ADMIRALTY FLEET ORDER

(" S " SERIES)

S.11—Radioteletype Instructions and Procedure

(R.N. Supplement No. 1 to A.C.P. 127)

FOR OFFICIAL USE ONLY

ADMIRALTY FLEET ORDER
(" S " SERIES)

ADMIRALTY, S.W.1.

13th January, 1961.

The following Order having been approved by My Lords Commissioners of the Admiralty is hereby promulgated.

Copies of this Order are supplied to Commonwealth Navies but only for official use by these Navies and such of their contractors, under seal of secrecy, as may be engaged on a defence project. Disclosure to any other authority or release to the Press or in any other way is forbidden. The information should be safeguarded under rules designed to give the same standard of security as maintained by Her Majesty's Government in the United Kingdom.

By Command of their Lordships,

To all Commanders-in-Chief, Flag Officers, Senior Naval Officers, Captains and Commanding Officers of H.M. Ships and Vessels.

Note.—A note on the Fleet Order System and the scale of distribution of issues is given in " Admiralty Fleet Orders—Instructions and Quarterly Index."

CORRECTION SHEET

	Printed Corrections				Signalled Amendments	
Correction No.	Authority	Date	Initials	Message No.	Date	Initials

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CHAPTER ONE

GENERAL PRINCIPLES

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CHAPTER 1

GENERAL PRINCIPLES

</div>

101. Terminology

a. The term *Automatic Telegraphy* in its broad sense covers all methods of communication using automatic equipment in place of human operators. In this context it includes the following systems:—

(1) High speed morse.

(2) Teleprinters and associated equipment.

(3) Facsimile and phototransmission.

(4) Other automatic communication systems such as Hellschreiber, Baudot, etc.

b. The automatic system of major importance in the R.N. to-day is the teleprinter, with the associated equipment which permits tape relay. The term Automatic Telegraphy in this Order, and in most other R.N. publications on the subject, covers this type of communication system only.

c. The British term *Teleprinter* is synonymous with the American term *Teletype-writer*. Since the agreed Allied terminology is Teletypewriter, this word is used hereafter in this Order, and should always be used wherever possible.

d. A Teletypewriter system which employs a radio circuit, instead of a line or wire to link the various equipments, is described as a *Radioteletype* system (abbreviation *RATT*). The term RATT should be used to describe all forms of radioteletype circuits, *i.e.* fixed services, broadcasts, and nets.

(*Note.*—The prevalent use of the term to refer only to shipborne radioteletype circuits is wrong.)

e. *A Terminal* is a group of associated receiving and transmitting equipments connected to a channel or circuit.

f. *A Station* is a separate terminal, or a combination of terminals with a collective identity for communication purposes.

g. *A Network* is an established organisation of stations, linked by a system of circuits (either radio or line).

h. *A Sub-Network* is a subdivision of a network, on which all stations use a common procedure.

102. The Murray Code

a. All teletypewriters and associated equipment operate on the Murray code (otherwise known as the " 5-unit code ", the " $7\frac{1}{2}$-unit stop-start code ", or the " International Telegraph Alphabet No. 2 "). This code employs a signal of standard pattern for each letter or character, composed as follows:—

(1) A " start " element consisting of a space of duration 1 unit.

(2) Five variable " code " elements consisting of either mark or space, of duration 1 unit each.

(3) A " stop " element consisting of a mark of duration about $1\frac{1}{2}$ units.

The total length of the standard signal is, therefore, about $7\frac{1}{2}$ units.

b. The " information " contained in the code, that is the communication of a given letter or character, is carried in the five variable code elements. The different combinations of these five variables produce a total of 32 available patterns of marks and spaces.

c. These basic signals are used as follows:—

26 to carry the 26 letters of the alphabet.

1 to carry the space required between words and groups.

1 to carry the carriage return signal.

1 to carry the line feed signal.

1 to carry the figures shift signal.

1 to carry the letters shift signal.

1 (the combination of five spaces) is only used in some teletypewriters designed for radioteletype working. (*See* paragraph 102 **d** (3).)

32 (Total)

d. The facility of the letters and figures shifts provides the system with another series of 26 characters (similar to the upper case of the typewriter). The use of these characters varies with individual makes of machine, but most conform to the following:—

    (1) 10 are used to carry the ten arabic numerals.

    (2) About 14 are used to carry punctuation marks and other symbols.

    (3) The remainder are used to carry various " function " signals to distant machines, like bell signals, automatic callups, and, in the case of machines designed for radioteletype working, other function signals connected with the operation of the radio circuit.

    e. The use of the Murray code in the teletypewriters in common use in the R.N. is shown in Plate 1.

103. Code Speed—the BAUD

    a. In paragraph 102 a above the standard pattern of the Murray code signal was seen to be of about $7\frac{1}{2}$ units duration. The actual length in time of each unit will determine the " code speed " (also known as the " signalling speed "), that is the rate at which each character is signalled, and therefore the speed at which communication is possible.

    b. Code speed is measured in " bauds " (pronounced " bodes ") after the pioneer telecommunications engineer Baudot. The baud is defined as follows:—

    " The number of *shortest* elements in a signalling code that can be transmitted in one second is equivalent to the code speed measured in bauds."

Example. If one unit in the Murray code is transmitted in 20 milliseconds the code speed is given by

$$\frac{1 \text{ second}}{20 \text{ milliseconds}} = \frac{1000 \text{ milliseconds}}{20 \text{ milliseconds}} = 50 \text{ bauds.}$$

It will be seen that the greater the number of bauds the faster the code speed.

    c. The relationship between code speed and the number of words per minute is given by:—

$$\text{Words per minute} = \frac{4}{3} \times \text{code speed in bauds.}$$

(*Note.*—This assumes a unit word of six characters, five for the word itself and one for the space following.)

    This relationship is further explained in paragraph 120, together with further details of code speed as applied to the morse code.

    d. Most British teletypewriter systems conform to a code speed of 50 bauds (66·6 w.p.m.). American systems conform to a code speed of 45·5 bauds (about 60 w.p.m.).

    e. Many AT machines are capable of being operated at varying code speeds as required.

104. Modulation and Keying

    a. The Murray code can be communicated to a distant terminal in a number of ways. It originates as an output from its generating equipment in the form of variations of voltage and current in an electric circuit; this is known as a " to line " signal. This " to line " signal is then used either to generate similar but more powerful variations of voltage and current (or to control tone signals) in a point to point line circuit, or to modulate the carrier wave of a point to point radio circuit or radio broadcast. At the receiving end the reverse process is carried out to produce a " from line " signal similar to the " to line " signal, and this is then used as the input of the receiving equipment to reproduce the required character. The actual methods employed are known as modulation and keying. Descriptions of the various types of modulation and keying systems in use today are outside the scope of this Chapter and can be found in the appropriate technical manuals.

    b. It is important to realise that providing the system used conveys the Murray code from transmitting end to receiving end correctly the actual method of modulation and keying employed usually has no bearing on the procedures used.

PLATE I

THE MURRAY CODE

(O REPRESENTS SPACE AND ● MARK)

LETTER	FIGURES				CODE ELEMENTS						
	The Teleprinter Model or Type										
All Machines	7B	7C/7BPN	28	12	Start O	1	2	3	4	5	Stop ●
A	—	—	—	—		●	●	O	O	O	
B	?	?	?	?		●	O	O	●	●	
C	:	:	:	:		O	●	●	●	O	
D	WHO ARE YOU		$			●	O	O	●	O	
E	3	3	3	3		●	O	O	O	O	
F	%	%	!	%		●	O	●	●	O	
G	@	@	&	@		O	●	O	●	●	
H	£	£		£		O	O	●	O	●	
I	8	8	8	8		O	●	●	O	O	
J	BELL	BELL	▼	BELL		●	●	O	●	O	
K	(	(	(	(		●	●	●	●	O	
L	)	)	)	)		O	●	O	O	●	
M	.	.	.	.		O	O	●	●	●	
N	,	,	,	,		O	O	●	●	O	
O	9	9	9	9		O	O	O	●	●	
P	⌀	⌀	⌀	⌀		O	●	●	O	●	
Q	1	1	1	1		●	●	●	O	●	
R	4	4	4	4		O	●	O	●	O	
S	!	!	BELL			●	O	●	O	O	
T	5	5	5	5		O	O	O	O	●	
U	7	7	7	7		●	●	●	O	O	
V	=	=	;	=		O	●	●	●	●	
W	2	2	2	2		●	●	O	O	●	
X	/	/	/	/		●	O	●	●	●	
Y	6	6	6	6		●	O	●	O	●	
Z	+	+	"	+		●	O	O	O	●	
Carriage Return						O	O	O	●	O	
Figures						●	●	O	●	●	
Letters						●	●	●	●	●	
Line Feed						O	●	O	O	O	
Space						O	O	●	O	O	
Blank TTY 28 Only						O	O	O	O	O	

105. Automatic Telegraph Equipment

a. *Teletypewriter.*—This is the basic machine in automatic telegraphy, and permits transmission of intelligence by converting physical depressions of a manual keyboard into electrical impulses corresponding to the Murray code character of the key being operated. At the receiving end it reconverts the incoming electrical signal into a page copy of the message via a typing head. A local page copy is provided at the transmitting end. The standard machines in service have the following inputs and outputs:—

With the machine in the Transmit condition

Input	*Output*
Manual keyboard.	1. Murray code " to line ".
	2. Local page copy.

With the machine in the Receive condition

Input	*Output*
Murray code " from line ".	Page copy.

(Machines at present in use are Creed Models 7, 7B and 12, and American Type 28.)

b. *Perforator.*—This machine (sometimes known as a tape perforator, or tape puncher) produces a punched tape in which punched holes carry the coded information. There is room across the tape for up to five holes, their positions corresponding to the positions of the marks and spaces of the Murray code signal for the particular character to be communicated. The presence of a hole in the appropriate position indicates a " mark " element, and the absence of hole indicates a " space " element.

Input	*Output*
Manual keyboard.	Murray code tape.

c. *Reperforator.*—This machine produces a punched tape from an incoming Murray code signal.

Input	*Output*
Murray code " from line ".	Murray code tape.

d. *The Auto Head.*—This machine (also known as an auto transmitter) transmits the Murray code signal " to line " from a punched tape.

Input	*Output*
Murray code tape.	Murray code " to line ".

106. Hybrid Machines

a. Although all the functions of automatic telegraphy can be performed with the four machines described in paragraph 105 above, it is often more economical in cost and/or space to produce a machine in which two or more basic functions are combined. Some of the more commonly met versions are described below. This list is not exhaustive:—

(1) *Page Printer.*—This is a teletypewriter which only operates in the receive condition. It therefore has no keyboard and associated mechanisms.

Input	*Output*
Murray code " from line ".	Page copy.

(2) *Printing Perforator.*—This is a perforator which produces a normal punched tape, which, however, is wide enough to have printed alongside each line of holes the letter or character equivalent to the Murray code signal. It is used where the message must be read, but where a separate page copy is not otherwise required.

Input	*Output*
Manual keyboard.	Tape—Murray code and printed.

(3) *Printing Reperforator.*—A reperforator which, in a similar manner to the printing perforator, produces a punched and printed tape. It has a similar use.

Input	*Output*
Murray code " from line ".	Tape—Murray code and printed.

(4) *Perforating Typewriter.*—This is a typewriter which has a perforating attachment which produces either normal punched tape, or punched and printed tape. It is used where a page copy is needed as well as a tape.

Input	*Output*
Manual keyboard.	1. Page copy.
	2. Tape—Murray code (may also be printed).

(5) *Teletypewriter/Perforator.*—This is a teletypewriter which, in addition has a perforating attachment which can be activated from the teletypewriter keyboard. The machine can therefore operate as either a teletypewriter, or a perforator, and has the inputs and outputs associated with these alternative uses as described in paragraphs 105 **a** and **b**.

(6) *Automatic Numbering Equipment.*—This is usually an auto head which, in addition, transmits a serial number before starting transmission from the tape. It often includes a station or channel designation.

Input	*Output*
Murray code tape.	1. Station or channel designation.
	2. Serial number.
	3. Murray code " to line " (in that sequence).

Note.—Many machines have an additional facility of transmitting a call or test signal automatically.

107. Standard AT Terminals

a. There are two standard AT terminals.

(1) *The Standard Duplex AT Terminal.*—This allows duplex working (*i.e.* simultaneous transmission and reception).

IN circuit   (*a*) Teletypewriter or page printer.

(*b*) Reperforator.

OUT circuit (*c*) Teletypewriter.

(*d*) Auto head.

(2) *The Standard Simplex AT Terminal.*—This allows simplex working (*i.e.* either transmission *or* reception).

(*a*) Teletypewriter.

(*b*) Reperforator.

(*c*) Auto head.

b. In addition to the equipment listed above, each terminal also contains the necessary associated switches, power supplies, and, in the case of RATT circuits, the associated radio terminal equipment.

c. It will be seen that the standard terminals allow both manual and tape transmission and reception. They are therefore very flexible, but also inherently wasteful of equipment, not all of which can be in use at once. In practice it is often possible to economise in equipment by fitting hybrid machines (*see* paragraph 106), or by equipping terminals for either tape or manual transmission. The use of printed tape is an important source of possible economies (*see* paragraphs 106 (2) and (3)).

108. Cryptographic Equipment

a. Although not AT equipment in the strict sense of the word, cryptographic machines are capable of being closely associated with AT systems, with resulting economies in message handling.

b. *On-line Cryptographic Machines.*—These operate in conjunction with the terminal AT equipment at both transmitting and receiving end and provide fully automatic cryptography. The plain language operation of the AT transmitting equipment and its associated on-line cryptographic machine result in an encrypted

message being passed " to line ". At the receiving end the encrypted " from line " signal is decrypted by the on-line cryptographic machine associated with the receiving AT equipment, and results in a plain language output. On-line cryptographic systems are classified into:—

(1) *Continuous Systems.*—The on-line machine at the transmitting end generates a continuous random signal to line, whether the AT equipment is active or idle. During idle periods the receiving AT equipment produces no output. During active periods the message is passed as described above. This type of system provides security for both traffic flow and content of message.

(2) *Start-Stop Systems.*—The on-line machine at the transmitting end only operates when the AT equipment is active. During idle periods nothing is transmitted to line. This type of system provides high grade security for the message, but does not provide traffic flow security.

c. *Off-Line Cryptographic Machines.*—These are entirely independent of terminal AT equipment. Messages for encryption and decryption are fed into them as a separate process from transmission or reception. There are four basic types of such machines.

(1) *Manual.*—Has a manual keyboard input and a printed tape output.

(2) *Punched Tape Input.*—Similar to a manual machine, but has the additional facility of an input from a punched Murray code tape.

(3) *Punched Tape Output.*—Similar to a manual machine, but has the additional facility of a punched Murray code tape output.

(4) *Full Punched Tape Operation.*—Similar to a manual machine, but has additional facilities of input and output of punched Murray code tape.

109. Compatibility

a. One machine is said to be " compatible " with another machine or circuit if it is fully capable of working into it without modification of either its technical characteristics or its normal method of operation. If this is not possible owing to differences of design the two are said to be " incompatible ".

b. If it is practicable to modify the technical characteristics or methods of operation of two incompatible machines to enable them to work together the two are said to be " partially incompatible ". If no such modification is practicable they are said to be " totally incompatible ".

c. A common cause of partial incompatibility is the varying use that is made of the figures series of characters in the many different designs of AT equipment that exist throughout the world. (*See* paragraph 102 d.) Such cases of incompatibility can usually be circumvented by procedural arrangements, but these inevitably encumber the system to some degree. The ideal that should be aimed at is for all terminal equipment on a network to be fully compatible. Standardisation of design is the key to compatibility.

110. Code Converters

a. These are machines which convert an input in one signalling code to an output in another signalling code. The main type in use in the R.N. is the " Murray code to morse code " type:—

Input	*Output*
Murray code tape, or	Morse code tape.
Murray code " from line ".	

This is used to produce tape for morse transmission either direct from Murray code tape from reperforators at IN circuits, or as a by-product of multi-tape production. (*See* paragraph 119.)

b. Since there is no direct equivalent in the Murray code to some of the " barred " morse characters, morse tape produced from a code converter will contain some inconsistencies. For example the long break sign is signalled in AT as " BT ", and this will therefore appear on the morse tape as " BT ", and not as " $\overline{BT}$ ".

111. Basic Types of Network

    a. There are three basic methods of linking a number of AT stations into a network:—

        (1) *Direct Network*.—Every station on the network is connected directly to every other station. This is the simplest form of network, and suitable where the number of stations is small. The number of terminals and circuits becomes prohibitive with larger numbers. Plate 2 illustrates a direct network connecting three stations.

        (2) *Switched Network*.—When the cost of providing a direct network becomes too great, a switched network may be used instead. Terminals are connected to the " other end " via an exchange switchboard as in a telephone system. Switchboards can be either manually operated, or automatic (*i.e.*, dialled). The disadvantage of the switched network is the cumbersome procedure for obtaining connections with manual switchboards, and the delays incurred in " line engaged " conditions. A typical small switched network is illustrated in Plate 3. The Defence Teleprinter Network of the United Kingdom is an example of a highly complex switched network.

        (3) *Relay Network*.—This type of network is one in which messages are relayed, *i.e.*, completely received and then retransmitted, via intermediate stations to the required destination station. A typical small relay network is illustrated in Plate 4. The delays incurred at the relay points are likely to be serious unless " tape relay " is employed. (*See* paragraph 114.) An example of a complex relay network is the Commonwealth Naval Tape Relay Network, which includes most of the established naval radio fixed services, and certain line circuits.

    b. *Terminal Equipment*.—The selection of the actual type of AT equipment fitted at each terminal of a network will depend on whether simplex or duplex working is being employed, the type of traffic being handled, and the procedure in use.

    c. *Simplex and Duplex Working*.—Although any network can in theory operate with either simplex or duplex working, in practice, for technical reasons, relay networks usually employ duplex working and switched networks usually employ simplex working. Direct networks can employ either.

    d. *Types of Circuits*.—Networks can be linked by either RATT or line circuits as follows. (Further details of RATT circuits are given in paragraph 112.)

        (1) *Direct Networks*.—RATT or line.

        (2) *Switched Networks*.—Line only.
            (*Note*.—It is impracticable to use radio circuits owing to the cumulative pick-up of noise at each switching point.)

        (3) *Relay Networks*.—RATT or line.

112. Radioteletype Circuits

    a. RATT circuits can be classified into:—

    (1) RATT services.

    (2) RATT broadcasts.

    (3) RATT nets.

    (4) C.W. or voice cued RATT nets.

    b. *RATT Services*.—These are duplex point-to-point circuits and may be:—

    (1) *RATT Fixed Services*, between two shore stations.

    (2) *RATT Mobile Services*, between either a shore station and a ship, or between two ships. This involves the following complications:—

        (*a*) Difficulties of providing a good radio link.

        (*b*) Electronic emission policy.

        (*c*) Communications security for the ship.

        (*d*) Incompatibilities between ship and shore station equipment.

PLATE 2

EXAMPLE OF A DIRECT NETWORK
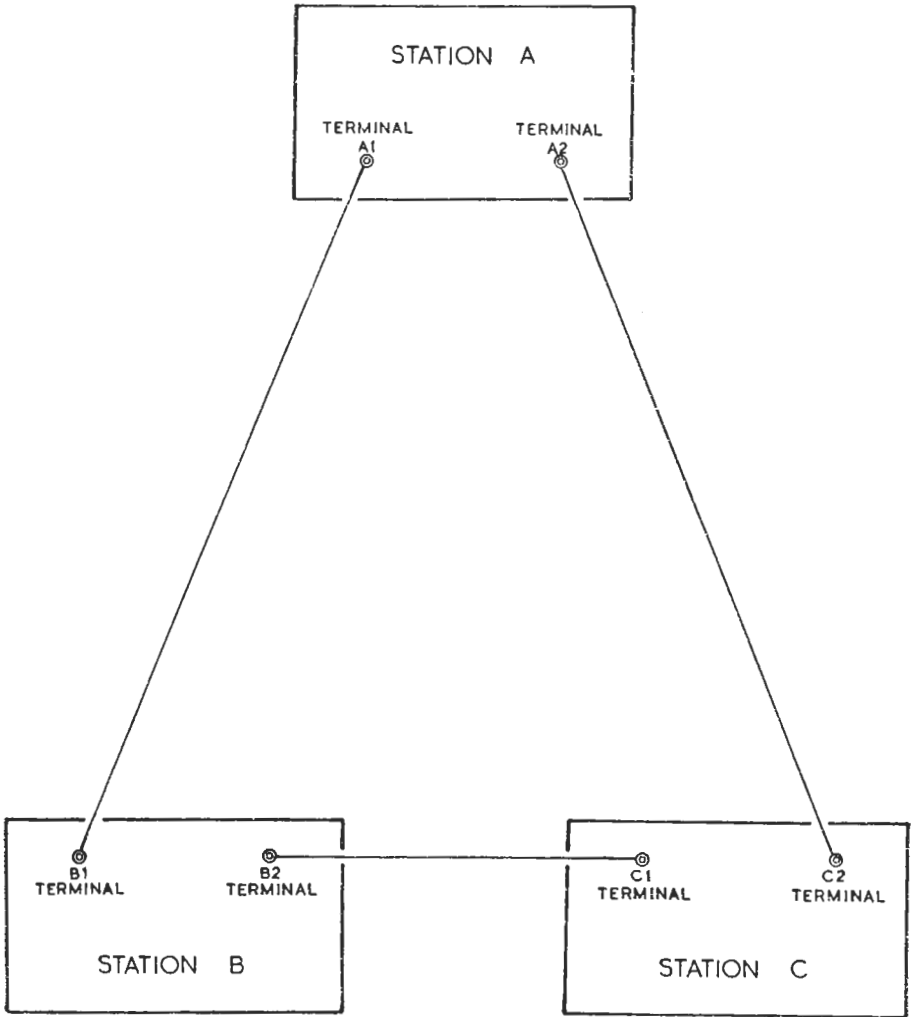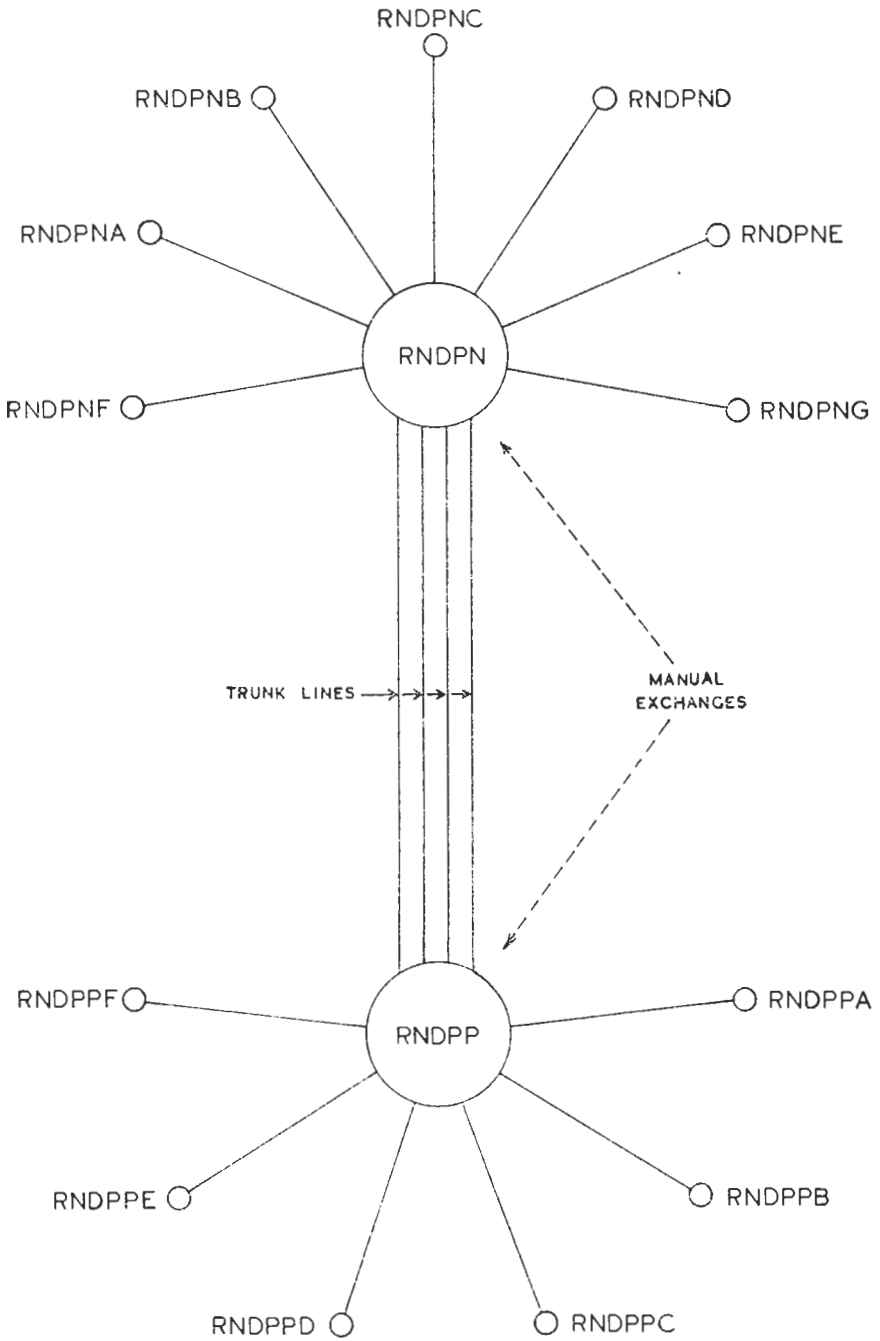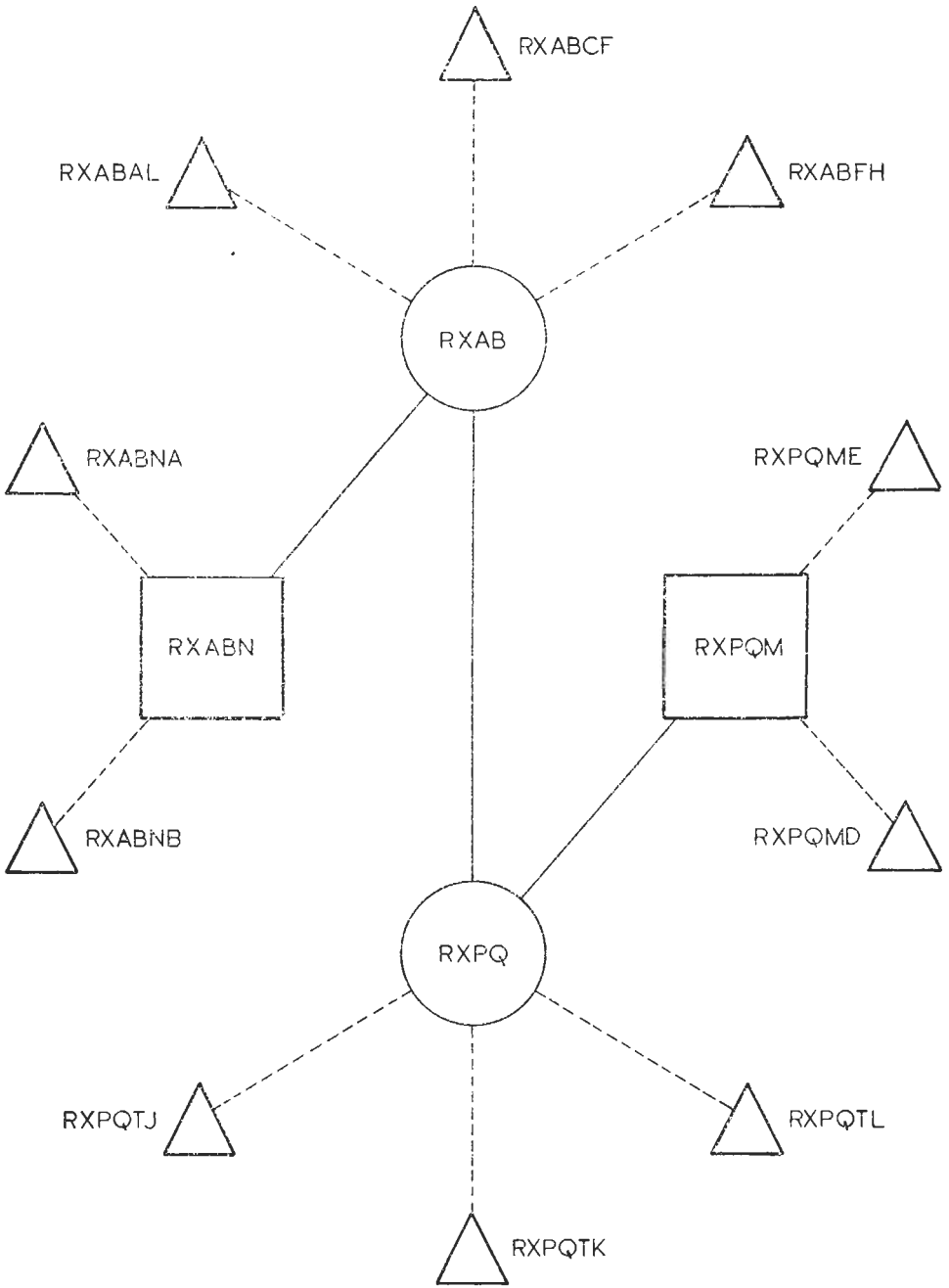
PLATE 3

EXAMPLE OF A SMALL SWITCHED NETWORK

PLATE 4

EXAMPLE OF A SMALL RELAY NETWORK

———	RATT FIXED SERVICES
- - - - -	LINE CIRCUITS

c. *RATT Broadcasts.*—These may be:—

(1) *Shore–Ship RATT Broadcasts*, transmitted by a shore station and received by ships.

(2) *Intership RATT Broadcast*, transmitted by one ship and received by others.

d. *RATT Nets.*—These are simplex nets linking a number of ships or shore stations all using AT equipment only.

e. *CW or Voice Cued RATT Nets.*—Point-to-point simplex or duplex circuits, or simplex nets, on which intercommunication and control of the net is conducted using CW or Voice, switching to AT for transmission of messages.

113. AT Procedures

a. The procedure used on any AT circuit will depend on the type of circuit or network.

b. The procedure should cover the following aspects:—

(1) *The Message Content Rules.*
> (*a*) *Basic Message Format.*—The order in which various portions of the message are transmitted.
> (*b*) *Message Layout.*—The actual appearance of the message in page form.
> (*c*) Instructions for the use of call signs, address groups, routeing indicators, and plain language identities.

(2) *General Operating Rules.*—Calling and answering, use of function keys, obtaining connections via switchboards, etc.

c. The aim of any AT procedure should be to:—

(1) Provide the most rapid and reliable method of passing messages over the circuit or network.

(2) Achieve the greatest economy in manual handling of the message (*see* paragraph 113 **d**).

(3) Require the minimum reprocessing of a message which is to be transferred from one circuit or network to another.

(4) Overcome with the minimum complication any partial incompatibility that may exist on the circuit or network. (*See* paragraph 109.)

d. With reference to paragraph 113 **c** (2) above, this aim will only be fully met if a message incurs only one manual keyboard operation throughout its entire passage from originating position to delivery position. This should be the target of all designs, procedures, and layouts.

e. It is the intention that as far as possible all AT procedures should be standardised. Unfortunately the differences in the technical characteristics of the existing networks throughout the world and the equipment used on them preclude there being one common procedure for many years to come. As will be seen from succeeding paragraphs the basic allied procedures are contained in A.C.P.s 126 and 127, and these are amplified as required for each national or geographical network or circuit by supplements or other local instructions.

114. Tape Relay

a. The requirements of paragraphs 113 **c** (1) to (3) are met in relay networks by employing a procedure known as tape relay. The basis of this is that all messages are transmitted from auto heads and received on reperforators, with teletypewriters in parallel to provide local page copies as required. Retransmission at each relay station is effected by taking the received tape from the IN terminal reperforator and using it at the OUT terminal auto head.

b. One message may require two or more transmissions from one station. To avoid using a tape twice, with the consequent delays and complications of extra " cross office delivery ", it is usual to prepare the necessary number of tapes using multi-tape production. (*See* paragraph 119.)

c. The essentials of tape relay procedure are as follows:—

(1) *Routeing Indicators.*—All " On-Net " tape relay stations are assigned routeing indicators. These indicate not only the *identity* of the station but also its *position* in its network and the *relaying responsibilities* of intermediate stations. This is achieved by building each indicator in accordance with a logical system, which is described in A.C.P. 121. Allied routeing indicators are promulgated in A.C.P. 117. Further details concerning British routeing indicators, and the responsibilities of relay stations and M.S.O.s are contained in B.R. 1978, Naval Message Routeing Directory.

(2) *The Message Format.*—This is similar to that used in other procedures, but allows routeing instructions, in the form of routeing indicators, to be placed at the leading end of the tape. This simplifies reprocessing of tapes *en route*.

d. *Tape Relay Procedure Publications.*—The basic Allied instructions for tape relay are contained in A.C.P. 127. This is used for traffic which is transferred between national or geographical tape relay networks, since it is the only common procedure available. Tape relay stations handling such traffic are termed " transfer " stations. Stations on individual networks employ A.C.P. 127 as the basic procedure for passing traffic over the network, amplified as necessary by national or geographical supplements. Details of the Commonwealth Naval Tape Relay Network and the procedure used on it are contained in paragraph 115.

115. The Commonwealth Naval Tape Relay Network

a. This is the primary Naval Tape Relay Network. It links all the major Commonwealth naval shore radio stations by RATT fixed services, and in addition a number of other shore establishments in Commonwealth and Colonial territories by means of line circuits. Many of the RATT circuits are multi-channel, and a number of them are fitted for on-line cryptographic operation.

b. The procedure employed is laid down in A.F.O. S.14.

116. The United Kingdom Inter-Broadcast AT Network

a. This is a tape relay network linking ship–shore receiving stations, naval and maritime headquarters, and broadcast controlling stations in the United Kingdom, Northern Ireland, France, and Holland. It is established to provide a rapid means of transferring traffic received on ship–shore and local circuits, or originated at naval or maritime headquarters, to the stations controlling the various broadcasts covering the Western Atlantic, North Sea, Channel, and Bay of Biscay areas.

b. This network employs a special procedure which is promulgated by the Signal Division, Admiralty, to stations concerned.

117. The Defence Teleprinter Network of the United Kingdom (D.T.N.)

a. This is the primary British Services Switched Network. It links a large number of Naval, Army, and R.A.F. Stations in the United Kingdom and Northern Ireland by a complex of line circuits and manual switchboards. Although technically it is one vast network, in practice it is easier to regard it as a number of sub-networks, each capable of intercommunication with the other. The procedures used by the three Services on the sub-networks linking their own stations differ in detail.

b. *The Naval Sub-Network.*—This links the R.N. stations serving naval shore establishments and headquarters in the United Kingdom and Northern Ireland, and teleprinter buoys at naval ports. Most of the switchboards concerned are manned by naval personnel or Admiralty civilians. These stations are integrated with the Commonwealth Naval Tape Relay Network for routeing purposes.

c. All AT stations on the naval sub-network, and other point-to-point circuits in the United Kingdom, are assigned routeing indicators, and employ the procedure laid down in A.F.O. S.14 for message content rules, but conform to the Commonwealth Supplement to A.C.P. 127 for the procedure for calling and answering, and obtaining connections from switchboards.

d. Other AT networks in the United Kingdom, notably the Meteorological Teleprinter Network and Air Traffic Control Teleprinter Network, employ their own procedures which are held by the stations concerned.

118. Procedure to be used on RATT Circuits

a. *RATT Fixed Services.*—The procedure is given in A.C.P. 127 and A.F.O. S.14.

b. *RATT Mobile Services.*—The procedure used differs according to whether the stations concerned form part of a network.

(1) Both stations " On-Net " (*i.e.* stations are assigned routeing indicators, and therefore are an integral part of an established tape relay network). Both stations use the procedure given in A.C.P. 127 and S.14. An example of such a circuit might be a RATT circuit between the headquarters ship of a task force commander and a shore station.

(2) Either station " Off-Net ", INTRA-R.N. (*i.e.* stations are not assigned a routeing indicator, and therefore are not an integral part of any network). The procedure to be used is given in chapter 3. An example of such a circuit might be a RATT circuit between a flagship and Naval headquarters ashore.

(3) Either station " Off-Net ", not INTRA-R.N. (*i.e.* stations are not assigned a routeing indicator, and therefore are not an integral part of any network). The procedure to be used is given in A.C.P. 126. An example of such a circuit might be a RATT circuit between a flagship and a joint operations centre ashore.

c. *RATT Broadcasts.*—The INTRA-R.N. RATT broadcast procedure is given in chapter 2. This procedure is to be used on shore–ship RATT broadcasts (*i.e.* ship broadcasts and harbour broadcasts) and intership RATT broadcasts (*i.e.* task force broadcasts).

d. *RATT Nets.*—The INTRA-R.N. Simplex, Executive method, and ship–shore procedures are given in chapters 3, 4 and 5 respectively.

e. *CW or Voice Cued RATT Nets.*—The procedure for intercommunications and control is laid down in A.C.P.s 124 or 125 as applicable. The switch to automatic transmission (which should normally be from tape) is to be indicated by the use of the operating signal " QJB4 ". All stations revert to CW or voice on completion of the message transmission without further instructions. Other useful operating signals are ZTB, ZTD, ZTE, ZTF and ZTM. The message tapes should be prepared using A.C.P. 127 as far as possible, but using CW or voice call signs as appropriate.

119. Multi-Tape Production

a. Although the basic machine for producing tape from a manual keyboard is the perforator (*see* paragraph 105 b), this only provides one tape. In practice two or more are frequently required, and for this a combination of machines known as a multiperforating pool is used. A typical multiperforating pool is illustrated in Plate 5.

b. This pool is employed as follows:—

(1) For preparing tapes for original transmission the teletypewriter keyboard is used. Individual reperforators are switched on in turn to cut those portions of each message head which differ from tape to tape (usually confined to lines 1 to 4 of the format). The code converter is used similarly if a morse tape is required as well. Where the message becomes common, reperforators are connected in parallel, and the required number of tapes are produced simultaneously.

(2) To provide extra tapes at relay points (*see* paragraph 114 b) the same procedure is followed, except that the received tape is placed in the auto head, and this is used to provide the common input into the reperforators and code converter, thereby avoiding unnecessary manual operation of the teletypewriter.

PLATE 5

EXAMPLE OF A MULTIPERFORATING POOL
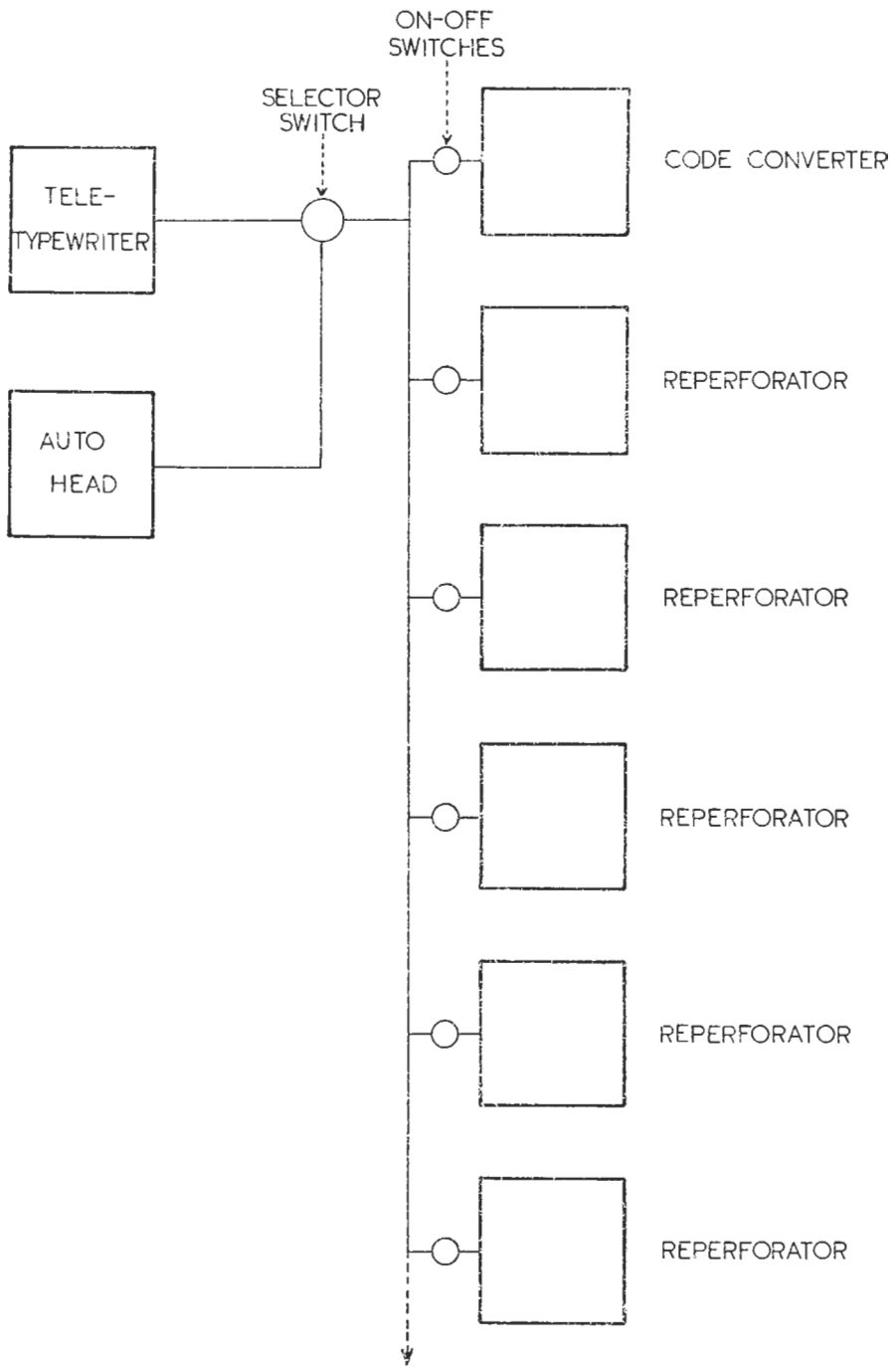
ANY NUMBER OF REPERFORATORS CAN
BE ADDED AS REQUIRED

120.   The Relationship between Code Speed and Speed of Transmission

a. *Code Speed.*—The unit of code speed is the baud, which is defined in paragraph 103 **b** above.

b. *Speed of Transmission.*—The unit word for assessing speed of transmission is defined as the word PARIS followed by an inter-word space.   This is a universally recognised arbitrary standard.   Speed of transmission is measured in terms of " words per minute ", reckoned as being the number of unit words that can be transmitted in 60 seconds.

d. *Murray Code.*—Since each character is of $7\frac{1}{2}$ units duration the unit word is of 45 units duration.   The relation between code speed and speed of transmission is therefore expressed as follows:—

(1) Duration of each unit $= t$ milliseconds.

(2) Duration of each unit word therefore $= 45t$ milliseconds.

(3) Speed of transmission $= \dfrac{60 \times 1{,}000}{45t} = \dfrac{4}{3} \times \dfrac{1{,}000}{t}$ w.p.m.

(4) From (1) above, code speed $= \dfrac{1{,}000}{t}$ bauds.

(5) Speed of transmission in words per minute therefore $= \dfrac{4}{3} \times$ code speed in bauds.

Example.   A code speed of 100 bauds is equivalent to a speed of transmission of 133 words per minute.

e. *Morse Code.*—Morse code characters are formulated as follows:—

(1) A dot is equal to one unit.

(2) A dash is equal to three units.

(3) The space between dots and/or dashes within a character is equal to one unit.

(4) The space between characters within a word or group is equal to three units.

(5) The space between words or groups is equal to seven units.

f.   The unit word in morse is therefore 50 units in duration.   The relation between code speed and speed of transmission is therefore expressed as follows:—

(1) Duration of each unit $= t$ milliseconds.

(2) Duration of each unit word therefore $= 50t$ milliseconds.

(3) Speed of transmission $= \dfrac{60 \times 1{,}000}{50t} = \dfrac{6}{5} \times \dfrac{1{,}000}{t}$ w.p.m.

(4) From (i) above, code speed $= \dfrac{1{,}000}{t}$ bauds.

(5) Speed of transmission in words per minute therefore $= \dfrac{6}{5} \times$ code speed in bauds.

Example.—A speed of transmission of 18 words per minute is equivalent to a code speed of 15 bauds.

CHAPTER TWO

BROADCAST PROCEDURE

CHAPTER 2

BROADCAST PROCEDURE

201. Conduct of Broadcasts

Instructions for the conduct of radioteletype broadcasts are given in A.F.O. S.1, paragraph 414.

202. Messages Received in Tape Relay Format

Messages received in tape relay format for relay on a broadcast should not normally be reprocessed to remove unwanted elements (*i.e.*, those not used in broadcast procedure), unless the message has to be reprocessed anyway for other reasons (*i.e.*, re-routeing on other circuits). In the former case, messages are to be relayed on the broadcast as received with the addition of a new line 1.

Example A.—A plaindress message:

	. . . . .2CR 1LF LTRS
NAWS	2CR 1LF
NLR126	2CR 1LF LTRS
FABA145	5 Spaces 2CR 1LF
UU	2CR 1LF
RR RNDPC	8LTRS 2CR 1LF
DE RNTP 204/23	2CR 1LF
RNDPC T HMS ALBION	2CR 1LF
R 231509Z	2CR 1LF
FM CINC MED	2CR 1LF
TO COM CYPRUS	2CR 1LF
INFO ADMIRALTY	2CR 1LF
HMS ALBION	2CR 1LF
BT	2CR 1LF
U N C L A S S I F I E D TEXT	2CR 1LF
BT	2CR 1LF
23/1514Z	2CR 8LF
NNNN	12LTRS

Example B.—A procedure message:

	. . . . .2CR 1LF LTRS
NAWS	2CR 1LF LTRS
FABA734	5 Spaces 2CR 1LF
UU	2CR 1LF
PP RNDPC	8LTRS 2CR 1LF
DE RNTP	2CR 1LF
ZBY1 NLR	2CR 1LF
FM GYX4	2CR 1LF
TO GL	2CR 1LF
K	2CR 1LF
12/1204Z	2CR 8LF
NNNN	12LTRS

203. Messages Processed or Reprocessed by the Broadcast Control Station

Messages processed or reprocessed by the broadcast control station are to conform to the procedure prescribed in A.C.P. 127 as modified below:—

Line 1. The procedure line is to contain the appropriate call sign, the broadcast identity letters, and the serial number.

Example A:

	. . . . .2CR 1LF LTRS
NAWS	2CR 1LF
MR938	5 Spaces 2CR LF

Lines 2 and 3.   Routeing indicators will not be used.

Lines 6–9.   The address of plain language messages is to be expressed in plain language. Ships' names are to be prefixed HMS, HMNZS, etc., to avoid ambiguity.

Line 10.   The prefix.   Only the group count is to be signalled in this component. The abbreviation SVC, when used, is to be signalled as the first word of the text, following the security classification.

Line 12.   The text.   The text of plain language messages is always to commence with the security classification spelt out in full, with a space between each letter, *e.g.* U N C L A S S I F I E D   TEXT.

Line 14.   Will only be used in collation of telegrams.

Line 15.   The filing time is to be used, except on procedure messages.

Example B.—A plaindress message:

	. . . . .2CR 1LF LTRS
NAWS	2CR 1LF
NLR839	5 Spaces 2CR 1LF
R 102247Z	2CR 1LF
FM ADMIRALTY	2CR 1LF
TO AIG 1012	2CR 1LF
BT	2CR 1LF
U N C L A S S I F I E D 135A TEXT	2CR 1LF
BT	2CR 1LF
10/2259Z	2CR 8LF
NNNN	12LTRS

Example C.—A codress message:

	. . . . .2CR 1LF LTRS
NAWS	2CR 1LF
MR450	5 Spaces 2CR 1LF
W2/M–	2CR 1LF
R 091324Z	2CR 1LF
GR 188	2CR 1LF
BT	2CR 1LF
TEN LINES OF ENCRYPTED TEXT	2CR 8LF
PAGE TWO RNTPCR 091324Z	2CR 1LF
NINE LINES OF ENCRYPTED TEXT	2CR 1LF
BT	2CR 1LF
09/1447Z	2CR 8LF
NNNN	12LTRS

Example D.—A procedure message concerning ship–shore working:

	. . . . .5 Spaces 2CR 1LF
NAWS	2CR 1LF
FM GYX3	2CR 1LF
TO GXSL	2CR 1LF
K	2CR 8LF
NNNN	12LTRS

204.   Messages Refiled by the Broadcast Control Station

Messages refiled by the broadcast control station should normally conform to the procedure shown in paragraph 203. In cases of urgency, however, messages may be transmitted on a RATT broadcast without re-filing. Such messages will however bear a filing time to indicate the time the message was placed on the broadcast.

Example A.—An enemy contact report received on ship-shore, and broadcast on
Broadcast MR:

	. . . . .5 Spaces 2CR 1LF
NAWS	2CR 1LF
(FIGS) JSJSJSJSJS (LTRS)	2CR 1LF
Z	2CR 1LF
ZFA	2CR 1LF
GKL DE A611/	2CR 1LF
T G	2CR 1LF
Z	2CR 1LF
FM A611/	2CR 1LF
TO ANC7/	2CR 1LF
BT	2CR 1LF
LR1/1 2DD 217 15 315LL20 125 18	2CR 1LF
BT	2CR 1LF
1518Z ZNB GN	2CR 1LF
17/1521Z	2CR 8LF
NNNN	12 LTRS

Example B.—A signal received on Common " SUBSUNK " Secondary:

	. . . . .2CR 1LF LTRS
NAWS	2CR 1LF
NLR198	5 Spaces 2CR 1LF
P	2CR 1LF
ZFA	2CR 1LF
MTN DE GXTM	2CR 1LF
ZBY1 NLR NL	2CR 1LF
P 160953Z	2CR 1LF
FM GXTM	2CR 1LF
TO GGCR	2CR 1LF
MVBF	2CR 1LF
MVDR	2CR 1LF
MVSS	2CR 1LF
INFO GKYM	2CR 1LF
GKYT	2CR 1LF
BT	2CR 1LF
TEXT	2CR 1LF
BT	2CR 1LF
16/0958Z	2CR 8LF
NNNN	12LTRS

205. Radiotelegrams

Example.—Radiotelegrams received in commercial format are not to be refiled:

	. . . . .2CR 1LF LTRS
NAWS	2CR 1LF
NLR803	5 Spaces 2CR 1LF
=	2CR 1LF
BARNSTAPLE 18 17 1200	2CR 1LF
=	2CR 1LF
LRO JONES 3 MESS WARSHIP	
BIRMINGHAM HOMEWATERS	
ADMIRALTY RADIO	2CR 1LF
=	2CR 1LF
TEXT	2CR 1LF
=	2CR 1LF
MUM	2CR 1LF
=	2CR 1LF
AR	2CR 1LF
COL 3 MUM	2CR 1LF
17/1258Z	2CR 8LF
NNNN	12LTRS

Note.—The above example has been relayed to Admiralty by G.P.O. on Telex.

206. Layout of Synoptic Messages

The texts of synoptic messages follow a special format varying from 1 to 12 groups per line. Such messages need not be transmitted with ten groups to a line, but should follow the special format as far as possible consistent with the number of key depressions on a teletypewriter (*i.e.* a maximum of 69 key depressions per line).

207. Call Tapes

a. During periods of " no traffic ", broadcast control stations are to transmit a continuous call tape in the following form:—

(1) Five spaces, 2CR 1LF.
(2) Call signs of frequencies being radiated.
(3) One space.
(4) Broadcast area indicator.
(5) One space.
(6) Broadcast area indicator.
(7) Ten FIG. shift 10 LTR. shift.
(8) One space.
(9) Five RYs.
(10) One space.
(11) Repeat items (2) to (9).
(12) Five spaces, 2CR.
(13) Repeat items (2) to (11).
(14) Repeat items (1) to (13).

Example:

GYA/3/4/5 NLR NLR RYRYRYRYRY GYA/3/4/5 NLR NLR RYRYRYRYRY (OVERPRINTED ONCE ONLY)

b. Before commencing traffic, after having run a call tape, the broadcast control station is to transmit manually eight line feeds in order to clear page copies on receiving teletypewriters.

c. In the event of one or more transmitters being off the air during a simultaneous transmission, the fact is to be indicated by the use of operating signal ZAZ. (ZAZ— " One or more transmitters, simultaneously keying on this broadcast are defective but transmission will continue on remaining transmitters. Traffic so transmitted will be repeated when full service is restored ".)

208. Re-runs

a. The procedure for requesting a re-run of a message(s) or part of a message, or reporting a number(s) missed, is given in A.F.O. S.1, paragraph 423.

b. Messages being re-run on request are to bear a new serial number in line 1, and in line 4 the operating signal ZFG and the original serial number. (ZFG—" This message is an exact duplicate of a message previously transmitted ".)

Example A:

. . . .	2CR 1LF LTRS
NAWS	2CR 1LF
MR 073	5 Spaces 2CR 1LF
ZFG MR058	2CR 1LF
R 180327Z	2CR 1LF
FM FOFH	2CR 1LF
TO HMS CEYLON	2CR 1LF
BT	2CR 1LF
U N C L A S S I F I E D TEXT	2CR 1LF
BT	2CR 1LF
18/0516Z	2CR 8LF
NNNN	12LTRS

c. If the message(s) asked for does not concern the requesting ship or its guarding responsibilities, a message to this effect is to be originated by the broadcast control station, unless the message(s) has been re-transmitted since the Date Time Group of the request for a re-run.

Example B:

	. . . . .5 Spaces 2CR 1LF
NAWS	2CR 1LF
FM GYZ	2CR 1LF
TO GKKS	2CR 1LF
ZFK1 MR004	2CR 8LF
NNNN	12LTRS

(ZFK1—" Message does not concern you ".)

d. The procedure in c above does not apply to requests for re-runs received from an indefinite call sign. (*See* A.F.O. S.1, 423B(3).)

209. Broadcast Guards

A ship guarding the primary ship broadcast and relaying traffic on a local or special broadcast should not reprocess traffic before relaying.

Example A.—FOFH is guarding Broadcast NLR and controlling Broadcast ZR:

	. . . . .2CR 1LF LTRS
GBXZ	2CR 1LF
ZR048	5 Spaces 2CR 1LF LTRS
GBXZ	2CR 1LF
NLR365	5 Spaces 2CR 1LF
P 091457Z	2CR 1LF
FM ADMIRALTY	2CR 1LF
TO HMS BULWARK	2CR 1LF
BT	2CR 1LF
U N C L A S S I F I E D TEXT	2CR 1LF
BT	2CR 1LF
09/1532Z	2CR 8LF
NNNN	12LTRS

CHAPTER THREE

SIMPLEX PROCEDURE

CHAPTER 3

SIMPLEX PROCEDURE

301. Notes on the Operation of Mobile Radioteletype Simplex Nets

    a. *General Instructions*

        (1) Radioteletype simplex nets are directed nets unless otherwise ordered.

        (2) It is essential that the control station is in good communication with all out stations.

        (3) Whenever possible messages should be taped up first, and then transmitted automatically.

    b. *Procedure*

        (1) Teleprinters are to be set to single line spacing.

        (2) The address of plain language messages is to be expressed in plain language. Ship's names are to be prefixed HMS, HMAS, etc., to avoid ambiguity.

        (3) When two-figure tactical call signs are used, they may be spelt out (*e.g.* RR FOUR TWO DE ZERO ONE) to avoid possible errors.

        (4) Procedure messages are to be transmitted on one line (where the length of the message permits), and end with the prosign K or AR.

        (5) Other messages are to be transmitted in accordance with the layout given in S.14, omitting the start of message functional letters and security warning prosign in line 1, and station serial number in line 3. Messages are to end with the " end of message " functions 2CR 8LF NNNN 12LTRS.

        (6) In a multi-call message stations are to be controlled to receipt after the end of message functions. When stations are in good communication, it is normally unnecessary for more than one station to be controlled to receipt (paragraph 316).

        (7) When authentication is used, the authentication is to precede the filing time (paragraph 318).

        (8) The procedure to be used for passing traffic to ship–shore guards for onward relay by RATT is given in paragraph 512.

302. Machine Functions

    a. Teletypewriters are fitted with a " stop/start " switch, which automatically operates if a pause occurs in transmission of longer than 40 seconds in the case of Model 12 teletypewriters, and 90 seconds in the case of Type 28 teletypewriters.

    b. In addition, the associated terminal sets will automatically revert to the " stand-by " condition if there is a pause in transmission or reception of more than three seconds.

    c. The machine functions in paragraphs 303–305 are therefore necessary, in addition to the normal operations of the teletypewriter functional keys, during the transmission of messages.

303. Initial Transmission

    a. To begin an initial transmission when establishing communication, or when commencing transmission after a pause of working on the net of 40 seconds or more (*i.e.* when a Type 12 teletypewriter motor will have stopped), the following functional keys are to be operated:—

(1) Teletypewriter, Type 28.

Operation	*Effect*
(*a*) Break key pressed for two seconds.	(i) Switches on own teletypewriter motor (if stopped).
	(ii) Locks own keyboard.
(*b*) Local keyboard unlock.	Unlocks own keyboard.
(*c*) Five spaces.	(i) Conditions own terminal set to " transmit ".
	(ii) Conditions distant terminal sets to " receive ".
	(iii) Switches on distant teletypewriter motors.
	(iv) Clears tape if distant stations are reperforating.
(*d*) Two carriage returns.	Aligns all teletypewriters.
(*e*) One line feed.	Clears all paper rolls.

(2) Teletypewriter, Model 12.

(*a*) Letters key depressed three times.	(i) Switches on own teletypewriter motor.
	(ii) Conditions own terminal set to " transmit ".
	(iii) Conditions distant terminal sets to " reccive ".
	(iv) Switches on distant teletypewriter motors.
(*b*) Five spaces.	Clears tape if distant stations are reperforating.
(*c*) Two carriage returns.	Aligns all teletypewriters.
(*d*) One line feed.	Clears all paper rolls.

304. Subsequent Transmissions

All subsequent transmissions after delays of less than 40 seconds (*i.e.* when own motor is already running) are to be preceded by:—

Five spaces.
Two carriage returns.
One line feed.

305. Short Pauses in Transmission

If a short pause of more than three seconds, but less than 40 seconds, occurs during a transmission, distant stations terminal sets must be reconditioned to " receive " by making three letter or figure shifts as appropriate to the character being transmitted.

306. Initial Alignment of Terminal Sets

a. Prior to establishing a net, it is essential to align terminal sets of all stations:—

(1) The control station is to transmit a continuous space bar signal, during which time the ships are to adjust their terminal sets to the transmission.

(2) On completion, a second similar transmission is to be made by another ship, when ordered, so that the control station may then adjust his own terminal set.

b. An example is shown in paragraph 313.

307. Multi-Page Messages

a. During teletype transmission it is impossible for a station to indicate to the transmitting station that he wishes to break in. The following instructions are therefore to be followed when transmitting messages consisting of more than 12 lines of text, to enable break-in procedure (paragraph 309) to be carried out:—

(1) Messages are to be prepared and transmitted in accordance with the instructions in A.C.P. 127.

(2) A pause in transmission is to be made for at least ten seconds after the two carriage returns, eight line feeds, at the end of every page.

(3) The eight line feeds in sub-paragraph (2) above provide a visually recognisable place on the tape to the transmitting operator to divide long messages into conveniently sized pages for internal handling.

b. An example is shown in paragraph 315.

308. Transmission of Messages in Batches

A station passing messages in batches is to pause for approximately ten seconds between the transmission of each message, to permit another station with higher precedence traffic to use break-in procedure. (*See* paragraph 309.)

309. Break-in Procedure

a. Any station with higher precedence traffic to transmit may break in when the transmitting station makes a deliberate pause in transmission. (*See* paragraphs 307 a (2) and 308). This pause will be indicated by his receiver indicator light ceasing to glow (*i.e.* the transmitting station's terminal set is conditioned to " stand by ".

b. The break-in station, having commenced his transmission as in paragraph 304, is to make an initial call to the control station, followed by the precedence of the traffic on hand, and the call sign of the addressees concerned if other than the control station. The control station will then instruct whichever station he selects, to transmit.

c. An example is shown in paragraph 315.

310. End of Message Sign

a. *Procedure Messages.*—Prosign K or AR as appropriate.

b. *All Other Messages.*—2CR 8LF NNNN 12LTRS. (But *see* sub-paragraph 301 b (6).)

311. Local Processing and Logging

a. Machines are never to be operated in " local " in order to add extra data such as operator's initials, net title, etc., at the foot of the message, since this does not prevent reception, and overprinting may occur. Local processing must be done by hand after removal of the message from the machine.

b. The operator's log is to consist of the back carbon from the teletypewriter, kept in a continuous roll. The following information is to be written in by the operator on completion of final reception or transmiss on of each message:—

(1) Net title.

(2) Operator's initials.

(3) Time at which final receipt for message was received/given (after obtaining any repetitions required).

312. (Spare).

313. Example of the Initial Alignment of Terminal Sets

All stations have been instructed to set watch at 1200Z.

	Call signs:	Control (NCS)	GKXS
		All stations	GBXZ

a. At 1200Z, NCS calls all stations and transmits space bar signal :—

Type 28	*Model* 12
Press Break Key for 2 seconds	3 LTRS
Local Keyboard Unlock	5 Spaces 2CR 1LF
5 Spaces 2CR 1LF	

GBXZ DE GKXS

Presses space bar and repeat/runout key for two complete teletypewriter lines:—

AR   2CR 1LF

b. NCS now instructs H.M.S. DELIGHT (GKYN) to carry out a similar transmission:—

	5 Spaces 2CR 1LF
GKYN DE GKXS ZAI 8 K	. . . . .2CR 1LF

(ZAI 8—" Run space bar transmission ".)

c. H.M.S. DELIGHT transmits:—

	. . . . .5 Spaces 2CR 1LF
GKXS DE GKYN	

Presses space bar and repeat/runout key for two complete teletypewriter lines:—
AR   2CR 1LF

---

314. Example of the Establishment of a Net, and the Transmission of a Short Plaindress Message

a. NCS calls all stations and asks what traffic they have on hand:—

Type 28	*Model* 12
Press Break Key for 2 seconds	3LTRS
Local Keyboard Unlock	5 Spaces 2CR 1LF
5 Spaces 2CR 1LF	
GBXZ DE GKXS INT ZBO K	2CR 1LF

b. Stations answer in alphabetical sequence of call signs:—

(1) H.M.S. DAINTY (GKYJ) indicates that he has no traffic:—

	. . . . .5 Spaces 2CR 1LF
DE GKYJ QRU AR	2CR 1LF

(2) H.M.S. DARING (GKYK) indicates that he has no traffic:—

	. . . . .5 Spaces 2CR 1LF
DE GKYJ QRU AR	2CR 1LF

(3) H.M.S. DELIGHT (GKYN) indicates that he has a priority message for H.M.S. EAGLE (GKYV):—

	. . . . .5 Spaces 2CR 1LF
DE GKYN P GKYV K	2CR 1LF

(4) H.M.S. EAGLE (GKYV) indicates that he has no traffic:—

	. . . . .5 Spaces 2CR 1LF
DE GKYV QRU AR	2CR 1LF

c. NCS instructs H.M.S. DELIGHT to transmit his message:—

	. . . . .5 Spaces 2CR 1LF
GKYN DE GKXS K AR	2CR 1LF

d. H.M.S. DELIGHT transmits his message to H.M.S. EAGLE:—

	. . . . .5 Spaces 2CR 1LF
PP GKYV	8LTRS 2CR 1LF
DE GKYN	2CR 1LF
P 171145Z	2CR 1LF
BT	2CR 1LF
U N C L A S S I F I E D TEXT	2CR 1LF
BT	2CR 1LF
17/1150Z	2CR 8LF
NNNN	12LTRS

e. H.M.S. EAGLE receipts for the message:—

	. . . . .5 Spaces 2CR 1LF
DE GKYV R AR	2CR 1LF

315. Example of the Transmission of a Long Message, and a Station Using Break-in Procedure

    a. H.M.S. EAGLE commences transmitting a long message to H.M.S. ARK ROYAL:—

	. . . . .5 Spaces 2CR 1LF
RR GKXS	8LTRS 2CR 1LF
DE GKYV	2CR 1LF
R 171258Z	2CR 1LF
FM HMS EAGLE	2CR 1LF
TO FOAC	2CR 1LF
BT	2CR 1LF
U N C L A S S I F I E D (followed by the text	
up to 10 lines)	2CR 8LF

At this point H.M.S. EAGLE makes a deliberate pause.

    b. H.M.S. DELIGHT who has been waiting for this pause in transmission, now transmits to NCS, indicating that he has a message of higher precedence than that being transmitted by H.M.S. EAGLE (*i.e.* Priority for H.M.S. DAINTY):—

	. . . . .5 Spaces 2CR 1LF
GKXS DE GKYN P GKYJ K	2CR 1LF

    c. NCS instructs H.M.S. DELIGHT to transmit his message:—

	. . . . .5 Spaces 2CR 1LF
GKYN DE GKXS K AR	2CR 1LF

    d. H.M.S. DELIGHT transmits his message:—

	. . . . .5 Spaces 2CR 1LF
PP GKYJ	8LTRS 2CR 1LF
DE GKYN	2CR 1LF
P 171255Z	2CR 1LF
BT	2CR 1LF
U N C L A S S I F I E D TEXT	2CR 1LF
BT	2CR 1LF
17/1257Z	2CR 8LF
NNNN	12LTRS

    e. H.M.S. DAINTY receipts for the message:—

	. . . . .5 Spaces 2CR 1LF
DE GKYJ R AR	2CR 1LF

    f. NCS gives permission to H.M.S. EAGLE to continue with his long message:—

	. . . . .5 Spaces 2CR 1LF
GKYV DE GKXS K	2CR 1LF

    g. H.M.S. EAGLE continues with second page:—

	. . . . .5 Spaces 2CR 1LF
PAGE TWO GKYV 171258Z	2CR 1LF
(Twenty teletypewriter lines)	2CR 1LF
	2CR 8LF

At this point H.M.S. EAGLE makes a deliberate pause of ten seconds duration.

    h. As no station transmits during this period, H.M.S. EAGLE continues with his message:—

	. . . . .5 Spaces 2CR 1LF
PAGE THREE GKYV 171258Z	2CR 1LF
(Remainder of text—5 lines)	2CR 1LF
BT	2CR 1LF
17/1321Z	2CR 8LF
NNNN	12LTRS

316.   **Example of a Control Station Broadcasting to All Stations, and Controlling One Station to Receipt**

    a.

	. . . . .5 Spaces 2CR 1LF
RR GBXZ	8LTRS 2CR 1LF
DE GKXS	2CR 1LF
R 171150Z	2CR 1LF
FM CINC HF	2CR 1LF
TO AIG 1027	2CR 1LF
BT	2CR 1LF
U N C L A S S I F I E D 125Z TEXT	2CR 1LF
BT	2CR 1LF
17/1210Z	2CR 8LF
NNNN	12LTRS 2CR 1LF
GKYJ K	2CR 1LF

    b. H.M.S. DAINTY receipts for the message:—

	. . . . .5 Spaces 2CR 1LF
DE GKYJ R AR	2CR 1LF

317.   **Example of the Transmission of a Codress Message**

    a. H.M.S. DARING informs control that he has a priority message for H.M.S. DAINTY:—

	. . . . .5 Spaces 2CR 1LF
GKXS DE GKYK P GKYJ K	2CR 1LF

    b. NCS instructs H.M.S. DARING to transmit his message:—

	. . . . .5 Spaces 2CR 1LF
DE GKXS K AR	2CR 1LF

    c. H.M.S. DARING transmits his message using codress procedure:—

	. . . . .5 Spaces 2CR 1LF
PP GKYJ	8LTRS 2CR 1LF
DE GKYK	2CR 1LF
P 171623Z	2CR 1LF
GR25	2CR 1LF
BT	2CR 1LF
Encrypted text (ten groups to a line)	2CR 1LF
BT	2CR 1LF
17/1640Z	2CR 8LF
NNNN	12LTRS

    d. H.M.S. DAINTY receipts for the message:—

	. . . . .5 Spaces 2CR 1LF
DE GKYJ R AR	2CR 1LF

318.   **Example of the Transmission of a Codress Message Addressed to a Ship in Company, and to a Shore Authority (not on circuit)**

    H.M.S. DARING has a codress message for a ship in company (AVID-), and also a shore authority. The message was passed to shore using the normal CW ship–shore procedure. The message is passed to the ship in company as follows:—

    a. H.M.S. DARING, using an indefinite call sign, calls Control:—

	. . . . .5 Spaces 2CR 1LF
GKXZ DE GL P GBXZ K	2CR 1LF

    b. Control gives H.M.S. DARING permission to transmit the message:—

	. . . . .5 Spaces 2CR 1LF
GL DE GKXZ K	2CR 1LF

c. H.M.S. DARING transmits the message:—

	. . . . .5 Spaces 2CR 1LF
PP GBXZ	8LTRS 2CR 1LF
DE GL	2CR 1LF
AVID–	2CR 1LF
P 171843Z	2CR 1LF
GR111	2CR 1LF
BT	2CR 1LF
ENCRYPTED TEXT	2CR 1LF
BT	2CR 1LF
ZNB 1847 K1	2CR 1LF
17/1906Z	2CR 8LF
NNNN	12LTRS 2CR 1LF
GKYK GKYN GKXZ K	2CR 1LF

d. Ships controlled receipt for the message:—

	. . . . .5 Spaces 2CR 1LF
DE GKYK R AR	2CR 1LF
	. . . . .5 Spaces 2CR 1LF
DE GKYN R AR	2CR 1LF
	. . . . .5 Spaces 2CR 1LF
DE GKXZ R AR	2CR 1LF

CHAPTER FOUR

EXECUTIVE METHOD

CHAPTER 4

EXECUTIVE METHOD

401. General Instructions

a. The Executive Method should only be used on a RATT net under the following conditions:—

(1) After adequate warning has been given.

(2) When the standard of operating on the net is very high.

(3) If all stations on the net are in good communication with the controlling station.

b. The Immediate Executive Method may be used on RATT nets provided that the conditions above are fulfilled, and:—

(4) Terminal equipment is sited adjacent to the command on all ships.

402. Normal Executive Method

a. A warning signal of five bells (FIGS JSJSJSJSJS LTRS) is to be transmitted before the call to indicate " executive signal follows ". It is to be made rhythmically, to avoid confusion with other teleprinter bell signals.

b. The prosign " IX " is to be transmitted three times in the message heading.

c. The " executive signal " is the completion of the transmission of the word " EXECUTE ".

d. The word " EXECUTE " is to be followed by one key bar depression, to ensure the former is printed in full by machines working one key depression behind.

e. When two-figure tactical call signs are used they should be spelt out (*e.g.* NINE FOUR DE ZERO FOUR).

f. When the length of the message permits, the whole of the " executive signal " message is to be transmitted on one line.

g. Errors made in the text of an executive message are to be erased by the use of the erase sign (eight or more Es) 2CR 1LF, and then going back to the BT, or the last " Tack " (*see* paragraph 403 **d**).

h. Errors made in the text of an " executive signal " are to be corrected by the use of the erase sign (eight or more Es) 2CR 1LF, and then going back to the commencement of the text, or the last " Tack " (*see* paragraph 403 **c**).

i. Errors made in an " executive signal " without a text are to be cancelled by the use of the erase sign AR, and the signal is then to be retransmitted (*see* paragraph 403 **f**).

j. It should normally only be necessary for one station to be controlled to receipt.

403. Examples of Normal Executive Method

a. The OTC transmits an executive method message to the force, one ship (GABC) is controlled to receipt:—

. . . . 5 Spaces 2CR 1LF	
GBXZ DE GOTC	2CR 1LF
IX IX IX	2CR 1LF
BT	2CR 1LF
TURN NINE TACK SPEED ONE FIVE	2CR 1LF
BT	2CR 1LF
GABC K	2CR 1LF
. . . . 5 Spaces 2CR 1LF	
DE GABC R AR	2CR 1LF

b. The OTC transmits another executive method message. GGHI is controlled to receipt:—

	. . . . .5 Spaces 2CR 1LF
GBXZ DE GOTC	2CR 1LF
IX IX IX	2CR 1LF
BT	2CR 1LF
GOLF THREE	2CR 1LF
BT	2CR 1LF
GGHI K	2CR 1LF
	. . . . .5 Spaces 2CR 1LF
DE GGHI R AR	2CR 1LF

c. The OTC executes the " Turn " and " Guide " signals. GDEF is controlled to receipt:—

	. . . . .5 Spaces 2CR 1LF
(FIGS) JSJSJSJSJS (LTRS)	2CR 1LF
GBXZ DE GOTC TURN NINE TACK	
GOF E E E E E E E E	2CR 1LF
TACK GOLF THREE IX IX EXECUTE	
GDEF K	2CR 1LF
	. . . . .5 Spaces 2CR 1LF
DE GDEF R AR	2CR 1LF

d. The OTC now transmits a new " Speed " signal. GABC is controlled to receipt:—

	. . . . .5 Spaces 2CR 1LF
GBXZ DE GOTC	2CR 1LF
IX IX IX	2CR 1LF
BT	2CR 1LF
SPEED TWO ZORR E E E E E E E E	2CR 1LF
BT	2CR 1LF
SPEED TWO ZERO	2CR 1LF
BT	2CR 1LF
GABC K	2CR 1LF
	. . . . .5 Spaces 2CR 1LF
DE GABC R AR	2CR 1LF

e. The OTC now cancels the " Speed One Five ". GGHI is controlled to receipt:—

	. . . . .5 Spaces 2CR 1LF
GBXZ DE GOTC	2CR 1LF
BT	2CR 1LF
NEGAT SPEED ONE FIVE	2CR 1LF
BT	2CR 1LF
GGHI K	2CR 1LF
	. . . . .5 Spaces 2CR 1LF
DE GGHI R AR	2CR 1LF

f. The OTC now executes the " Speed Two Zero ". All ships to receipt:—

	. . . . .5 Spaces 2CR 1LF
(FIGS) JSJSJSJSJS (LTRS)	2CR 1LF
GBXZ DE GOTC IX IX IX EXEEC	
E E E E E E E E AR	5 Spaces 2CR 1LF
(FIGS) JSJSJSJSJS (LTRS)	2CR 1LF
GBXZ DE GOTC IX IX IX EXECUTE K	2CR 1LF
	. . . . .5 Spaces 2CR 1LF
DE GABC R AR	2CR 1LF
	. . . . .5 Spaces 2CR 1LF
DE GDEF R AR	2CR 1LF
	. . . . .5 Spaces 2CR 1LF
DE GGHI R AR	2CR 1LF

Note.—It should normally only be necessary for one station to be controlled to receipt.

404. Immediate Executive Method

a. Procedure as in paragraph 402 **a** to **f** except that:—

(1) The bell signal is transmitted before the call of all transmissions.

(2) The text of immediate executive messages are to be repeated after prosign IMI 2CR 1LF. (*See* paragraph 405 **a**.)

b. Errors are to be corrected by cancelling the transmission, eight Es AR. The signal is then to be re-transmitted. (*See* paragraph 405 **b**.)

c. It should normally only be necessary for one station to be controlled to receipt.

405. Examples of Immediate Executive Method

a. The OTC transmits an immediate executive method message to the force, one ship (GABC) to receipt.

. . . .	5 Spaces 2CR 1LF
(FIGS) JSJSJSJSJS (LTRS)	2CR 1LF
GBXZ DE GOTC	2CR 1LF
IX IX IX	2CR 1LF
BT	2CR 1LF
TURN NINE IMI	2CR 1LF
TURN NINE	2CR 1LF
BT	2CR 1LF
IX IX IX IX IX EXECUTE	2CR 1LF
GABC K	2CR 1LF

b. OTC transmits an immediate executive method message and makes error:—

. . . .	5 Spaces 2CR 1LF
(FIGS) JSJSJSJSJS (LTRS)	2CR 1LF
GBXZ DE GOTC	2CR 1LF
IX IX IX	2CR 1LF
BT	2CR 1LF
SPEED ONE FIVE IMI	2CR 1LF
SPEED OD E E E E E E E E AR	5 Spaces 2CR 1LF
(FIGS) JSJSJSJSJS (LTRS)	2CR 1LF
GBXZ DE GOTC	2CR 1LF
IX IX IX	2CR 1LF
BT	2CR 1LF
SPEED ONE FIVE IMI	2CR 1LF
SPEED ONE FIVE	2CR 1LF
BT	2CR 1LF
IX IX EXECUTE	2CR 1LF
GBCD K	2CR 1LF

CHAPTER FIVE

SHIP–SHORE PROCEDURE

CHAPTER 5

SHIP–SHORE PROCEDURE

501. General Instructions

a. The procedures for passing messages on the following ship–shore systems are given in this chapter:—

(1) Commonwealth HF ship–shore.

(2) Local ship–shore RATT nets.

(3) Mobile RATT fixed services, when the ship or mobile authority has *not* been allocated a routeing indicator (*i.e.* is " off net ").

b. On mobile RATT fixed services, when the ship or mobile authority *has* been allocated a routeing indicator, the procedure given in A.C.P. 127 and A.F.O. S.14 is to be used, and messages are through routed into the Commonwealth Tape Relay Network.

502. Transmission Instructions

a. Transmission instructions are always to be included, except on local ship–shore RATT nets and mobile fixed services, when the receiving station is automatically responsible for delivery to ALL addressees.

b. Transmission instructions in the basic message format line 4 are to be followed by " 8LTRS 2CR 1LF ".

503. Call Signs

a. Call signs (plain or encrypted) of sea-going authority and ships, and indefinite call signs, may be used in any part of the basic message format where routeing indicators are normally used.

b. *See also* paragraph 511.

504. Establishing Communication on Commonwealth Ship–Shore

a. The shore station will always use CW on the answering frequency. The ship is to establish communication on the calling frequency using CW, and change to radioteletype emission on shifting to the series A working frequency. If the printing is unacceptable, then the shore station is to inform the ship, and instruct her to pass her message using CW.

Example A.—A ship (GKYJ) successfully establishes communication with GKL:—

(1) On CW calling frequency:—
    GKL GKL DE GKYJ GKYJ ZBO1 ZBZ GYA4–5 K

(2) On CW answering frequency:—
    GKYJ GKYJ DE GKL GKL K

(3) On CW calling frequency:—
    GKL DE GKYJ ZBW 8350–F1 K

(4) On CW answering frequency:—
    GKYJ DE GKL R AR

(5) On RATT working frequency:—

```
                                    . . . . . . . . . .5 Spaces 2CR 1LF
RYRYRYRYRYRYRYRYRY ⌠(two complete  ⌉2CR 1LF
RYRYRYRYRYRYRYRYRY ⌡   lines)      ⌡2CR 1LF
GKYJ                                2CR 8LF
NNNN                                12LTRS
```

(6) On CW answering frequency:—
    GKYJ DE GKL ZBZ5 K

GKYJ then commences to send his message as shown in paragraph 506.

Example B.—A ship (GXTK) establishes communication with GKL, but is subsequently told her RATT signal is unacceptable, and is ordered to shift to the CW working frequency.

(1) On CW calling frequency:—

    GKL GKL DE GXTK GXTK ZBO1 ZBZ GYA4–5 K

(2) On CW answering frequency:—

    GXTK GXTK DE GKL GKL K

(3) On CW calling frequency:—

    GKL DE GXTK ZBW 8350–F1 K

(4) On CW answering frequency:—

    GXTK DE GKL R AR

(5) On RATT working frequency:—

                               . . . . .5 Spaces 2CR 1LF

RYRYRYRYRYRYRYRYRY $\int$ (two complete	$\big\{$	2CR 1LF
RYRYRYRYRYRYRYRYRY $\big\{$ lines)	$\big\rfloor$	2CR 1LF
GXTK		2CR 8LF
NNNN		12LTRS

(6) On CW answering frequency:—

    GXTK DE GKL IMI K

(7) On RATT working frequency:—

                               . . . . .5 Spaces 2CR 1LF

RYRYRYRYRYRYRYRYRY $\int$ (two complete	$\big\{$	2CR 1LF
RYRYRYRYRYRYRYRYRY $\big\{$ lines)	$\big\rfloor$	2CR 1LF
GXTK		2CR 8LF
NNNN		12LTRS

(8) On CW answering frequency:—

    GXTK DE GKL ZBZ3–QSY 8330–A1 AR

505. Establishing Communication on Local Ship–Shore RATT Nets

Example:—

(1) H.M.S. EAGLE calls GIBRALTAR W/T:—

                               . . . . .5 Spaces 2CR 1LF

    GYW20 GYW20 DE GKYV GKYV

       INT ZBZ ZBO K   2CR 1LF

(2) GIBRALTAR tells H.M.S. EAGLE to pass her message:—

                                 . . . . .5 Spaces 2CR 1LF

    GKYV DE GYW20 ZBZ 5 K   2CR 1LF

506. Transmission of Messages on Commonwealth Ship–Shore

The procedure to be used is shown in the following two examples.

Example A.—A ship (GXSL) has a Plaindress message for transmission on Commonwealth ship–shore. Portishead (GKL) has been called, and the ship has indicated that she is shifting to radioteletype emission. Her printing being acceptable, the following is made:—

(1) On CW answering frequency:—

    GXSL DE GKL ZBZ 5 K

(2) On RATT working frequency:—

	. . . . 5 Spaces 2CR 1LF
RR GKL	8LTRS 2CR 1LF
DE GXSL	2CR 1LF
T	8LTRS 2CR 1LF
R 170914Z	2CR 1LF
FM HMS NEWCASTLE	2CR 1LF
TO HMS DIANA	2CR 1LF
INFO ADMIRALTY	2CR 1LF
BT	2CR 1LF
U N C L A S S I F I E D TEXT	2CR 1LF
BT	2CR 1LF
17/0922Z	2CR 8LF
NNNN	12LTRS

(3) On CW answering frequency:—
GXSL DE GKL R AR

Example B.—A ship has a Codress message for transmission on Commonwealth ship–shore. Message is Priority, and is addressed to Admiralty and a ship at sea (Y3B/–).

(1) On CW answering frequency:—
GL DE GKL ZBZ 5 K

(2) On RATT working frequency:—

	. . . . 5 Spaces 2CR 1LF
PP GKL	8LTRS 2CR 1LF
DE GL	2CR 1LF
T HZKC	2CR 1LF
Y3B/–	8LTRS 2CR 1LF
P 121104Z	2CR 1LF
GR 49	2CR 1LF
BT	2CR 1LF
ENCRYPTED TEXT	2CR 1LF
BT	2CR 1LF
12/1115Z	2CR 8LF
NNNN	12LTRS

(3) On CW answering frequency:—
GL DE GKL R AR

Example C.—A ship (GKYV) has a radio telegram for transmission to Portishead. The ship establishes communication as in paragraph 504, using the operating signal QTC (I have . . . telegrams for you) in the initial call on the CW calling frequency. The telegram is passed on the RATT working frequency in the following form:—

	. . . . 5 Spaces 2CR 1LF
RR GKL	2CR 1LF
DE GKYV	8LTRS 2CR 1LF
=	2CR 1LF
GKYV WARSHIP EAGLE 1 10 21 0930	2CR 1LF
=	2CR 1LF
MRS SMITH 21 HIGHST PETERSFIELD	2CR 1LF
=	2CR 1LF
HAPPY BIRTHDAY DEAR LOVE	2CR 1LF
=	2CR 1LF
BILL	2CR 1LF
AR	2CR 1LF
COL SMITH 21 BILL	2CR 8LF
NNNN	12LTRS

Example D.—A ship (GKYV) has an SLT for an addressee in United Kingdom. The ship is unable to establish communication direct with Portishead (GKL), but is answered by Singapore (GYL). The procedure in paragraph 504, is then carried out, using the operating signal " QTC . . . SLT " in the initial call on the CW calling frequency. The SLT is passed to Singapore on RATT working frequency, for onward routeing to Portishead, in the following form:—

	. . . . .5 Spaces 2CR 1LF
RR GYL	2CR 1LF
DE GKYV	8LTRS 2CR 1LF
=	2CR 1LF
GKYV WARSHIP EAGLE 1 17 28 0815 GKL QSP VIA GYL	2CR 1LF
=	2CR 1LF
SLT	2CR 1LF
=	2CR 1LF
MRS SPOOR 7 MARTINWAY MORDEN SURREY	2CR 1LF
=	2CR 1LF
ALL THE BEST WISHES FOR	
YOUR BIRTHDAY JENNY LOVE	2CR 1LF
=	2CR 1LF
BILL	2CR 1LF
AR	2CR 1LF
COL SPOOR 7 MARTINWAY JENNY BILL	2CR 8LF
NNNN	12LTRS

507. Transmission of Messages on Local Ship–Shore RATT Nets

Example.—A ship has a Routine Plaindress message for transmission on Scotland Command RATT net. The message is addressed to F.O. Scotland, for whom Rosyth W/T has automatic delivery responsibilities.

(1)		. . . . .5 Spaces 2CR 1LF
	RR MTO	8LTRS 2CR 1LF
	DE GKYV	2CR 1LF
	R 101943Z	2CR 1LF
	FM HMS EAGLE	2CR 1LF
	TO FO SCOTLAND	2CR 1LF
	BT	2CR 1LF
	U N C L A S S I F I E D TEXT	2CR 1LF
	BT	2CR 1LF
	10/1945Z	2CR 8LF
	NNNN	12LTRS
(2)		. . . . .5 Spaces 2CR 1LF
	GKYV DE MTO IMI AA TEXT K	2CR 1LF
(3)		. . . . .5 Spaces 2CR 1LF
	MTO DE GKYV AA TEXT	2CR 1LF
	BT	2CR 1LF
	10/1945Z	2CR 8LF
	NNNN	12LTRS 2CR 1LF
	K	2CR 1LF
(4)		. . . . .5 Spaces 2CR 1LF
	GKYV DE MTO R AR	2CR 1LF

508. Transmission of Messages in Batches

a. A ship having several messages awaiting transmission is to combine them all in one transmission, providing that:—

    (1) the length of the transmission does not exceed 90 teletypewriter lines; and

    (2) plaindress and codress messages are not included in the same transmission

Example.—A ship transmits three plaindress messages in one batch:—

(1) Ship's RATT transmission FX 53:—

	. . . . .2CR 1LF LTRS
FZAA103	5 Spaces 2CR 1LF
RR GYX33	8LTRS 2CR 1LF
DE MMWS	2CR 1LF
R 290932Z	2CR 1LF
FM HMS TIGER	2CR 1LF
TO CINC MED	2CR 1LF
INFO FO MALTA	2CR 1LF
BT	2CR 1LF
U N C L A S S I F I E D TEXT	2CR 1LF
BT	2CR 1LF
29/0934Z	2CR 8LF
NNNN	12LTRS 2CR 1LF LTRS
FZAA104	5 Spaces 2CR 1LF
RR GYX33	8LTRS 2CR 1LF
DE MMWS	2CR 1LF
T ADMIRALTY	8LTRS 2CR 1LF
R 290934Z	2CR 1LF
FM HMS TIGER	2CR 1LF
TO HMS DUCHESS	2CR 1LF
HMS DECOY	2CR 1LF
INFO RNFC DEPTFORD	2CR 1LF
BT	2CR 1LF
U N C L A S S I F I E D TEXT	2CR 1LF
BT	2CR 1LF
29/0935Z	2CR 8LF
NNNN	12LTRS 2CR 1LF LTRS
FZAA105	5 Spaces 2CR 1LF
RR GYX33	8LTRS 2CR 1LF
DE MMWS	2CR 1LF
T	8LTRS 2CR 1LF
R 290936Z	2CR 1LF
FM HMS TIGER	2CR 1LF
TO ADMIRALTY	2CR 1LF
CINC MED	2CR 1LF
BT	2CR 1LF
U N C L A S S I F I E D TEXT	2CR 1LF
BT	2CR 1LF
29/0939Z	2CR 8LF
NNNN	12LTRS

(2) Receipt by Malta on the " Out " leg of FX 53:—

	. . . . .2CR 1LF LTRS
FADA082	5 Spaces 2CR 1LF
RR MMWS	8LTRS 2CR 1LF
DE GYX33	2CR 1LF
ZID FZAA105	2CR 1LF
29/0945Z	2CR 8LF
NNNN	12LTRS

509. **Co-operation between Shore Stations on Commonwealth Ship–Shore**

The precedence of procedure messages concerned with ship–shore working is to be related to the precedence of the message which the ship is trying to clear, but is never to be lower than Priority.

Example.—A ship (GL) has a Routine Codress message for transmission on Commonwealth ship–shore.

    (1) GKV is called on the CW calling frequency:—

        GKV GKV DE GL GL ZBO ZBZ GYA3–5 K
        GKV GKV DE GL GL ZBO ZBZ GYA3–5 K

    (2) Malta (GYX3) is receiving GL, and decides to accept the message:—

      On CW answering frequency:—
        GL GL DE GYX3 GYX3 K

      On CW calling frequency:—
        GKV GKV DE GL GL ZBO ZBZ GYA3–5 K

    (3) Malta, realising that the ship cannot hear him, decides to answer via FX 15 and the NLR Broadcast:—

      On NLR Broadcast:—
      NAWS
      FABA612
      UU
      PP RNDPC
      DE RNTP
      ZBY1 NLR
      FM GYX3
      TO GL
      K
      12/2105Z
      NNNN

      On CW calling frequency :—
        GYA3 DE GL ZBW 6262—F1 K

    (4) Working continues in this way, and GL transmits his message on the Series A working frequency as follows:—

	..........5 Spaces 2CR 1LF
RR GYA3	8LTRS 2CR 1LF
DE GL	2CR 1LF
T HZKC	2CR 1LF
Y33B–	8LTRS 2CR 1LF
R 122007Z	2CR 1LF
GR 124	2CR 1LF
BT	2CR 1LF
TEN LINES OF ENCRYPTED TEXT	2CR 8LF
PAGE TWO GL 122007Z	2CR 1LF
REMAINDER OF ENCRYPTED TEXT	2CR 1LF
BT	2CR 1LF
12/2023Z	2CR 8LF NNNN 12LTRS

On NLR Broadcast:—
NAWS
FABA614
UU
PP RNDPC
DE RNTP
ZBY1 NLR
FM GYX3
TO GL
R 122007Z
AR
12/2125Z
NNNN

(5) Malta retransmits the message to Admiralty, after reprocessing the call and transmission instructions, as follows:—
ZCZCFABA620
UU
RR RNDPC RNDPCR
DE RNTP 904/12
RNDPC T Y33B–
ZEF GL
R 122007Z
GR 124
BT
TEN LINES OF ENCRYPTED TEXT
PAGE TWO GL 122007Z etc.

Notes.—(1) The page identity is not reprocessed by Malta.

(2) In plaindress messages the operating signal ZEF and the call sign of the originating ship are not included in messages being onward relayed.

510. Garbled Tapes

Shore station operators must scrutinise incoming tapes very carefully, since it may be difficult to contact the ship again once she has closed down on the ship–shore frequency. In the case of short messages, it may be easier to ask for a re-run than to ask for several repetitions; this will also provide a better tape for relaying.

511. Call Signs to be used by the Ship–Shore Guard

a. With Plaindress Messages.—The guard ship is to reprocess the head of the message, and relay the message using its own International call sign.

b. With Codress messages:—

(1) Codress messages *originated* by the ship–shore guard, whether for transmission on mobile fixed services, or on Commonwealth ship–shore, are to be transmitted from an indefinite call sign in basic format line 3.

(2) Codress messages relayed by the ship–shore guard *must* use the same indefinite call sign in all transmissions as that used by the originating ship, *e.g.* an encrypted message passed in by a ship using indefinite call sign GL, would be relayed by the guard also using call sign GL in the initial CW working frequency calls.

On CW calling wave:—
GKL GKL DE GL GL ZBO1 ZBZ GYA4–5 K

Note.—Batch working must not be used by the guard for relaying Codress traffic via the Commonwealth ship–shore network, unless the messages to be relayed are from the same indefinite call sign.

512.   Transmission of Messages to, and Onward Relay by, a Ship–Shore Guard

The procedure to be used is shown in the following three examples:—

Example A.—A ship (GKYN) in a force has an unclassified message for a ship in company (GKLP), a ship not in company (AISNE) and a shore authority. The ship–shore guard (GKYT) relays the message to shore on Commonwealth ship–shore.

(1) After obtaining permission from the Control station to transmit, GKYN passes the message to GKLP and GKYT as follows:—

	. . . . .5 Spaces 2CR 1LF
RR GKLP GKYT	8LTRS 2CR 1LF
DE GKYN	2CR 1LF
GKYT T CINC MED	2CR 1LF
HMS AISNE	8LTRS 2CR 1LF
R 161312Z	2CR 1LF
FM DELTA FOUR	2CR 1LF
TO HMS BATTLEAXE	2CR 1LF
INFO HMS AISNE	2CR 1LF
CINC MED	2CR 1LF
BT	2CR 1LF
U N C L A S S I F I E D TEXT	2CR 1LF
BT	2CR 1LF
16/1320Z	2CR 8LF
NNNN	12LTRS 2CR 1LF
GKLP K	2CR 1LF

Note.—All final instructions are added after the 2CR 8LF NNNN 12LTRS in order that the tape may be torn at this point before onward transmission by the ship–shore guard.

(2) GKLP Receipts:—

	. . . . .5 Spaces 2CR 1LF
DE GKLP R AR	2CR 1LF

(3) GKYT reprocesses the message all before the D.T.G., and retransmits the message on Commonwealth ship–shore to Malta:—

	. . . . .5 Spaces 2CR 1LF
RR GYX4	8LTRS 2CR 1LF
DE GKYT	2CR 1LF
T CINC MED	2CR 1LF
HMS AISNE	8LTRS 2CR 1LF
R 161312Z	2CR 1LF
FM DELTA FOUR	2CR 1LF
TO HMS BATTLEAXE	2CR 1LF
INFO HMS AISNE	2CR 1LF
CINC MED	2CR 1LF
BT etc.	2CR 1LF

Example B.—A ship in the force has a Codress message for a ship in company, the ship–shore guard, a shore authority and a ship outside the force. The message is transmitted on Task Group Common (RATT) to the ship in company and the ship–shore guard.

(1) Ship calls NCS:—

	. . . . .5 Spaces 2CR 1LF
GKXS DE GL ZBO 1 GBXZ K	2CR 1LF

(2) NCS gives GL permission to transmit his message:—

	. . . . .5 Spaces 2CR 1LF
GL DE GKXS K	2CR 1LF

(3) GL passes his message:—

	.........5 Spaces 2CR 1LF
RR GBXZ	8LTRS 2CR 1LF
DE GL	2CR 1LF
GA51–	2CR 1LF
4A/H– T HZKC	2CR 1LF
2ABL–	2CR 1LF
4A/H–	8LTRS 2CR 1LF
R 161214Z	2CR 1LF
GR 90	2CR 1LF
BT	2CR 1LF
ENCRYPTED TEXT	2CR 1LF
BT	2CR 1LF
16/1230Z	2CR 8LF
NNNN	12LTRS 2CR 1LF
GKXS GKNT GKRF GYLN K	2CR 1LF

Ships controlled in the final instructions receipt. (These include two ships not in the address.)

(4) The ship–shore guard reprocesses the head of the message, tears off the final instructions, and transmits the message on Commonwealth ship–shore USING THE SAME INDEFINITE CALL SIGN AS WAS USED IN THE ORIGINAL TRANSMISSION:—

	.........5 Spaces 2CR 1LF
RR GKH	8LTRS 2CR 1LF
DE GL	2CR 1LF
T HZKC	2CR 1LF
2ABL–	8LTRS 2CR 1LF
R 161214Z	2CR 1LF
GR 90	2CR 1LF
BT etc.	

Example C.—A ship in a force has a message for " outside " authorities only. Message relayed by guard ship on a mobile fixed service (FX53).

(1) Ship requests permission to pass message to the ship–shore guard. Tactical call signs in force:—

	.........5 Spaces 2CR 1LF
01 DE GL ZBO 1 42 K	2CR 1LF

(2) After being given permission to transmit, GL passes his message to 42:—

	.........5 Spaces 2CR 1LF
RR 42	8LTRS 2CR 1LF
DE GL	2CR 1LF
T ETXV	2CR 1LF
HZKC	8LTRS 2CR 1LF
R 190946Z	2CR 1LF
GR etc.	

(3) The guard ship receipts for the message:—

	.........5 Spaces 2CR 1LF
DE 42 R AR	2CR 1LF

(4) The guard ship relays the message to shore via FX 53, after reprocessing only line 2 of the basic message format:—

	.........2CR 1LF LTRS
FZAA146	5 Spaces 2CR 1LF
RR GYX33	8LTRS 2CR 1LF
DE GL	2CR 1LF
T ETXV	2CR 1LF
HZKC	8LTRS 2CR 1LF
R 190946Z etc.	

With regard to ship-shore working

Go to my Starboard Menu, and for a detailed look

at what AFO S7 meant in reality have a look at

"WORLD COMMS" and for a mention and sighting of

S7 go to "ADMIRALTY FLEET ORDERS".