precedence, and for whom are your messages – OVER.

(BP7) – (THIS IS) – DE4 – One immediate and one routine for you – OVER.

(BP7) – (THIS IS) – IMM – No traffic – OVER.

(BP7) – (THIS IS) – T3Q – Routine for DE4 – OVER.

(BP7) – (THIS IS) – Z8N – Priority for IMM – OVER.

(The NCS informs all stations that it has heard their transmissions and then commences handling traffic in order of precedence.)

SM5 – THIS IS – BP7 – ROGER – DE4 – Send your immediate – OVER.

(When DE4 has cleared his IMMEDIATE message, the NCS orders the station with the highest precedence message to send that message, and so on until all formal messages are cleared.)

Section 8-2. Delegating, Assuming and Resuming Control

8.14 All instructions dealing with the assumption and passing of control should, where possible, be passed by secure means. Where this is not possible the procedures in this section are to be used. The examples quoted in this section include transmission authentication; but, if it is not available and there is any suspicion that the orders to delegate or assume control may not be genuine, challenge-reply authentication is to be employed by the next senior sub-station.

Delegating Control

8.15 It may be necessary for the NCS to delegate control of the net to a sub-station or an alternative headquarters station when effective control cannot be maintained by the NCS, or when the NCS has to leave the net for any reason. In this case the prowords ASSUME CONTROL are to be used. The NCS may, or may not, give an explanation for relinquishing control of the net. For example, if the NCS is unable to maintain effective control of the net and decides that DE4 is in the best position to assume control of the net, the NCS transmits:

SM5 – THIS IS – BP7 – DE4 – ASSUME CONTROL – AUTHENTICATION IS Kilo Golf – OVER.

(BP7) – (THIS IS) – DE4 – WILCO – OUT.

(BP7) – (THIS IS) – IMM – ROGER – OUT.

(BP7) – (THIS IS) – T3Q – ROGER – OUT.

(BP7) – (THIS IS) – Z8N – ROGER – OUT.

Assuming Control

8.16 Other occasions may arise when the NCS may break down or otherwise cease to function. In this event, control of the net then reverts to the previously designated sub-station or, if none, the senior sub-station on the net. Before the senior sub-station assumes control, it must confirm that the NCS cannot be heard by the other stations on the net. On formation nets, seniority may be laid down or derived by the alphabetical sequence of the call-signs. The senior sub-station, if necessary, may delegate control to another sub-station which would have more effective control of the net.

8.17 In the following example, nothing has been heard from the NCS for some time:

SM5 – THIS IS – DE4 – Have you heard anything from CALLSIGN BP7 – OVER.

(five second pause for the NCS to answer, if able)

(DE4) – (THIS IS) – IMM – No – OVER.

(DE4) – (THIS IS) – T3Q – No – OVER.

(DE4) – (THIS IS) – Z8N – No – OVER.

(All stations wait for five seconds to allow the NCS to answer, if able.)

SM5 – (THIS IS) – DE4 – I AM ASSUMING CONTROL – AUTHENTICATION IS Kilo Golf – OUT.

8.18 If a sub-station with authority on the net wishes to assume control (for example, CO or OC) he may do so and retain his normal call-sign.

8.19 In the following example, a commander has temporarily moved from his old location serviced by the NCS and moved to the area serviced by CALL-SIGN T3Q and wishes to maintain control of the net:

SM5 – THIS IS – T3Q – I AM ASSUMING CONTROL – (RADIO CHECK) – AUTHENTICATION IS Kilo Golf – OVER.

(T3Q) – (THIS IS) – BP7 – (ROGER) – OUT.

(T3Q) – (THIS IS) – DE4 – (ROGER) – OUT.

(T3Q – (THIS IS) – IMM – (ROGER) – OUT.

(T3Q – (THIS IS) – Z8N – (ROGER) – OUT.

(The NCS would normally be advised that the above is to occur.)

Resuming Control

8.20 The prowords I AM ASSUMING CONTROL are to be used when the normal NCS reports into the net after an absence or when conditions improve and it wishes to resume control of the net. The following examples illustrate this.

8.21 Serving as one example, BP7 reports into the net after an absence and wishes to resume control of the net:

SM5 – THIS IS – BP7 – REPORTING INTO NET – I AM ASSUMING CONTROL – AUTHENTICATION IS Kilo Golf – OVER.

(BP7) – (THIS IS) – DE4 – (ROGER) – OUT.

(BP7) – (THIS IS) – IMM – (ROGER) – OUT.

(BP7) – (THIS IS) – T3Q – (ROGER) – OUT.

(BP7) – (THIS IS) – Z8N – (ROGER) – OUT.

(Transmission authentication would normally be used; but, if it is not, DE4 would challenge BP7 to authenticate. All other sub-stations would then answer in turn '(ROGER) – OUT'.)

8.22 Serving as another example, when conditions improve, BP7 decides that effective control of the net can now be maintained. BP7 initiates the call but omits to give transmission authentication:

SM5 – THIS IS – BP7 – I AM ASSUMING CONTROL – OVER.

(BP7) – (THIS IS) – DE4 – AUTHENTICATE Zulu Yankee – OVER.

(DE4) – (THIS IS) – BP7 – I AUTHENTICATE – Tango – OVER.

(Authentication given by BP7 is correct; DE4 continues.)

(BP7) – (THIS IS) – DE4 – (ROGER) – OUT.

(BP7) – (THIS IS) – IMM – (ROGER) – OUT.

(BP7) – (THIS IS) – T3Q – (ROGER) – OUT.

(BP7) – (THIS IS) – Z8N – (ROGER) – OUT.

Formation Nets

8.23 When a formation is moving its headquarters and has sent out a step-up headquarters station, a permanent change of the NCS takes place when command passes from the old to the new location. The executive order for the change is normally given by secure means or nickname. The step-up station then assumes the tactical call-sign previously used by the NCS.

Leaving the Radio

8.24 At times, emergency situations may occur where it is necessary for the operator to be away from the radio, for example, when a generator fails or to carry out antenna changes. When this occurs the NCS is to be notified. The following procedure is to be used:

BP7 – THIS IS – DE4 – This call-sign will be unmanned for FIGURES Five minutes – OVER

(DE4) – (THIS IS) – BP7 – (ROGER) – OUT.

8.25 When the operator returns to the radio, contact is re-established with the NCS in the following manner:

BP7 – THIS IS – DE4 – (RADIO CHECK) – AUTHENTICATION IS Kilo Golf – OVER.

(DE4) – (THIS IS) – BP7 – (ROGER) – OUT.

Section 8-3. Read Back Procedure

8.26 Read back procedure is used when:

- a. the sending station wishes to ensure that the message has been received correctly, or
- b. the receiving station wishes to make sure that it has received the message.

Procedure

8.27 If a transmission, message or portion thereof is to be read back, the prowords READ BACK and identifying data will be transmitted following the call. If a collective or net call is used, but only some of the stations represented in the call are required to read back, that station or those stations will be specified by transmitting the appropriate call-sign(s) preceding the prowords READ BACK. When the order to read back is given, only those stations directed to do so are to read back. The remaining stations called are to keep silent until the read back is completed and then answer, in order, giving a normal receipt.

8.28 The following four examples illustrate the read back procedure. In this first example, the NCS requests call-sign IMM to read back the complete transmission:

SM5 – THIS IS – BP7 – MESSAGE – OVER.

(BP7) – (THIS IS) – DE4 – (SEND) – OVER.

(BP7) – (THIS IS) – IMM – (SEND) – OVER.

(BP7) – (THIS IS) – T3Q – (SEND) – OVER.

(BP7) – (THIS IS) – Z8N – (SEND) – OVER.

(SM5) – (THIS IS) – BP7 – IMM READ BACK – Convoy has arrived at GRID Bravo Yankee – Mike Charlie Bravo – Oscar Tango Mike – OVER.

(BP7) – (THIS IS) – IMM – I READ BACK – (SM5) – (THIS IS) BP7 – IMM READ BACK – Convoy has arrived at GRID Bravo Yankee – Mike Charlie Bravo – Oscar Tango Mike – OVER.

(IMM) – (THIS IS) – BP7 – CORRECT – OUT.

(BP7) – (THIS IS) – DE4 – (ROGER) – OUT.

(BP7) – (THIS IS) – T3Q – (ROGER) – OUT.

(BP7) – (THIS IS) – Z8N – (ROGER) – OUT.

8.29 In this second example of the read back procedure, the NCS requests T3Q to read back the text:

SM5 – THIS IS – BP7 – T3Q READ BACK TEXT – Convoy arrived at 1800 hr – OVER.

(BP7) – (THIS IS) – T3Q – I READ BACK TEXT – Convoy arrived at 1800 hr – OVER.

(T3Q) – (THIS IS) – BP7 – CORRECT – OUT.

(BP7) – (THIS IS) – DE4 – (ROGER) – OUT.

(BP7) – (THIS IS) – IMM – (ROGER) – OUT.

(BP7) – (THIS IS) – Z8N – (ROGER) – OUT.

8.30 In this third example of the read back procedure, the NCS requests DE4 to read back the grid reference:

SM5 – THIS IS – BP7 – DE4 READ BACK GRID – Convoy has arrived GRID Bravo Yankee – Mike Charlie Bravo – Oscar Tango Mike – OVER.

(BP7)– (THIS IS)– DE4– I READ BACKGRID– GRID Bravo Yankee – Mike Charlie Bravo – Oscar Tango Mike – OVER.

(DE4) – (THIS IS) – BP7 – CORRECT – OUT.

(BP7) – (THIS IS) – IMM – (ROGER) – OUT.

(BP7) – (THIS IS) – T3Q – (ROGER) – OUT.

(BP7) – (THIS IS) – Z8N – (ROGER) – OUT.

8.31 In this final example of the read back procedure (illustrating the use of the proword WRONG) the NCS requests DE4 to read back the grid reference:

SM5 – THIS IS – BP7 – DE4 READ BACK GRID – Convoy has arrived at GRID – Bravo Yankee – Mike Charlie Bravo – Oscar Tango Mike – OVER.

(BP7) – (THIS IS) – DE4 – I READ BACK GRID – GRID Bravo Yankee – Mike Charlie Bravo – Oscar Alpha – OVER.

(DE4) – (THIS IS) – BP7 – WRONG – GRID Bravo Yankee – Mike Charlie Bravo – Oscar Tango Mike – OVER.

(BP7) – (THIS IS) – DE4 – I READ BACK GRID – Bravo Yankee – Mike Charlie Bravo – Oscar Tango Mike – OVER.

(DE4) – (THIS IS) – BP7 – CORRECT – OUT.

(BP7) – (THIS IS) – IMM – (ROGER) – OUT.

(BP7) – (THIS IS) – T3Q – (ROGER) – OUT.

(BP7) – (THIS IS) – Z8N – (ROGER) – OUT.

8.32 Read back procedure may be used at any time by a receiving station to ensure that the message it has received is correct. The receiving station would start reading back by saying, 'I READ BACK'.

Section 8-4. Words Twice Procedure

8.33 When communications are poor or difficult, phrases, words or groups may be transmitted twice by using the proword WORDS TWICE. The calling station may transmit 'WORDS TWICE' or the called station may request the calling station to transmit 'WORDS TWICE'.

8.34 The following two examples illustrate the words twice procedure. In this first example, conditions are difficult and BP7 decides to transmit the message using words twice procedure:

DE4 – DE4 – THIS IS – BP7 – THIS IS – BP7 – MESSAGE – MESSAGE – OVER – OVER.

BP7 – BP7 – THIS IS – DE4 – THIS IS – DE4 – SEND – SEND – OVER – OVER.

DE4 – DE4 – THIS IS – BP7 – THIS IS – BP7 – WORDS TWICE – WORDS TWICE – Convoy arrived this loc at 1800 h. – Convoy arrived this loc at 1800 hr – OVER – OVER.

BP7 – BP7 – THIS IS – DE4 – THIS IS – DE4 – SAY AGAIN – SAY AGAIN – WORD BEFORE arrived – WORD BEFORE arrived – OVER – OVER.

DE4– DE4– THIS IS– BP7– THIS IS– BP7– I SAYAGAIN– I SAY AGAIN – WORD BEFORE arrived – WORD BEFORE arrived– Convoy arrived– Convoy arrived– OVER– OVER.

BP7 – BP7 – THIS IS – DE4 – THIS IS – DE4 – ROGER – ROGER – OUT – OUT.

8.35 In this second example, conditions are good, but DE4 is experiencing heavy local interference and requests BP7 to transmit the message twice:

DE4 – THIS IS – BP7 – MESSAGE – OVER.

(BP7) – (THIS IS) – DE4 – WORDS TWICE – OVER.

DE4– DE4– THIS IS– BP7– THIS IS– BP7– Convoy arrived this loc at 1800 hr – Convoy arrived this loc at 1800 hr – OVER – OVER.

(BP7) – (THIS IS) – DE4 – (ROGER) – OUT.

Section 8-5. Relay Procedure

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

8.37 A message is offered when:

- a. it is not certain that the relay station is in contact with the addressee, or
- b. it is necessary for the relay station to make a copy of the message.

8.38 The following prowords (table 8-1) are used in relay procedure and in this context are interpreted as indicated.

TABLE 8-1. Prowords Used in Relay Procedure

<i>Proword (a)</i>	<i>Meaning (b)</i>
RELAY	Station called is to transmit/relay this message to all addressees (used in formal message procedure only). The address component is mandatory when this proword is used.
RELAY TO.. .	Station called is to transmit/relay this message to the addressee(s) immediately following this proword. (The address component is mandatory when used in formal message procedure).
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 advise the most suitable station through which to relay).

Relay

8.39 In formal messages other than codress, the proword RELAY used alone indicates that the station called is to relay the message to all addressees and may only be used if lines 6, 7 and 8 are used (that is, the call may not serve as the address). In this case, it is used only when the calling station knows that the called station has communications with the station(s) to whom the message is to be relayed.

Relay To

8.40 The prowords RELAY TO followed by an address designator indicates that the station called is to relay the message to the stations indicated. When more than one station is called, the call-sign of the station designated to perform the relay will precede the prowords RELAY TO. At times it is necessary to relay a message to a station on another net or by some other means of communications employed for relay, and full call-signs or address groups are to be used in the address component (chapter 10, Formal Message Procedure) as per the examples below. Communication between call-signs DE4 and IMM is not possible. The relay message, which does not in this case require an offer, is relayed via call-sign T3Q:

IMM – THIS IS – DE4 – SUNRAY departed for your location – OVER.

(no reply from IMM)

IMM – THIS IS – DE4 – OVER.

IMM – THIS IS – DE4 – NOTHING HEARD – OUT TO YOU – T3Q – THIS IS – DE4 – RELAY TO IMM – SUNRAY departed for your location – OVER.

(DE4) – (THIS IS)- T3Q – (ROGER) – OUT TO YOU – IMM – THIS IS – T3Q – FROM DE4 – SUNRAY departed for your location – OVER.

(T3Q) – (THIS IS) – IMM – (ROGER) – OUT.

Through Me

8.41 The prowords THROUGH ME indicate that the calling station is in communication with the called station and is prepared to relay the message.

8.42 In the following example, the NCS hears call-sign DE4 is having difficulty and instructs him to pass the message through the NCS:

IMM – THIS IS – DE4 – SUNRAY departed for your location – OVER.

(no reply from IMM)

IMM – THIS IS – DE4 – OVER. (no reply from IMM)

DE4 – THIS IS – BP7 – THROUGH ME – OVER.

(BP7) – (THIS IS) – DE4 – RELAY TO IMM – SUNRAY departed for your location – OVER.

(DE4) – (THIS IS) – BP7 – (ROGER) – OUT TO YOU – IMM – THIS IS – BP7 – FROM DE4 – SUNRAY departed for your location – OVER.

(BP7) – (THIS IS) – IMM – (ROGER) – OUT.

Relay Through

8.43 The NCS uses the prowords RELAY THROUGH followed by an address designation to indicate which sub-station is to relay the message.

8.44 In this case, the message is such that it must be offered by call-sign DE4 to T3Q for relay to call-sign IMM. In relaying the message, call-sign T3Q sends the grid reference incorrectly. This error is noted by call-sign DE4 which corrects call-sign T3Q:

IMM – THIS IS – DE4 – MESSAGE – OVER.

(no reply from IMM)

IMM – THIS IS – DE4 – OVER.

(no reply from IMM)

DE4 – THIS IS – BP7 – RELAY THROUGH T3Q – OUT. T3Q – THIS IS – DE4 – RELAY TO IMM – OVER.

(DE4) – (THIS IS) – T3Q – (ROGER) – OUT TO YOU– IMM – THIS IS – T3Q – MESSAGE – OVER.

(T3Q) – (THIS IS) – IMM – (SEND) – OVER.

(IMM) – (THIS IS) – T3Q – WAIT – OUT TO YOU – DE4 – THIS IS – T3Q – SEND – OVER.

(T3Q) – (THIS IS) – DE4 – RELAY TO IMM – POL at GRID Yankee Tango – India Romeo Oscar – India Romeo Papa – OVER.

(DE4) – (THIS IS) – T3Q – (ROGER) – OUT TO YOU– IMM – THIS IS – T3Q – FROM DE4 – POL at GRID Yankee Tango – India Romeo Oscar – India Romeo Oscar – OVER.

(T3Q) – (THIS IS) – IMM – (ROGER) – OUT.

(DE4 would pause sufficiently to allow for receipt by call-sign IMM.)

T3Q – THIS IS – DE4 – Reference my message to IMM – CORRECTION – GRID Yankee Tango – India Romeo Oscar – India Romeo Papa – OVER.

(DE4) – (THIS IS) – T3Q – (ROGER) – OUT TO YOU – IMM – THIS IS – T3Q – Reference message from DE4 – CORRECTION – GRID Yankee Tango – India Romeo Oscar – India Romeo Papa – OVER.

(T3Q) – (THIS IS) – IMM – (ROGER) – OUT.

CHAPTER 9

Communication Drills - Voice

Section 9-1. Emission Control

9.1 The potential for obtaining intelligence from electromagnetic and sonic radiations, using modern technology, is very great. The greater the reliance a force places on the employment of electromagnetic and sonic systems the greater will be the need for effective emission control (emcon).

9.2 Emcon is the effective management of all electromagnetic and sonic emissions from a friendly force to prevent premature disclosure of the presence, location and composition of the force, while operating sufficient equipment to provide adequate warning of a threat.

9.3 Emcon in the form of electronic silence or restrictions applied in time, space or frequency will deny or reduce intercept opportunities to the enemy. It may be applied in a variety of ways to mislead the enemy, to deny warning of impending operations or to disguise redeployment.

9.4 The Force Commander is responsible for promulgating his emission policy for subordinate units and formations. Control of each type of emission is achieved by an emcon plan covering all emissions.

9.5 Commanders retain the right to coordinate with the joint operations and EW staff and to impose, amend or lift emcon plans to suit the tactical situation. Commanders should issue an emcon plan appropriate to the tactical situation. A number of contingency plans covering various options in anticipation of changes in the tactical situation should be promulgated well in advance of operations. emcon plans must be capable of being altered or implemented by signal. An example of a joint emcon plan is at annex A. *ADFP 24, Electronic Warfare* contains further information on emcon.

9.6 There are certain standard occasions when a unit commander may break communications-electronic silence, although by doing so he violates the emcon plan in force. The fact that silence has been broken by a unit does not automatically change the policy in force. Any change must be in accordance with the emcon plan or by order of the Force Commander or subordinate commander as appropriate. The standard occasions permitted for breaking silence (which may be modified by the Force Commander) are as follows:

- a. *All Components.* All components may, unless otherwise specified:
 - (1) report positive contact with the enemy;
 - (2) report unidentified radar and sonar contacts as ordered (by the Force Commander);
 - (3) report ES contacts as ordered (by the Force Commander);
 - (4) answer the authenticated call of a senior commander/officer including an instruction to acknowledge immediately;
 - (5) transmit a distress message;
 - (6) report urgent defects which might prevent accomplishment of assigned missions; and
 - (7) transmit lost enemy contact reports.
- b. *Air Elements.* Air elements may also violate the emcon plan for the reasons listed in sub-paragraph 'a' and:
 - (1) when on independent or special missions (as ordered by the Joint Force or Component Commander);

(2) to transmit urgent flight safety information; and/or (3) for self-protection.

9.7 When emcon silence is broken on other than authorised occasions, if emcon policy permits, an EMCON BREAK message is to be transmitted detailing the elements that emitted, with the timings, location and reasons for breaking silence.

Section 9-2. Imposing, Lifting and Breaking Radio Silence

9.8 It is permissible for a unit or sub-unit commander to impose radio silence on the net or nets for which he is responsible, for technical or tactical reasons and not as part of general electronic silence. The orders for this may be issued either by separate secure means or, if necessary, over the radio, in which case the transmission is authenticated by the use of nicknames. Stations still remain on listening watch during radio silence.

9.9 Radio silence is imposed, lifted or broken by the use of a specified nickname. The nicknames, translated, are: IMPOSE RADIO SILENCE, LIFT RADIO SILENCE and BREAK RADIO SILENCE. Only the NCS may order the imposing of radio silence by quoting the nickname. Sub-stations do not act upon the preparatory order, other than by reading the nicknames back. The NCS delays the executive order until it is satisfied that all stations have received the preparatory order correctly. In the following example, the NCS initiates the imposition of radio silence:

SM5 – (THIS IS) – BP7 – PAPER DOLL – OVER.

(BP7) – (THIS IS) – DE4 – PAPER DOLL – OVER.

(BP7) – (THIS IS) – IMM – PAPER DOLL – OVER.

(BP7) – (THIS IS) – T3Q – PAPER DOLL – OVER.

(BP7) – (THIS IS) – Z8N – PAPER DOLL – OVER.

(When the NCS is satisfied that all stations have received the preparatory order correctly, it transmits the executive order to enforce the radio silence.)

(SM5) – (THIS IS) – BP7 – PAPER DOLL – OUT.

(All sub-stations now maintain a vigilant listening watch, waiting for the lifting of, or break in radio silence.)

9.10 Radio silence may be lifted by the NCS or broken by a sub-station in the following manner:

- a. by use of a nickname, where authentication is not required; or
- b. in clear, where transmission, or challenge and reply authentication must be used.

9.11 When lifting radio silence, the NCS allows time for radio sets to warm up, if necessary. In both the following examples the NCS will use a nickname or prowords followed by OVER, and each station's response to the initial call will act as a radio check. The NCS then completes re-establishing the net by requesting an amplifying report (strength and readability) as laid down in chapter 6.

9.12 The following example illustrates using a nickname:

SM5 – THIS IS – BP7 – LEATHER STRAP – OVER.

(BP7) – (THIS IS) – DE4 – LEATHER STRAP – OVER.

(BP7) – (THIS IS) – IMM – LEATHER STRAP – OVER.

(BP7) – (THIS IS) – T3Q – LEATHER STRAP – OVER.

(BP7) – (THIS IS) – Z8N – LEATHER STRAP OVER.

SM5 – THIS IS – BP7 – Report strength and readability etc. ...

9.13 The next example illustrates using transmission authentication where no nickname is provided:

SM5 – THIS IS – BP7 – SILENCE LIFTED – AUTHENTICATION IS Kilo Golf – OVER.

(The NCS allows a short period of time for stations to confirm transmission authentication and awaits replies.)

(BP7) – (THIS IS) – DE4 – (ROGER) – OVER.

(BP7) – (THIS IS) – IMM – (ROGER) – OVER.

(BP7) – (THIS IS) – T3Q – (ROGER) – OVER.

(BP7) – (THIS IS) – Z8N – (ROGER) – OVER.

SM5 – THIS IS BP7 – Report strength and readability etc

Breaking Electronic Silence

9.14 Nicknames may be used in clear over the radio for lifting or breaking electronic silence within the conditions previously ordered. In the following example, sub-station IMM has authority and good reason, within the conditions previously ordered, to break electronic silence. BINGO DOG is the nickname for breaking of electronic silence. IMM initiates the call:

BP7 – THIS IS – IMM – BINGO DOG – Enemy tanks breaking through on my right – OVER.

(IMM) – (THIS IS) – BP7 – (ROGER) – OUT.

9.15 If transmission authentication is in use the following would be transmitted. IMM initiates the call:

BP7 – THIS IS – IMM – Enemy breaking through on my right – AUTHENTICATION IS Kilo Golf – OVER.

(IMM) – (THIS IS) – BP7 – (ROGER) – OUT.

Section 9-3. Emergency Silence

9.16 Emergency silence is the condition under which all radio sets remain on listening watch for the purpose of enforcing transmission security, deception measures, or for technical or tactical reasons. It is imposed and lifted only by the competent authority detailed in either the operation order (OPORD) or SOI.

9.17 When a transmission authentication system is in force, a station must always authenticate a transmission when imposing, lifting or breaking emergency silence. A transmission imposing emergency silence is to be made twice and ended with the proword OUT. Stations do not answer or receipt such transmission, however, when a transmission authentication system is not available, authentication is achieved by the use of a code-word, or by the senior sub-station challenging the NCS. Only the NCS may order the imposition of emergency silence. The formation net sub-stations then repeat this message on their unit nets, and the unit net sub-stations then repeat this message on their sub-unit net.

9.18 SILENCE, SILENCE, SILENCE when spoken means, 'Cease transmission on this net immediately – silence is to be maintained until lifted'.

9.19 The following examples illustrate ceasing a transmission. The first example uses transmission authentication:

SM5 – THIS IS – BP7 – SILENCE SILENCE SILENCE – AUTHENTICATION IS Kilo Golf – I SAY AGAIN – SM5 – THIS IS BP7 – SILENCE SILENCE SILENCE – AUTHENTICATION IS Kilo Golf – OUT.

The second example uses a code-word:

SM5 – THIS IS – BP7 – BANDIT – I SAY AGAIN – SM5 – THIS IS – BP7 – BANDIT – OUT.

9.20 SILENCE, SILENCE, SILENCE, followed by a frequency or a frequency designator means, 'Cease transmission immediately on that frequency'. For example:

SM5 – THIS IS – BP7 – SILENCE SILENCE SILENCE – Two Seven Zero Zero – AUTHENTICATION IS Kilo Golf – I SAY AGAIN – SM5 – THIS IS – BP7 – SILENCE SILENCE SILENCE Two Seven Zero Zero – AUTHENTICATION IS Kilo Golf – OUT.

9.21 SILENCE, SILENCE, SILENCE, followed by ALL NETS means, 'Cease all transmissions immediately on all nets'. Subordinate NCS must repeat this message on their own nets as a matter of urgency.

9.22 The following are examples of how the NCS can conduct the call. In this first example, the NCS initiates the call using a codeword:

SM5 – THIS IS – BP7 – WALLABY – ALL NETS – I SAY AGAIN – SM5 – THIS IS – BP7 – WALLABY – ALL NETS – OUT.

9.23 In this second example, the NCS fails to offer transmission authentication or a codeword due to non-availability:

SM5 – THIS IS – BP7 – SILENCE SILENCE SILENCE – ALL NETS – I SAY AGAIN – SM5 – THIS IS – BP7 – SILENCE SILENCE SILENCE – ALL NETS – OVER.

(In this case transmission authentication or a code-word is not available for authentication. The senior sub-station (DE4) is to challenge the NCS; therefore, the transmission by the NCS is ended with the proword OVER.)

(BP7) – (THIS IS) – DE4 – AUTHENTICATE Kilo Golf – OVER.

(DE4) – (THIS IS) – BP7 – I AUTHENTICATE Lima – OUT.

9.24 In this third example, the NCS uses transmission authentication:

SM5 – THIS IS – BP7 – SILENCE SILENCE SILENCE – ALL NETS – AUTHENTICATION IS Tango Lima – I SAY AGAIN – SM5 – THIS IS – BP7 – SILENCE SILENCE SILENCE – ALL NETS – AUTHENTICATION IS Tango Lima – OUT.

9.25 To impose emergency silence during the transmission of a message by another station, the NCS waits for a pause in transmission before using any of the methods for imposing silence as detailed in paragraphs 9.16 to 9.26.

9.26 Emergency silence is lifted by the use of the prowords SILENCE LIFTED. The lifting is qualified where necessary by a frequency, frequency designator or the phrase ALL NETS. The method for lifting silence is as detailed in paragraph 9.11.

Section 9-4. Changing Frequency

9.27 A frequency change is made for security, technical or tactical reasons.

Security Change

9.28 A security change is a large scale pre-arranged change intended to deceive the enemy and is organised only by a higher formation. Included in this category are those arrangements which may be made by a higher formation for the simultaneous changes of all frequencies in the formation at specified times or intervals. After a prolonged period of silence, the NCS is to allow time for radio sets to warm up before recommencing normal transmissions.

9.29 Full details of security changes are notified in advance to all concerned and include the exact time at which the frequency change is to take place. This time is determined by a higher authority and is also the time at which daily changing call-signs, NICs and address groups change. No warning transmission is made in connection with security changes. They are effected solely on a programmed basis. The orders specify the time at which transmission on the old frequencies is to cease, and the time for opening up on the new frequencies.

9.30 All transmissions on the old frequencies using the old NIC and call-signs are to cease exactly at the time specified. Communication on the new frequencies, using the new NIC and call-signs is to be re-established, if no separate time has been specified, as soon as possible after the time of closing down on the old frequencies.

Technical and Tactical Change

9.31 Technical and tactical changes are normally ordered because of deterioration in working conditions (atmospherics, interference, distance and jamming), or for the regrouping of forces or other tactical reasons. Each frequency within a formation or unit assignment is allocated a number of nicknames for reference purposes. Frequency changes within formation or unit nets involve the use of alternative and spare frequencies and are to be referred to by their nickname. Only the NCS may order a change to a designated frequency by quoting the nickname appropriate to that frequency. The translation of the nickname is CHANGE TO ALTERNATE OR PRIMARY FREQUENCY, or F1, F2, F3.

9.32 Sub-stations do not act upon the preparatory order other than by reading back the nickname. The NCS delays giving the executive order until it is satisfied that all stations have correctly received the preparatory order. In the following example, the NCS initiates the change of frequency:

SM5 – THIS IS – BP7 – DIRTY DRAIN – OVER.

(BP7) – (THIS IS) – DE4 – DIRTY DRAIN – OVER.

(BP7) – (THIS IS) – IMM – DIRTY DRAIN – OVER.

(BP7) – (THIS IS) – T3Q – DIRTY DRAIN – OVER.

(BP7) – (THIS IS) – Z8N – DIRTY DRAIN – OVER.

(The NCS then transmits the executive order to enforce the frequency change.)

(SM5) – (THIS IS) – BP7 – DIRTY DRAIN – OUT.

9.33 The NCS may order one of the sub-stations to the new frequency to ensure it is workable prior to changing the remaining sub-stations on the net.

No Contact

9.34 If contact is lost with one or more stations after a frequency change, the NCS or a sub-station delegated by the NCS is to revert to the old frequency and try to re-establish communications with the lost stations. The lost sub-station(s) should also initially return to the old frequency. If communications are re-established with the lost sub-stations, the normal procedure is to repeat the order to change frequency and try again. Should this fail again, a decision by the responsible signals officer or NCO at the NCS will be required to determine further action to be taken, which may include allocation of additional frequencies.

9.35 No contact procedure is to be adopted as detailed in chapter 6, section 6-2, if communications have not been established on the new frequency after a period of 15 minutes.

Transmission of Frequencies in Clear

9.36 Frequencies are **not** to be transmitted in clear over insecure radio for technical and tactical changes except:

- a. under emergency circumstances;
- b. after every other secure means of transmission has been considered (for example, enciphered in a high grade cryptographic system or encoded in a low grade cryptographic system);
- c. when enforcing emergency silence; and
- d. when they are changing daily and no nicknames or frequency designators have been allocated.

Changing Frequencies in Insecure Mode

9.37 The following are examples of changing frequencies while in insecure mode. This first example illustrates changing frequency in insecure mode using a nickname:

SM5 – THIS IS – BP7 – CHAIR GRASS – OVER.

(BP7) – (THIS IS) – DE4 – CHAIR GRASS – OVER.

(BP7) – (THIS IS) – IMM – CHAIR GRASS – OVER.

(BP7) – (THIS IS) – T3Q – CHAIR GRASS – OVER.

(BP7) – (THIS IS) – Z8N – CHAIR GRASS – OVER.

(The NCS then transmits the executive order to enforce the frequency change.)

(SM5) – (THIS IS) – BP7 – CHAIR GRASS – OUT.

9.38 This next example illustrates changing frequency in insecure mode using a frequency designator:

SM5 – THIS IS – BP7 – CHANGE TO Alfa Sierra Bravo – OVER.

(BP7) – (THIS IS) – DE4 – Alpha Sierra Bravo – OVER.

(BP7) – (THIS IS) – IMM – Alpha Sierra Bravo – OVER.

(BP7) – (THIS IS) – T3Q – Alpha Sierra Bravo – OVER.

(BP7) – (THIS IS) – Z8N – Alpha Sierra Bravo – OVER.

(The NCS then transmits the executive order to enforce the frequency change.)

(SM5) – (THIS IS) – BP7 – CHANGE NOW – OUT.

Section 9-5. Joining a Working Net

Procedure

9.39 Fixed Call-sign Joining a Working Net. When a station which has a fixed call-sign joins a working unit net, it will normally continue to use its fixed call-sign. If, however, this call-sign is already in use on the net, the new station will add its arms indicator of the NIC prefixed to its fixed call-sign. Authentication of the station joining is mandatory as per the following examples:

9.40 In this first example, a forward observer (FO) (fixed call-sign 21), joins an infantry B Company net (using the arms indicator G). The FO initiates the call :

0A – THIS IS – G21 – REPORTING INTO NET – OVER.

(G21) – (THIS IS) – 0A – ROGER – AUTHENTICATE Kilo Golf – OVER.

(The FO works out his reply.)

(0A) – (THIS IS) – G21 – I AUTHENTICATE Lima – OVER.

(G21) – (THIS IS) – 0A – ANSWER FIRST – OVER.

(0A) – (THIS IS) – G21 – WILCO – OUT.

9.41 In this second example, a tank regiment LO (call-sign 94) joins an infantry battalion net (using the NIC PQ2B):

0A – THIS IS – 94 – NIC PQ2B – REPORTING INTO NET – OVER.

(94) – (THIS IS) – 0A – ROGER – AUTHENTICATE November Echo – OVER.

(The LO works out his reply.)

(0A) – (THIS IS) – 94 – I AUTHENTICATE Whisky – OVER.

(PQ94) – (THIS IS) – 0A – ANSWER AFTER BH3T – OVER.

(0A) – (THIS IS) – PQ94 – WILCO – OUT.

9.42 When joining a net, the NIC ([94] in the above example) follows the call-sign in the initiating call; however, when cleared to join the net the abbreviated NIC (PQ) prefixes the call-sign.

9.43 Daily Changing Call-sign Joining a Fixed Call-sign Net. Should a station with a daily changing call-sign wish to join a fixed call-sign net, the full call-sign is to be used. Once communications are established and authentication has been carried out, abbreviated call-signs may be used. In the example below, a task force LO wishes to join an infantry battalion net:

0A – THIS IS – 405A – REPORTING INTO NET – OVER.

(405A) – (THIS IS) – 0A – ROGER – AUTHENTICATE Foxtrot Alfa – OVER.

(short pause while the LO works out his reply)

(0A) – (THIS IS) – 405A – I AUTHENTICATE Zulu – OVER.

(405A) – (THIS IS) – 0A – ANSWER AFTER 9 – OVER.

(0A) – (THIS IS) – 40 – WILCO – OUT.

9.44 If a station is required to join a formation net, instructions containing the necessary details should be issued beforehand to all concerned by some means other than radio. However, occasions will arise when a station is required to join a net in an emergency. In this case one of the following is used:

- a. a fixed call-sign, prefixed by its own NIC;
- b. a three-character tactical call-sign;
- c. an address group where no fixed call-sign or tactical call-sign is allocated.

9.45 Using an Address Group. Where an address group is used as a means of joining a net, it is replaced as soon as possible after communications have been established and authentication has been effected, by a spare call-sign issued by the NCS. The following example illustrates this procedure. A unit wishes to join a brigade command net. The address group for the unit is MLCA. The unit wishing to join the net initiates the call:

BP7 – THIS IS ADDRESS GROUP – MLCA – REPORTING INTO THE NET – OVER.

(MLCA) – (THIS IS) – BP7 – ROGER – AUTHENTICATE Echo Delta – OVER.

(short pause while he works out his reply)

(BP7) – (THIS IS) – MLCA – I AUTHENTICATE Whisky – WHAT IS MY CALL-SIGN – OVER.

(MLCA) – (THIS IS) – BP7 – YOUR CALL-SIGN IS W9N – ANSWER AFTER T3Q – OVER.

(BP7) – (THIS IS) – W9N – WILCO – OUT.

Section 9-6. Time Checks

9.46 Time checks are to be given in local time unless otherwise requested or directed. The time zone suffix is not to be included in the time check. Time checks may be sent out:

- a. periodically by the NCS;
- b. when requested by a station; and
- c. in some cases by a sub-station to the NCS (for example, an LO who has synchronised with the company commander for a plan, sends a time signal to the NCS after orders).

Procedure

9.47 When the NCS desires to give an accurate time check to all stations on the net, it will pause for a sufficient interval between the warning phrase and the commencement of the count-down. This allows receiving operators to prepare their watches. The NCS announces its intention by using the prowords TIME CHECK AT This procedure is most important when transmission authentication systems are in force. 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.

9.48 The following example illustrates the NCS initiating a time check:

SM5 – THIS IS – BP7 – 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.

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

9.49 When a station desires an accurate time check, it will be requested by using the prowords REQUEST TIME CHECK:

BP7 – THIS IS – DE4 – REQUEST TIME CHECK – OVER.

(DE4)– (THIS IS)– BP7– TIME CHECK One Eight Zero Two (pause)– One Five Seconds – One Zero Seconds – Five – Four– Three – Two – One – TIME One Eight Zero Two – OVER.

(BP7) – (THIS IS) – DE4 – (ROGER) – OUT.

9.50 A time signal may be conveyed in advance by the NCS using the delayed executive method:

SM5 – THIS IS – BP7 – EXECUTE TO FOLLOW – TIME One Four One Five – DE4 – OVER.

(The NCS has indicated that call-sign DE4 is to receipt and no other station need answer.)

(BP7) – (THIS IS) – DE4 – (ROGER) – OUT.

(The NCS then transmits the executive signal to coincide with 1415 and has indicated that call-sign IMM is to receipt on behalf of the net.)

SM5 – THIS IS – BP7 – STAND BY – EXECUTE – IMM – OVER.

(BP7) – (THIS IS) – IMM – (ROGER) – OUT.

Section 9-7. Closing Down

9.51 No station is to close down without prior permission from the NCS. The greatest possible care must be taken by the NCS never to close down a net, or an individual sub-station, without being completely satisfied that all sub-stations know, or will know, the new frequency and time of reopening. The necessary orders must be given by the most secure means available and, wherever possible, not by radio. In an emergency, the orders may have to be sent over the radio in operations code, before the net closes down. In this case, any security achieved is short-lived.

Procedure

9.52 When it is essential to order a close-down over the radio and the NCS is satisfied with arrangements for reopening, it then orders the net or sub-station to close down by using a nickname and the procedure laid down for radio silence and changing frequency. The translation of the nickname is CLOSE DOWN NOW:

SM5 – THIS IS – BP7 – BACK ALLEY – OVER.

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

(SM5) – (THIS IS) – BP7 – BACK ALLEY – OUT.

9.53 When one station is required to close down temporarily for technical or other minor reasons (for example, changing batteries), the request and instructions are given in clear 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 ..)'.

9.54 Authentication is mandatory under these circumstances.

9.55 In the following example, T3Q requests NCS permission to close down to change batteries and authenticates the request:

BP7 – THIS IS – T3Q – CLOSING DOWN – battery change – AUTHENTICATION IS Sierra India – OVER.

(T3Q) – (THIS IS) – BP7 – CLOSE DOWN – OUT.

9.56 If transmission authentication is not provided, the NCS is to challenge the station:

BP7 – THIS IS – T3Q – CLOSING DOWN battery change – OVER.

(T3Q)–(THIS IS)–BP7–AUTHENTICATE X-ray Mike–OVER.

(BP7) – (THIS IS) – T3Q – I AUTHENTICATE Alfa – OVER.

(T3Q) – (THIS IS) – BP7 – CLOSE DOWN – OUT.

CHAPTER 10

Formal Message Procedure

Section 10-1. General Instructions

10.1 Primarily, tactical radio nets are used for the transmission of informal messages and voice conversations, while logistic and administrative nets are used for the passage of formal messages.

10.2 The essential characteristics of a formal message are that it should be written down on a message form (OC33), have a DTG inserted, be signed by the releasing officer and handed to the operator for transmission.

Types of Formal Messages

10.3 There are two types of formal messages, plaindress (of which there is also an abbreviated version) and codress:

- a. *Plaindress.* A plaindress message is one in which the originator and addressees are indicated externally from the text (in the FROM, TO, and INFO spaces of the message form). A plaindress message contains all the components (unless the call serves as the address) shown in the basic message format and must always include the precedence and DTG.
- b. *Abbreviated Plaindress.* Operational requirements for speed of handling may require abbreviation of plaindress headings. In such case, any or all of the following may be omitted:
 - (1) precedence,
 - (2) date,
 - (3) DTG, and
 - (4) group count.
- c. *Codress.* An enciphered message is a codress when the entire address component is concealed within the text.

Precedence

10.4 Each message is given a precedence to indicate the speed with which the message should be handled. The degrees of precedence are outlined in annex A.

Security Classification

10.5 Any message that contains information which may be of value to the enemy must be classified under one of the following four categories:

- a. TOP SECRET,
- b. SECRET,
- c. CONFIDENTIAL, or
- d. RESTRICTED.

10.6 All other messages are unclas.

10.7 The originator is responsible for ensuring that a message bears the lowest security classification consistent with its contents.

10.8 Classified messages are not to be transmitted in clear unless the situation warrants. Where this must happen, the CLEAR procedure is to be used.

Section 10-2. Basic Message Format

Parts of a Message

10.9 All formal messages have three separate parts, these being:

- a. a heading,
- b. text, and
- c. an ending.

10.10 These parts, when being transmitted by radio, are separated by the proword BREAK. The proword BREAK between the heading and text is inserted immediately after the last addressee of plaindress messages and before the security classification. In codress messages, the proword BREAK is inserted between the group count and the first group of the text.

10.11 Each message part has certain components which are broken down into elements and contents. All parts, and a majority of the components and elements, have a standardised arrangement, or order of appearance, which is applicable not only to ratel procedure but also to other operating procedures.

Schematic Diagram

10.12 In the schematic diagram, shown in annex B, it should be noted that every element is indicated in order of appearance in the message, but the contents of the various elements are not necessarily indicated in the order they will appear.

10.13 There is a total of 16 format lines. Lines 2 to 4 and 14 to 16 identify the procedural portion of the basic message format as designed for ratel operation. Lines 5 to 13 are non-changeable elements of the format. All format lines do not necessarily appear in every message but are to be in the order indicated when used.

Format Line 1– The Offer

10.14 In format line 1, all formal messages are to be offered. The likelihood of sending a formal message using DO NOT ANSWER PROCEDURE is extremely rare; however, if this occurs then the prowords FORMAL MESSAGE are used to prompt the receiving operator to use an OC-33 to take the message down as in the following example:

BP7 – THIS IS – DE45 – DO NOT ANSWER – FORMALMESSAGE – (pause) – Msg No
etc

Format Lines 2 and 3 – The Call and Calling Station

10.15 In format lines 2 and 3, the lines contain the call, the proword FORMAL MESSAGE and the transmission identification (TI) as follows:

- a. *The Call.* The call serves to identify the stations between which that particular message is being transmitted. It may also serve as the address of the message when the designators of the originator and addressees are the same as the call-signs of the stations in communication with one another on the same net.
- b. *FORMAL MESSAGE.* The prowords FORMAL MESSAGE are to be transmitted during the initial call for all formal messages.
- c. *MESSAGE NUMBER.* A message number is to consist of the last element of format lines 2 and 3. The message number is to be preceded by the proword NUMBER, for example, NUMBER – ONE FOUR/ONE TWO (14/12). This indicates that it is the fourteenth message transmitted on the twelfth day of the month.

Format Line 4 – Transmission Instructions

10.16 Line 4 contains the transmission instructions, which may consist of prowords RELAY, RELAY TO, WORDS TWICE, READ BACK, call-signs, address groups and plain language designator.

10.17 Transmission instructions are to be used when the delivery or retransmission (retrans) responsibility of stations is not self-evident. (Call-signs are to be used when referring to stations on the same net. Address groups are to be used when referring to stations **not** on the same net.) This is impossible to define but, when in doubt, transmission instructions are to be included to remove the risk of mishandling.

10.18 The following examples demonstrate transmission instructions after the relay instructions have already been offered in the initial call. In this first example, BP7 is called to retransmit to an addressee:

(BP7) – (THIS IS) – DE4 – NUMBER One Two/Two Six – RELAY TO – ADDRESS GROUP Alfa Zulu Oscar Delta –

In this second example, T3Q is called to retransmit a message and BP7 is itself one of the addressees:

(BP7 – T3Q) – (THIS IS) – DE4 – NUMBER One Two/Two Six – T3Q – RELAY TO – ADDRESS GROUP Alfa Zulu Oscar Delta.

Format Line 5 – The Preamble

10.19 Line 5 will contain the precedence, DTG and message instructions, as follows:

- a. *Precedence.* The precedence is transmitted as the first element of format line 5. In the case of dual precedence messages, the highest precedence designation will be transmitted first.
- b. *Date Time Group.* The DTG is transmitted immediately after the precedence designation. It is preceded by the proword TIME and followed by the zone suffix (Z), month and year.
- c. *Message Instructions.* Message instructions are not normally required on ratel messages. When included, they will consist of short and concise instructions which will be transmitted with the message to the station of designation.

10.20 An example of a normal message is:

(IMM) – (THIS IS)– BP7– NUMBER One Two/Two Six– PRIORITY – Date Time Group One Two One Six Three Zero Zulu December Nine Six –

10.21 An example of a dual precedence message is:

(IMM) – (THIS IS) – BP7 – NUMBER One Two/Two Six– PRIORITY – ROUTINE – Date Time Group One Two One Six Three Zero Zulu December Nine Six –

10.22 An example of a message with relay instructions is:

(IMM)– (THIS IS)– BP7– NUMBER One Two/Two Six– IMM – RELAY TO – ADDRE SS GROUP Alfa Zulu Oscar Delta PRIORITY – Date Time Group One Two One Six Three Zero Zulu December Nine Six –

10.23 An example of a message with message instructions is:

(IMM) – (THIS IS) – BP7 – NUMBER One Two/Two Six – ROUTINE – Date Time Group One Two One Six Three Zero Zulu December Nine Two – SUSPECTE D DUPLICATE –

Format Lines 6, 7, 8 and 9– The Address Component

10.24 The lines 6, 7, 8 and 9 form the address of the message and are recognised by the prowords FROM, TO, INFO and EXEMPT, respectively, followed by a call-sign or address group. When the originator and the addressees are in communication with each other on the same net, the call is to serve as the address component. This means that there is no requirement for the plain language address to be transmitted as part of the formal message.

10.25 In the case of messages where the call cannot serve as the address component, plain language addressees are to be deleted and call-signs/address groups substituted where possible.

10.26 The following is an example of a plaindress message to addressees on the same net. The call serves as the address:

(IMM – Z8N) – (THIS IS) – BP7 – NUMBER One Five/One Nine – INFO IMM – PRIORITY – ROUTINE – TIME One Nine One Six Four Zero Zulu December Nine Six– BREAK– ...

10.27 In the same scenario as paragraph 10.26, this example shows a loss of contact between the NCS and call-sign Z8N. The NCS instructs IMM to relay the message to Z8N:

(IMM) – (THIS IS) – BP7 – NUMBER One Five/One Nine – IMM – RELAY TO Z8N – PRIORITY – ROUTINE – TIME One Nine One Six Four Zero ZULU December Nine Six – FROM Romeo Whisky Papa Juliet–TOIMM–INFOZ8N–BREAK–...

(In this case, the address component has been included to remove the risk of mishandling or confusion.)

10.28 In the following example, the address group LAMA is allocated to a specific address indicator group (AIG) from call-sign BP7. LAMA represents call-signs B42, P7P, 7N4 and 89A (as the message is to be relayed over another net, full call-signs are to be used). The originator indicates that call-signs 7N4 and 89A are exempted addressees:

(B42) – (THIS IS) – BP7 – RELAY – NUMBER Two Four/Zero Nine – ROUTINE – Date Time Group One Two One Seven One Five Zulu December Nine Six – FROM BP7 – TO LAMA– EXEMPT 7N4 – 89A – BREAK –

Format Line 10 – Group Count

10.29 Ratel messages are usually short and a group count (format line 10) is seldom used, except in the case of enciphered messages. However, the number of groups, if sent, will be preceded by the proword GROUPS. The rules for counting groups are as follows:

- a. Only the text is to be counted.
- b. A sequence of letters not interrupted by a space is counted as one group.
- c. When a cipher group count is inserted by the crypto centre, staff or originator at the end of an enciphered text (plaindress message), it is included as part of the text when counting groups.

10.30 The following example illustrates a plaindress enciphered message:

(DE4) – (THIS IS) – BP7 – NUMBER One One/Two Zero – ROUTINE – Date Time Group Two Zero One Six Three Zero Zulu December Nine Six – FROM B42T TO DWQ4 – GROUPS One Five – BREAK –

10.31 The following is an example of a codress message:

(DE4) – (THIS IS) – BP7 – NUMBER One Two/Two Seven – ROUTINE – Date Time Group One Two Six Three Five Zulu December Nine Six – GROUPS One Seven – BREAK –

Format Line 11 – The Separation

10.32 Format line 11 contains the proword BREAK as shown in examples contained in paragraphs 10.26 to 10.31.

Format Line 12 – The Text

10.33 Format line 12 contains the plain language or enciphered text of the message. The plain language text contains the security classification or the word UNCLASSIFIED (transmitted as UNCLAS), internal instructions and the thoughts or ideas expressed by the originator. The text is transmitted exactly as written by the originator, except where clear names of units and formations are replaced by their call-signs or address groups. When it is necessary to refer to call-signs and address groups in the text of a message, it is preceded by the prowords CALL-SIGN or ADDRESS GROUP

10.34 The following example shows a plain language text (proword and words contained in brackets are optional and normally used during bad working conditions):

– BREAK – UNCLAS – Log Fifty Six (I SPELL Lima Oscar Golf FIGURES Five Six) – Padres Hour – FULL STOP – Padres will visit your areas – during period Fourteen Slant Fifteen February (FIGURES One Four Slant One Five I SPELL Foxtrot Echo Bravo)– FULL STOP– Advise members ofRC (I SPELL Romeo Charlie) and OPD (I SPELL Oscar Papa Delta) who will be available – to attend Padres Hour – one these dates – BREAK – . . .

10.35 This next example shows a plaindress cipher text:

– BREAK – FIGURES Four Four Nine Five Zero – Two One Five Two Three – Papa Romeo Oscar Whiskey Romeo – Charlie Oscar India Alfa India – Bravo Alfa Delta Sierra Lima – ... (seven five-letter groups) – FIGURES One Two/Zero One – BREAK –

10.36 This following example shows a codress text:

BREAK – FIGURES Zero Four Eight Six Four – I SPELL – Delta – Echo – Zulu – Bravo – Charlie – Alpha X-ray Juliet Uniform X-ray – November Bravo India Quebec Oscar – ... (8 five-letter groups) – FIGURES Zero Four Eight Six Four – BREAK –

(In this example directly above, the first group of the cipher could lead to confusion in the group count if the prowords I SPELL were not used. For example, the receiving operator would write these groups as 04864 DEZBC AXJUX when it should read 04864 Delta Echo Zulu Bravo Charlie AXJUX. The group count of the message is 17 groups).

Format Line 13 – The Separation

10.37 Format line 13 contains the proword BREAK as shown in the examples in paragraphs 10.34 to 10.36.

Format Line 14 – Time Group

10.38 Format line 14 is used only in abbreviated plaindress messages when a time group transmitted here takes the place of a DTG in line 5. It consists of the proword TIME followed by the time group plus the zone suffix.

Format Line 15 – The Final Instructions

10.39 Format line 15 contains any final instructions necessary. It is identified by the prowords WAIT, MORE TO FOLLOW, CORRECTION, EXECUTE, or AUTHENTICATION IS.

Format Line 16 – The Ending

10.40 Format line 16 is identified by the prowords OVER, OUT or OUT TO YOU. In all transmissions where the prowords DO NOT ANSWER are used, the transmission shall be ended with the proword OUT.

Section 10-3. Offering a Formal Message

Before Transmitting

10.41 The operator is to scrutinise the message to ensure that no significant components have been omitted and that no security breach will result from its transmission. The most common security breach is the transmission of unit names in clear. The message details are recorded on the **out** operator's check sheet, inserting the TI on the message form, and in the radio operator's log. Where the operator's check sheet is not used, the message must be recorded in the radio operator's log.

10.42 As most formal messages take more than 30 seconds to send, the message should be divided into suitable portions and long message procedure used.

The Offer

10.43 Formal messages are always to be offered using the prowords FORMAL MESSAGE. The offer is accepted or refused in the normal manner. Included in the offer is:

- a. the degree of precedence, and
- b. the number of messages bearing each precedence.

Section 10-4. Transmitting a Formal Message

Transmission

10.44 The operator is to send the message, as prepared for transmission, using prowords as indicated in the examples in paragraphs 10.45 to 10.49:

10.45 The following example shows a formal message prepared by the message centre for transmission by the NCS to DE4 and IMM:

DE4 IMM – THIS IS – BP7 – PRIORITY – FORMAL MESSAGE – OVER.

(BP7) – (THIS IS) – DE4 – (SEND) – OVER. (BP7) – (THIS IS) – IMM – (SEND) – OVER.

(DE4 IMM) – (THIS IS) – BP7 – NUMBER One Five /One Two – PRIORITY – ROUTINE – Date Time Group One Two Zero Nine Zero Two Zulu December Nine Six – MORE TO FOLLOW – OVER.

(BP7) – (THIS IS) – DE4 – (SEND) – OVER. (BP7) – (THIS IS) – IMM – (SEND) – OVER.

(DE4 IMM) – (THIS IS) – BP7 – FROM BP7 – TO DE4 – INFO IMM – BREAK – UNCLAS – I SPELL – Sierra India Charlie – Foxtrot Foxtrot Sierra Ops Twenty Four (I SPELL Oscar Papa Sierra FIGURES Two Four) – FULL STOP – Radio Detachments now delayed Bravo Yankee Charlie Zulu hours – BREAK – OVER.

(BP7) – (THIS IS) – DE4 – (ROGER) – OUT. (BP7) – (THIS IS) – IMM – (ROGER) – OUT.

10.46 The following example shows a plaindress cipher text formal message prepared by the message centre for transmission:

T3Q – THIS IS – BP7 – FORMAL MESSAGE – OVER.

(BP7) – (THIS IS) – T3Q – (SEND) – OVER.

(T3Q)– (THIS IS) BP7– NUMBER Five Three/One Two– RELAY – ROUTINE – Date Time Group – One Two One Six Three Zero Zulu December Nine Six – FROM B42 – TO D38 – GROUPS One Three – BREAK – MORE TO FOLLOW – OVER.

(BP7) – (THIS IS) – T3Q – (ROGER) – OVER.

(T3Q) – (THIS IS) – BP7 – FIGURES Four Four Nine Five Zero – Two One Five Two Three – Papa Romeo Oscar Whiskey Romeo – Charlie Oscar India Alfa India – Bravo Alfa Delta Sierra Lima – Echo Golf Alfa Uniform Golf – November Alfa Lima November India – Alpha Lima Papa Echo Tango – MORE TO FOLLOW – OVER.

(BP7) – (THIS IS) – T3Q – (ROGER) – OVER.

(T3Q)– (THIS IS)– BP7 – ALL AFTER Alpha Lima Papa Echo Tango – Echo Hotel Tango Sierra November – India Alfa Tango November Oscar – Yankee Tango Echo Charlie Uniform – Hotel Oscar Uniform Golf Hotel – One Two Zero One Two – BREAK – OVER.

(BP7) – (THIS IS) – T3Q – (ROGER) – OUT.

10.47 The following example shows a codress formal message prepared by the message centre for transmission:

DE4 – THIS IS – BP7 – FORMAL MESSAGE – OVER.

(BP7) – (THIS IS) – DE4 – (SEND) – OVER.

(DE4) – (THIS IS) – BP7 – NUMBER Five Five/One Two – ROUTINE – Date Time Group One Two One Six Three Five Zulu December Nine Six – GROUPS One Seven – BREAK – FIGURES Zero Four Eight Six Four – Delta – Echo – Zulu – Bravo – Charlie – MORE TO FOLLOW – OVER.

(BP7) – (THIS IS) – DE4 – (ROGER) – OVER.

(DE4) – (THIS IS) – BP7 – ALL AFTER – Delta Echo Zulu Bravo Charlie – Echo Sierra Alpha Charlie India – Echo X-ray Charlie Papa Tango – Sierra Papa Oscar Uniform Golf – Foxtrot India Foxtrot Golf Oscar – FIGURES Zero Four Eight Six Four – BREAK – OVER.

(BP7) – (THIS IS) – DE4 – (ROGER) – OUT.

10.48 The following example shows a plaindress formal message originated with a unit net, in which one of the addressees is not on the net. (Where sub-unit stations are not the type normally allotted address groups, the appropriate call-sign followed by the NIC would be used if the message is to be retransmitted over another net):

BP7 DE4 – THIS IS – IMM – PRIORITY – FORMAL MESSAGE – OVER.

(IMM) – (THIS IS) – BP7 – (SEND) – OVER. (IMM) – (THIS IS) – DE4 – (SEND) – OVER.

(BP7 DE4) – (THIS IS) – IMM – NUMBER Zero Seven/One Two – BP7 – RELAY TO V7T NIC T3W – PRIORITY – ROUTINE – TIME One Two One Two Zero Zero Zulu December Nine Two FROM IMM – TO BP7 – DE4 – INFO V7T – BREAK–MORE TO FOLLOW – OVER.

(IMM) – (THIS IS) – BP7 – (SEND) – OVER. (IMM) – (THIS IS) – DE4 – (SEND) – OVER.

(BP7 DE4) – (THIS IS) – IMM – ALL AFTER BREAK – UNCLAS I SPELL – Sierra India Charlie Foxtrot Whiskey Quebec Ops Three (I SPELL Oscar Papa Sierra FIGURES Three) – FULL STOP – SUNRAY CALL-SIGN (ADDRESS GROUP) Zulu Three Four Delta departed I SPELL Papa Alfa Bravo Zulu X-ray Yankee Hours– FULL STOP– ETA(I SPELL Echo Tango Alfa) I SPELL November Charlie Foxtrot India Alfa Yankee hours – BREAK – OVER.

(IMM) – (THIS IS) – BP7 – (ROGER) – OUT. (IMM) – (THIS IS) – DE4 – (ROGER) – OUT.

10.49 The following example shows a plaindress formal message where the call serves as the address:

SM5 – THIS IS – BP7 – FORMAL MESSAGE – OVER.

(BP7) – (THIS IS) – DE4 – (SEND) – OVER.

(BP7) – (THIS IS) – IMM – (SEND) – OVER.

(BP7) – (THIS IS) – T3Q – (SEND) – OVER.

(BP7) – (THIS IS) – Z8N – (SEND) – OVER.

(SM5) – (THIS IS) BP7 – NUMBER One Eight/One Two – INFO T3Q – ROUTINE – Date Time Group One Two One Two One Zero Zulu December Nine Six – BREAK – UNCLAS Sierra India Charlie Foxtrot Mike Bravo – Log (I SPELL Lima Oscar Golf FIGURES One Zero) – FULL STOP – MORE TO FOLLOW – OVER.

(BP7) – (THIS IS) – DE4 – (SEND) – OVER.

(BP7) – (THIS IS) – IMM – (SEND) – OVER.

(BP7) – (THIS IS) – T3Q – (SEND) – OVER.

(BP7) – (THIS IS) – Z8N – (SEND) – OVER.

(SM5) – (THIS IS) BP7 – ALL AFTER FULL STOP – Nominations for equipment familiarisation course to SEAGULL by Twenty Two (FIGURES Two Two) December – BREAK – OVER.

(BP7) – (THIS IS) – DE4 – (ROGER) – OUT.

(BP7) – (THIS IS) – IMM – (ROGER) – OUT.

(BP7) – (THIS IS) – T3Q – (ROGER) – OUT.

(BP7) – (THIS IS) – Z8N – (ROGER) – OUT.

Dual Precedence

10.50 Multiple address messages, having both action and information addressees, may be assigned a single precedence, in which case it indicates the precedence of all addressees. Alternatively, two precedences may be assigned, one for all action addressees and a lower precedence for all information addressees. The procedure for indicating dual precedence in the heading of a plaindress and a codress message is as follows:

- a. *Plaindress.* In a plaindress message both precedence prowords, separated by a pause, will appear as the first element of the preamble. The higher precedence will appear first, for example, IMMEDIATE – ROUTINE – TIME –
- b. *Codress.* The same procedure is used for codress messages; however, when a message is routed to a crypto guard which serves all the addressees, the higher precedence proword only will be included in the preamble. The lower precedence will be included in the enciphered text in the form ‘...(lower precedence) for information addressees’.

Codress Transmission Instructions

10.51 Any station(s) or addressee(s) included in the heading of the message which is (are) to receive the message at the lower precedence will be indicated in the transmission instructions by means of the prowords TRANSMIT AT THE LOWER PRECEDENCE, followed by the identification of the station(s)/addressee(s) concerned.

10.52 If RELAY instructions are specifically included and the transmission instructions become long or complicated, those stations for which the message is intended at the lower precedence may be collated and shown together after the prowords TRANSMIT AT THE LOWER PRECEDENCE. The prowords will be inserted after the last RELAY addressee designation. In the following example, the NCS directs call-sign DE4 to transmit the codress message at the lower precedence to ODP1:

DE4 – THIS IS – BP7 – PRIORITY – FORMAL MESSAGE – OVER.

(BP7) – (THIS IS) – DE4 – (SEND) – OVER.

(DE4) – (THIS IS) – BP7 – NUMBER Two Zero/One Two TRANSMIT AT THE LOWER PRECEDENCE – ODP1 – PRIORITY – ROUTINE – Date Time Group One Two One Eight One Six Zulu December Nine Two – GROUPS. . .

Annexes:

- A. Rules for the Use of Precedence
- B. Schematic Outline of Message Format

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Rules for the Use of Precedence

1. Table 10-1 lists the circumstances which justify the various degrees of precedence. This list is not exhaustive.

TABLE 10-1. Rules for the Use of Precedence

<i>Degree of Precedence (a)</i>	<i>Circumstances which Normally Justify its Use (b)</i>
FLASH	Reserved for operational combat messages of extreme urgency: 1. initial enemy contact reports, 2. warning of imminent large-scale attack, and 3. extremely urgent intelligence messages.
IMMEDIATE	Reserved for very urgent: 1. reports of unusual major moves of foreign military forces in times of peace or strained relations, 2. amplifying reports of initial contact, 3. messages relating to attacks or counterattacks, 4. messages concerning logistical support operations, 5. reports of widespread civil disturbances, 6. reports or warning of grave natural disaster, and 7. NOTICAS
PRIORITY	Messages concerning the conduct of operations in progress and for other important and urgent matters when routine precedence will not suffice for all the types of message which justify transmission, but do not require a higher precedence.
ROUTINE	For all other messages, including those concerning day-to-day matters and those which require lead time for response.

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Schematic Outline of a Message Format

1. A schematic outline of a message format is shown in table 10-2.

TABLE 10-2. Schematic Outline of a Message Format

<i>Parts (a)</i>	<i>Components (b)</i>	<i>Elements (c)</i>	<i>Format Line (d)</i>	<i>Contents (e)</i>
			1	Not used (see ACP 125).
		Called Station(s)	2	Call-sign(s) of station(s) called, proword EXEMPT and exempted call-sign(s).
		Calling Station	3	Prowords THIS IS and call-sign of calling station.
<i>H E A D I N G</i>	Procedure			
		Transmission Identification		Proword NUMBER and message serial number and day of the month.
		Transmission Instruction	4	Prowords WORDS TWICE, DO NOT ANSWER, READ BACK, RELAY, RELAY TO etc, operating signals, call-sign(s), address group(s), plain language address designator(s), AIG.
		Precedence	5	Precedence used.
		Date Time Group		Proword TIME, date and time expressed in digits and zone suffix (Z) followed by month indicated by first 3 letters, and the year indicated by the last 2 digits.
		Preamble		
		Message Instructions		Operating signals or their equivalent prowords and prowords EXECUTE TO FOLLOW.
		Originator	6	Proword FROM and originator's address designator (call-sign, address group, plain language).
	Address	Action Addressee(s)	7	Proword TO and action addressee(s) designator (call-sign(s), address group(s), plain language).

<i>Parts (a)</i>	<i>Components (b)</i>	<i>Elements (c)</i>	<i>Format Line (d)</i>	<i>Contents (e)</i>
<i>H E A D I N G</i>		Information Addressee(s)	8	Proword INFO and information addressee(s) designator (call-sign(s), address group(s), plain language).
		Exempted Addressee(s)	9	Proword EXEMPT and exempted addressee(s) designator (call-sign(s), address group(s), plain language).
	Prefix	Group Count	10	Proword GROUPS followed by number of groups.
	Separation		11	Proword BREAK.
<i>T E X T</i>	Text	Subject Matter	12	The words CLEAR, UNCLAS, security classification, internal instructions and appropriate textual matter.
<i>E N D I N G</i>	Separation		13	Proword BREAK.
		Time Group	14	Proword TIME, hours and minutes expressed in digits and zone suffix when appropriate.
	Procedure	Final Instructions	15	Prowords WAIT, WAIT OUT, MORE TO FOLLOW, CORRECTION, EXECUTE, AUTHENTICATION IS, station designators.
		Ending Sign	16	Prowords OVER, OUT, OUT TO YOU.

CHAPTER 11

Retransmission

Section 11-1. Retransmission Procedure – Secure and Non-secure

Introduction

11.1 Radio retrans in single channel radio enables the signals received by one radio to be retransmitted by a second radio on a different frequency. The two methods of retrans are:

- a. *Automatic Retransmission.* Automatic retrans provides automated switching (retrans) from VHF to VHF radios.
- b. *Manual Retransmission.* Manual retrans provides manual switching (retrans) from HF to HF and HF to VHF radios.

Retransmission Prowords

11.2 The prowords used in retrans are shown in table 11-1.

TABLE 11-1. Retransmission Prowords

<i>Prowords (a)</i>	<i>Meaning (b)</i>
MAKE	On receipt of order to retrans, switch the equipment to the retrans mode.
MADE	Retrans detachment acknowledges order to 'make' and replies 'made' before equipment is switched to the retrans mode.
BREAK	For automatic retrans, switch retrans mode off.
INSIDE LEG	The operating frequency from the control or NCS to the retrans station (usually the primary frequency).
OUTSIDE LEG	The operating frequency from the retrans station to the sub-station(s) (usually the retrans primary frequency).
REQUEST RETRANS	Alerts the retrans operator that manual switching is required. (HF/HF and HF/VHF retrans.)

Principles

11.3 To achieve uniformity in the method of establishing, operating and ceasing all retrans systems, the following principles are to be applied:

- a. The order to start retrans is normally given by the NCS.
- b. The communications operations staff, at any level where alternative retrans facilities are available, determine which is to act as the retrans station.
- c. The retrans station sets up the retrans facility which entails:
 - (1) using the same call-sign on both radios;
 - (2) checking the links to NCS and the sub-stations to be retransmitted prior to setting up the facility;
 - (3) changing the station(s) to be retransmitted from the primary to the retrans frequency; and

- (4) advising the control station when communications have been established with all call-signs on the retrans frequency.
- d. The NCS then orders the retrans detachment to MAKE and tests the system with a RADIO CHECK to all the sub-stations being retransmitted. The order to BREAK is always given by the NCS.

Automatic Retransmission

11.4 The order to start automatic retrans is often given in the briefing to the retrans detachment prior to deploying on the retrans task. Where planning has not been possible, the NCS may give the order, 'ESTABLISH COMMUNICATIONS WITH CALL-SIGNS T3Q AND Z8N'. Once the order has been given, the retrans station is responsible for taking any action necessary. In the example shown in table 11-2 the retrans station, call-sign R8A, orders call-sign T3Q and Z8N to change to the retrans frequency (F2).

TABLE 11-2. Order to Change to Retransmission Frequency

<i>Station (a)</i>	<i>Frequency (b)</i>	<i>Transmission (c)</i>
R8A	F1	T3Q – Z8N THIS IS – R8A – BOOKHAT - OVER
T3Q	F1	R8A – (THIS IS) – T3Q – BOOKHAT – OVER.
Z8N	F1	R8A – (THIS IS) – Z8N – BOOKHAT – OVER.
R8A	F1	(T3Q – Z8N) – (THIS IS) – R8A – BOOKHAT – OUT. (T3Q, Z8N and R8A change to the retrans frequency. R8A then establishes communications with T3Q and Z8N.)
R8A	F2	T3Q – Z8N – THIS IS – R8A – RADIO CHECK – OVER.
T3Q	F2	R8A – (THIS IS) – T3Q – OVER.
Z8N	F2	R8A – (THIS IS) – Z8N – OVER.
R8A	F2	(T3Q – Z8N) – (THIS IS) – R8A – ROGER – OUT. (R8A advises the NCS that communications have been established with T3Q and Z8N on the OUTSIDE LEG.)
R8A	F1	BP7 – THIS IS – R8A – T3Q AND Z8N – LOUD AND CLEAR – OUTSIDE LEG – OVER.

11.5 The NCS will now order the retrans site to switch the equipment to retrans mode using the proword MAKE (table 11-3).

TABLE 11-3. Order to Switch Equipment

<i>Station (a)</i>	<i>Frequency (b)</i>	<i>Transmission (c)</i>
BP7	F1	(R8A) – (THIS IS) – BP7 – MAKE – OVER. (R8A reports to BP7 when the facility is MADE.)
R8A	F1	F1(BP7) – (THIS IS) – R8A – MADE – OUT.
BP7	Both	Both T3Q – Z8N – THIS IS – BP7 – RADIO CHECK – OVER.
T3Q	Both	Both(BP7) – (THIS IS) – T3Q – ROGER – OVER.
Z8N	Both	Both(BP7) – (THIS IS) – Z8N – ROGER – OVER.
BP7	Both	Both(T3Q) – (Z8N) – (THIS IS) – BP7 – ROGER – OUT.

Ceasing of Automatic Retransmission

11.6 Before the order to BREAK is given, the NCS instructs the retransmitted call-signs to change to the appropriate frequency; the retrans station is then ordered to BREAK (table 11-4).

TABLE 11-4. Cessation of Retransmission

<i>Station (a)</i>	<i>Frequency (b)</i>	<i>Transmission (c)</i>
BP7	F1	(R8A) – (THISIS) – BP7 – BREAK – OVER.
R8A	F1	(BP7) – (THISIS) – R8A – ROGER – OUT. (Communications now proceed in the normal manner on F1.)

HF/VHF and HF/HF Manual Retransmission

11.7 The HF/VHF and HF/HF manual retrans procedure utilises the RAVEN Retrans Unit. Retransmitting HF/VHF or HF/HF requires manual retrans by an operator at the retrans site.

11.8 When working through a manual retrans site, the calling station is to alert the retrans operator by transmitting the prowords REQUEST RETRANS as the initial call. This will ensure the retrans operator is ready to initiate the manual retrans facility and monitor all calls.

11.9 In the following example, the NCS wishes to call call sign (C/S) DE4 on the outside leg. The NCS' initial call is to the retrans site (C/S R8A):

R8A – THIS IS – BP7 – REQUEST RETRANS – OVER.

BP7 – THIS IS – F8T – ROGER – OVER.

(The retrans operator now activates the manual retrans switch and the NCS makes the call to the required sub-station.)

DE4 – THIS IS – BP7 – Convoy will arrive your loc at approx 1300 hr – OVER.

(The retrans operator, on hearing the NCS transmission, manually switches the toggle switch so the C/S DE4 may reply.)

(BP7) – THIS IS – DE4 – ROGER – OUT.

11.10 On hearing the proword OUT, the retrans operator is no longer required to activate the manual retrans and can now listen out for the other calls.

11.11 As retrans only occurs when manually switched, stations can continue to operate on their respective net and frequency until retrans is no longer required.

Section 11-2. Multiple Retransmission Engineering

11.12 Circumstance often dictates the need to employ more than one retrans station. The configurations may vary as shown in figures 11-1 and 11-2.

Call-signs

11.13 The call-signs to be used on a retransmitted net are to be those call-signs coinciding with the frequency used by the inside leg.

Establishing Multiple Retransmission

11.14 The NCS always retains control of the net. Retrans stations do not commence retrans until directed by the NCS, unless detailed otherwise in prior formal orders or instructions.

11.15 The sequence of establishing multiple retrains with one retrains site on one leg as shown in figure 11-1 is as follows:

- a. At the predesignated time, all stations establish communications on their respective frequencies.
- b. Having established communications with all retrains stations on the inside leg, the NCS then directs each retrains station systematically to commence retrains in its order of priority.
- c. If a retrains station is unable to commence retrains owing to communications or equipment failure, the NCS should direct the retrains station next in priority to commence retrains.
- d. The procedure continues until all retrains stations have commenced retrains.

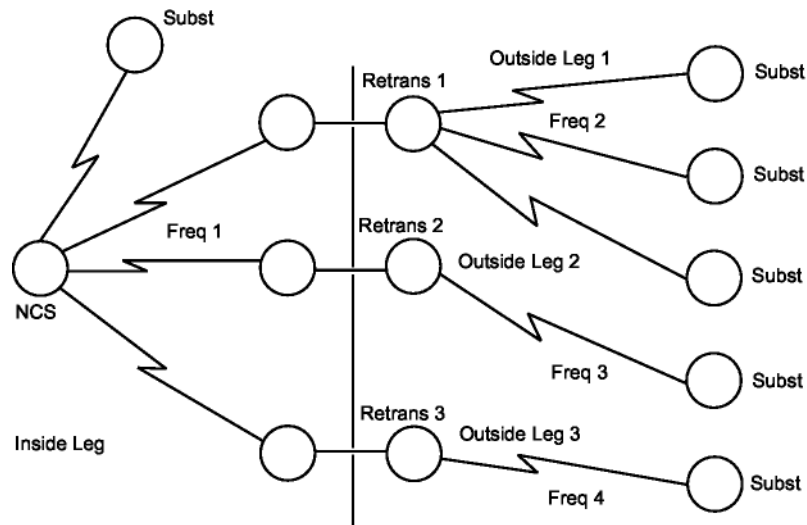


Figure 11-1. Multiple Retransmission – One Retransmission Site on One Leg

11.16 The sequence of establishing multiple retrains through multiple retrains sites as illustrated in figure 11-2 is as follows:

- a. At the predesignated time, all stations establish communications on their respective frequencies.
- b. Having established communications with Retrans Station 1 and confirmed that Retrans Station 1 has communication with Retrans Station 2, the NCS directs Retrans Station 1 to commence retrains.
- c. Once retrains communications have commenced at Retrans Station 1 and the NCS is able to communicate with Retrans Station 2, Retrans Station 2 is directed by the NCS to commence retrains.
- d. This procedure is continued until all stations are able to communicate as a net.

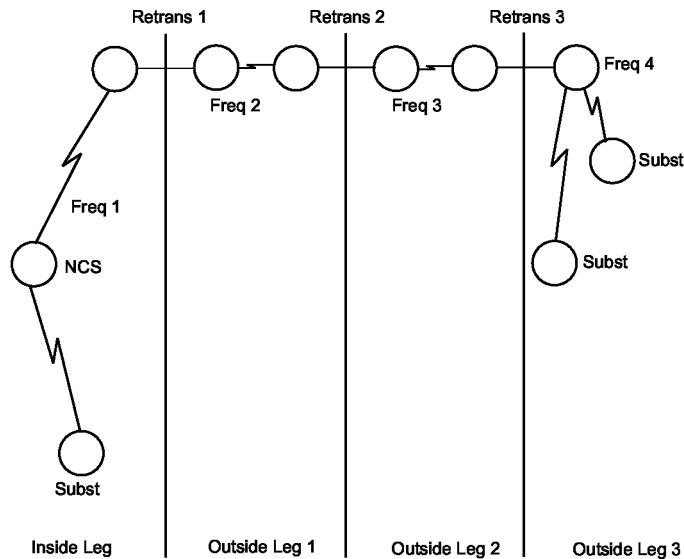


Figure 11-2. Multiple Retransmission Through Multiple Retransmission Sites on One Leg

Monitoring of Retransmission Facility

11.17 Close monitoring of the retrans facility is of primary importance for the maintenance of the net. Detachment commanders are to maintain a shift roster and ensure detachment members are conversant with each net being retransmitted, to enable immediate manual relay if the facility malfunctions.

Retransmission Malfunction

11.18 If the retrans facility malfunctions and the fault cannot be rectified immediately, stations on both sides of the retrans facility are to be notified that the facility is not available and that manual relaying of priority traffic will be necessary until the fault is rectified.

Proving Retransmission

11.19 If sufficient equipment is available, retrans detachments may prove their facility by transmitting on one frequency through their facility and then receiving on the other, thus conducting a loop test. It is preferable that loop tests are conducted by a distant station to ensure that the radio equipment will transmit and receive over distances. Where multiple retrans is employed, retrans detachments should conduct loop tests to prove one another's facility.

11.20 Whenever a continual carrier is monitored, the retrans facility is to be turned off and each radio is to be closely monitored to detect the affected frequency. The retrans detachment is to advise all stations that the facility has been turned off prior to checking the retrans equipment for malfunction. Operators must be aware that a continual carrier may be because of enemy interference, a stuck pressel switch or retrans equipment failure.

Station Responsibilities

11.21 The responsibilities of the retrans detachment must be fully appreciated by the detachment members. Such responsibilities are as follows:

- a. *Accurate Answers to Radio Checks.* If all stations give accurate answers to radio checks and generally keep one another informed of strength and readability, the retrans operator maintaining the net becomes aware of faults and can conduct any engineering or carry out maintenance at an early stage, thus preventing interruptions to communications.

- b. *Engineering.* During periods of engineering, it is essential that all stations restrict traffic flow if possible and carry out instructions issued by the retrans station, allowing engineering to be completed quickly so that normal traffic may resume. All sub-stations' radio equipment is to be operated using 'squelch', if fitted.
- c. *Fault Interpretation.* Often the retrans facility is blamed for sub-station equipment faults and difficulties, when in fact it is a fault with the sub-stations' equipment. The transmitted stations must ensure that apparent faults with the retrans station are in fact not their own. Retrans fault isolation and rectification procedures are detailed in annex A.
- d. *Failing to Answer.* All stations are to maintain a listening watch to ensure that all calls are answered promptly. Failure to do so may result in the retrans detachment having to begin unnecessary testing of its own facility.

Annex: A. Retransmission Fault Isolation and Rectification

Retransmission Fault Isolation and Rectification

1. With sufficient experience, members of a retrans detachment may readily recognise specific faults and quickly carry out remedial action. If, because of lack of experience or because of the nature of the fault, diagnosis is not possible, then the procedures detailed in tables 11-5, 11-6 and 11-7 are to be followed in sequence.

**TABLE 11-5. Fault Finding and Rectification: Non-secure
RAVEN Retransmission Using WD-1/TT**

Serial (a)	Action Sequence (b)	Result (c)
1	a. If possible, inform stations on both legs of the facility that the facility is about to be broken and that any high precedence traffic is to be passed manually	a. Keeps net informed, prevents confusion.
2	a. Conduct radio checks to stations on both legs using the respective R/T.	a. Confirms serviceability of R/T, antenna and battery. b. If unsuccessful replace faulty R/T, antenna or battery.
3	a. Check both R/T to ensure that mode switches are set to 'AUTO' and WD-1/TT is connected to 'REMOTE' terminals. b. If 2 kHz tone is heard in handset, reverse the pairs of wire at one end.	a. Confirms station is configured correctly for retrans.
4	a. Ensure antennas are physically separated by at least 7.5 m and that there is a frequency separation of at least 6 Mhz between R/T. b. Direct stations to conduct a radio check through the retrans facility.	a. Reduces interference between radios. b. Confirms serviceability of facility. c. If unsuccessful, replace WD-1/TT
5	a. If successful, inform NCS.	a. Return facility to 'MADE'.

**TABLE 11-6. Fault Finding and Rectification: RAVEN
Retransmission Using Cable CX-F208**

Serial (a)	Action Sequence (b)	Results (c)
1.	a. If possible, inform stations on both legs that the facility is about to be broken and that high precedence traffic is to be passed manually.	a. Keeps net informed, prevents confusion.
2.	a. Change mode switches on both R/T to voice or digital data (if using KY-57). b. Conduct radio checks on both legs using the respective R/T.	a. If successful, inform NCS.
3	a. Ensure antennas are physically separated by at least 7.5 m and that there is a frequency separation of at least 6 Mhz between the R/T. b. Change mode switches on both R/T back to retrans and direct stations to conduct a radio check through the facility.	a. Reduces interference between radios. b. Confirms serviceability of facility. c. If unsuccessful, replace retrans cable CX-F208.
4	a. If successful, inform NCS.	a. Return facility to 'MADE'

**TABLE 11-7. Fault Finding and Rectification: RAVEN
Retransmission Using Retransmission Unit HF/VHF,
RN-F300 (RTU)**

<i>Serial (a)</i>	<i>Action Sequence (b)</i>	<i>Results (c)</i>
1.	a. If possible, inform stations on both legs that the facility is about to be broken and that high precedence traffic is to be passed manually.	a. Keeps net informed, prevents confusion.
2.	a. Turn RTU off and conduct radio checks on both legs using the respective R/T.	a. Confirms serviceability of R/T, antenna, battery and cipher equipment (if fitted). b. If unsuccessful, replace faulty R/T, antenna, battery
3.	a. Turn RTU on and conduct BITE (built-in test on equipment) test.	a. Confirms serviceability of RTU. b. If fail light illuminates, replace RTU. c. If power light flashes, check RTU power source (indicates low voltage).
4	a. Using local select switch, conduct radio checks on both legs from RTU.	a. Confirms serviceability of both legs from RTU. b. If either leg is unsuccessful, swap retrans cables to confirm whether cable is faulty. c. Replace retrans cable if necessary
5	a. Ensure antennas are physically separated by at least 7.5 m and that there is a frequency separation of at least 6 Mhz between R/T. b. Change local select switch to 'RETRANS' and direct stations to conduct a radio check through the retrans facility.	a. Reduces interference between radios. b. Confirms serviceability of facility.
6	a. If successful, inform NCS.	a. Return facility to 'MADE'.

