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Democratic Socialist Republic of Sri Lanka

Civil Aviation Authority of Sri Lanka

Implementing Standards

(Issued under Sec. 120, Civil Aviation Act No. 14 of 2010)

Title: Conformance to Annex-10-Aeronautical Telecommunications Vol. II (Communication Procedures including those with PANS status)

Reference No. : IS-10-(ii)-all **Date**: 01st March 2021

Pursuant to Sec.120 of the Civil Aviation Act No.14 of 2010 which is hereinafter referred to as the CA Act, Director General of Civil Aviation shall have the power to issue, whenever he considers it necessary or appropriate to do so, such Implementing Standards for the purpose of giving effect to any provision in the CA Act, Regulations or Rules made thereunder including the Articles of the Convention on International Civil Aviation specified in the Schedule to the CA Act.

Accordingly, I, being the Director General of Civil Aviation do hereby issue the Implementing Standards on Communication Procedures including those with PANS status as mentioned in the Attachment hereto (Ref: IS-10-(ii)-all -Att) elaborating the requirements to be satisfied for the effective implementation of the International Standards and Recommended Practices on 'Communication Procedures including those with PANS status' contained in Annex-10 Volume II "Aeronautical Telecommunications" to the Convention.

This Implementing Standard shall be applicable to Airport & Aviation Services (SL) Ltd and all aircraft operating agencies, and shall come in to force with immediate effect and remain in force unless revoked.

Attention is also drawn to Sec. 103 of the Act, which states inter alia that failure to comply with Implementing Standard is an offence.

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Chief Executive Officer

Civil Aviation Authority of Sri Lanka
No 152/01, Minuwangoda Road,
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Enclosure: Attachment No. IS-10-(ii)-all –Att

Implementing Standards

SLCAIS- 038: Communication Procedures including those with PANS status

Notice to the Recipient

1.1. The requirements in this Implementing Standard are based on the Standards and Recommended Practices (SARPs) adopted by the International Civil Aviation Organization (ICAO) and incorporated in the Amendment No. 92 to the Annex 10 –Volume II (Communication Procedures including those with PANS status).

1.2. In pursuance of the obligation cast under Article 38 of the Convention which requires the Contracting States to notify the ICAO of any differences between the national regulations of the States and practices and the International Standards contained in the respective Annex and any amendments thereto, the CAASL will be taking steps to notify ICAO of such differences relating to either a Standard or a Recommended Practice, if any. The CAASL will also keep the ICAO currently informed of any differences which may subsequently occur, or of the withdrawal of any differences previously notified. Furthermore, the CAASL will take steps for the publication of differences between the national regulations and practices and the related ICAO Standards and Recommended Practices through the Aeronautical Information Service, which is published in accordance with the provisions in the Annex 10 –Volume II to the Convention.

1.3. Taking into account of the ICAO council resolution dated 13 April 1948 which invited the attention of Contracting States of the desirability of using in the State's national regulations, as far as is practicable, the precise language of those ICAO Standards that are of a regulatory character, to the greatest extent possible the CAASL has attempted to retain the ICAO texts in the Annex in drafting this Implementing Standard.

1.4 The requirements contained in this document are applicable to All Aeronautical Communication Service providers and aircraft operating agencies.

1.5 All Aeronautical Communication Service providers and all aircraft operating agencies of Sri Lanka shall strictly comply with the requirements published in this Implementing standard when utilizing the Aeronautical Communication Procedures.

1.6 This Implementing Standard supersedes the Implementing Standard on **Aeronautical Telecommunication Procedures on** 02nd edition Revision 00 issued by the Director General of Civil Aviation dated on 08th May 2017.

1.7. The components in this Implementing Standard are defined as follows and they have the status as indicated:

1.7.1. Standard: Any specification for physical characteristics, configuration, materiel, performance, personnel or procedure, the uniform application of which is recognized as

necessary for the safety and regularity of national and international air navigation and to which Contracting States will conform in accordance with the Convention; in the event of impossibility of compliance, notification to the Council is compulsory under Article 38. The ICAO Standards are reflected in the Implementing Standards if they are locally implemented using the normal fonts and recipients are required to conform to such requirements invariably and the DGCA will take appropriate enforcement action when those requirements are not complied with.

1.7.2. Recommended Practice: Any specification for physical characteristics, configuration, materiel, performance, personnel or procedure, the uniform application of which is recognized as desirable in the interest of safety, regularity, efficiency or environmentally responsiveness of international air navigation, and to which Contracting States will endeavor to conform in accordance with the Convention. The ICAO Recommended Practices are reflected in the Implementing Standards in italic fonts and the Recipients are encouraged to implement them to the greatest extent possible. However, DGCA will not take enforcement action when a Recommended Practice is not satisfied by the recipient.

1.7.3. Appendices: Comprising material grouped separately for convenience but forming part of the Standards and Recommended Practices adopted by the Council. Enforcement action on such matters will be as in the case of Standards or Recommended Practices.

1.7.4. Definitions: A definition does not have independent status but is an essential part of each Standard and Recommended Practice in which the term is used, since a change in the meaning of the term would affect the specification.

1.7.5. Tables and Figures: add to or illustrate a Standard or Recommended Practice, and which are referred to therein, form part of the associated Standard or Recommended Practice and have the same status.

Record of Revision

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Page	Eff. Date	Page	Eff. Date	Page	Eff. Date	Page	Eff. Date
1	01.03.2021	43	01.03.2021	85	01.03.2021	127	01.03.2021
2	01.03.2021	44	01.03.2021	86	01.03.2021	128	01.03.2021
3	01.03.2021	45	01.03.2021	87	01.03.2021	129	01.03.2021
4	01.03.2021	46	01.03.2021	88	01.03.2021	130	01.03.2021
5	01.03.2021	47	01.03.2021	89	01.03.2021	131	01.03.2021
6	01.03.2021	48	01.03.2021	90	01.03.2021	132	01.03.2021
7	01.03.2021	49	01.03.2021	91	01.03.2021	133	01.03.2021
8	01.03.2021	50	01.03.2021	92	01.03.2021	134	01.03.2021
9	01.03.2021	51	01.03.2021	93	01.03.2021		
10	01.03.2021	52	01.03.2021	94	01.03.2021		
11	01.03.2021	53	01.03.2021	95	01.03.2021		
12	01.03.2021	54	01.03.2021	96	01.03.2021		
13	01.03.2021	55	01.03.2021	97	01.03.2021		
14	01.03.2021	56	01.03.2021	98	01.03.2021		
15	01.03.2021	57	01.03.2021	99	01.03.2021		
16	01.03.2021	58	01.03.2021	100	01.03.2021		
17	01.03.2021	59	01.03.2021	101	01.03.2021		
18	01.03.2021	60	01.03.2021	102	01.03.2021		
19	01.03.2021	61	01.03.2021	103	01.03.2021		
20	01.03.2021	62	01.03.2021	104	01.03.2021		
21	01.03.2021	63	01.03.2021	105	01.03.2021		
22	01.03.2021	64	01.03.2021	106	01.03.2021		
23	01.03.2021	65	01.03.2021	107	01.03.2021		
24	01.03.2021	66	01.03.2021	108	01.03.2021		
25	01.03.2021	67	01.03.2021	109	01.03.2021		
26	01.03.2021	68	01.03.2021	110	01.03.2021		
27	01.03.2021	69	01.03.2021	111	01.03.2021		
28	01.03.2021	70	01.03.2021	112	01.03.2021		
29	01.03.2021	71	01.03.2021	113	01.03.2021		
30	01.03.2021	72	01.03.2021	114	01.03.2021		
31	01.03.2021	73	01.03.2021	115	01.03.2021		
32	01.03.2021	74	01.03.2021	116	01.03.2021		
33	01.03.2021	75	01.03.2021	117	01.03.2021		
34	01.03.2021	76	01.03.2021	118	01.03.2021		
35	01.03.2021	77	01.03.2021	119	01.03.2021		
36	01.03.2021	78	01.03.2021	120	01.03.2021		
37	01.03.2021	79	01.03.2021	121	01.03.2021		
38	01.03.2021	80	01.03.2021	122	01.03.2021		
39	01.03.2021	81	01.03.2021	123	01.03.2021		
40	01.03.2021	82	01.03.2021	124	01.03.2021		
41	01.03.2021	83	01.03.2021	125	01.03.2021		
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TABLE OF CONTENTS

CHAPTER 1 DEFINITIONS 8

1.1 SERVICES 8
1.2 STATIONS 9
1.3 COMMUNICATION METHODS 11
1.4 DIRECTION FINDING 12
1.5 TELETYPEWRITER SYSTEMS 12
1.6 AGENCIES 13
1.7 FREQUENCIES 13
1.8 DATA LINK COMMUNICATIONS 13
1.9 MISCELLANEOUS 14

CHAPTER 2 ADMINISTRATIVE PROVISIONS RELATING TO THE INTERNATIONAL AERONAUTICAL TELECOMMUNICATION SERVICE 16

2.1 DIVISION OF SERVICE 16
2.2 TELECOMMUNICATION — ACCESS 16
2.3 HOURS OF SERVICE 16
2.4 SUPERVISION 17
2.5 SUPERFLUOUS TRANSMISSIONS 17
2.6 INTERFERENCE 17

CHAPTER 3 GENERAL PROCEDURES FOR THE INTERNATIONAL AERONAUTICAL TELECOMMUNICATION SERVICE 18

3.1 GENERAL 18
3.2 EXTENSIONS OF SERVICE AND CLOSING DOWN OF STATIONS 18
3.3 ACCEPTANCE, TRANSMISSION AND DELIVERY OF MESSAGES 18
3.4 TIME SYSTEM 20
3.5 RECORD OF COMMUNICATIONS 20
3.6 ESTABLISHMENT OF RADIO COMMUNICATION 22
3.7 USE OF ABBREVIATIONS AND CODES 22
3.8 CANCELLATION OF MESSAGES 22

CHAPTER 4 AERONAUTICAL FIXED SERVICE (AFS) 23

4.1 GENERAL 23
4.2 ATS DIRECT SPEECH CIRCUITS 26
4.3 METEOROLOGICAL OPERATIONAL CHANNELS AND METEOROLOGICAL OPERATIONAL TELECOMMUNICATION NETWORKS 26
4.4 AERONAUTICAL FIXED TELECOMMUNICATION NETWORK (AFTN) 26
4.5 COMMON ICAO DATA INTERCHANGE NETWORK (CIDIN) - N/A 60
4.6 ATS MESSAGE HANDLING SERVICES (ATSMHS) 60
4.7 INTER-CENTRE COMMUNICATIONS (ICC) 62

CHAPTER 5 AERONAUTICAL MOBILE SERVICE — VOICE COMMUNICATIONS 63

5.1 GENERAL 63
5.2 RADIOTELEPHONY PROCEDURES 67

5.3 DISTRESS AND URGENCY RADIOTELEPHONY COMMUNICATION PROCEDURES.....101
5.4 COMMUNICATIONS RELATED TO ACTS OF UNLAWFUL INTERFERENCE 107

CHAPTER 6 AERONAUTICAL RADIO NAVIGATION SERVICE 108

6.1 GENERAL.....108
6.2 DIRECTION FINDING.....108

CHAPTER 7 AERONAUTICAL BROADCASTING SERVICE 112

7.1 GENERAL.....112
7.2 RADIOTELEPHONE BROADCAST PROCEDURES.....113

CHAPTER 8 AERONAUTICAL MOBILE SERVICE — DATA LINK COMMUNICATIONS 114

8.1 GENERAL.....114
8.2 CPDLC PROCEDURES.....117

ATTACHMENT A TO IMPLEMENTING STANDARD 038 —.....128

LIST OF SPECIALIZED COM TERMS AND THEIR DEFINITIONS RELATED TO AERONAUTICAL TELECOMMUNICATIONS PLANNING 128

ATTACHMENT B TO IMPLEMENTING STANDARD 038— 133

GUIDANCE MATERIAL FOR THE TRANSMISSION OF LONG MESSAGES ON THE AFTN 133

CHAPTER 1 DEFINITIONS

When the following terms are used in this Implementing Standard for the provision of Aeronautical Telecommunication Services in Sri Lanka they have the following meanings.

Note 1.— A list of additional specialized communication terms and their definitions is contained in Attachment A.

Note 2.— All references to "Radio Regulations" are to the Radio Regulations published by the International Telecommunication Union (ITU). Radio Regulations are amended from time to time by the decisions embodied in the Final Acts of World Radio communication Conferences held normally every two to three years. Further information on the ITU processes as they relate to aeronautical radio system frequency use is contained in the Handbook on Radio Frequency Spectrum Requirements for Civil Aviation including statement of approved ICAO policies (Doc 9718).

1.1 SERVICES

Aeronautical broadcasting service – A broadcasting service intended for the transmission of information relating to air navigation.

Aeronautical fixed service (AFS) – A telecommunication service between specified fixed points provided primarily for the safety of air navigation and for the regular, efficient and economical operation of air services.

Aeronautical fixed telecommunication network (AFTN). A worldwide system of aeronautical fixed circuits provided, as part of the aeronautical fixed service, for the exchange of messages and/or digital data between aeronautical fixed stations having the same or compatible communications characteristics.

Aeronautical mobile service(RR S1.32) – A mobile service between aeronautical stations and aircraft stations, or between aircraft stations, in which survival craft stations may participate; emergency position-indicating radio beacon stations may also participate in this service on designated distress and emergency frequencies.

Aeronautical mobile (Route) (RR S1.33) service – An aeronautical mobile service reserved for communications relating to route safety and regularity of flight, primarily along national or international civil air routes.

Aeronautical mobile-satellite service (RR S1.35). A mobile satellite service in which mobile earth stations are located on board aircraft; survival craft stations and emergency position-indicating radio beacon stations may also participate in this service.

Aeronautical mobile-satellite (Route) service (RR S1.36). An aeronautical mobile-satellite service reserved for communications relating to safety and regularity of flights, primarily along national or international civil air routes.

Aeronautical radio navigation service (RR S1.46). A radio navigation service intended for the benefit and for the safe operation of aircraft.

Note.— The following Radio Regulations are quoted for purposes of reference and/or clarity in understanding of the above definition of the aeronautical radio navigation service:

RR S1.10 Radio navigation: Radio determination used for the purpose of navigation, including obstruction warning.

RR S1.9 Radio determination: The determination of the position, velocity and/or other characteristics of an object, or the obtaining of information relating to these parameters, by means of the propagation properties of radio waves.

Aeronautical telecommunication service. A telecommunication service provided for any aeronautical purpose.

International telecommunication service. A telecommunication service between offices or stations of different States, or between mobile stations which are not in the same State, or are subject to different States.

1.2 STATIONS

Aerodrome control radio station. A station providing radio communication between an aerodrome control tower and aircraft or mobile aeronautical stations.

Aeronautical fixed station. A station in the aeronautical fixed service.

Aeronautical station (RR S1.81). A land station in the aeronautical mobile service. In certain instances, an aeronautical station may be located, for example, on board ship or on a platform at sea.

Aeronautical telecommunication station. A station in the aeronautical telecommunication service.

AFTN communication centre. An AFTN station whose primary function is the relay or retransmission of AFTN traffic from (or to) a number of other AFTN stations connected to it.

AFTN destination station. An AFTN station to which messages and/or digital data are addressed for processing for delivery to the addressee.

AFTN origin station. An AFTN station where messages and/or digital data are accepted for transmission over the AFTN.

AFTN station. A station forming part of the aeronautical fixed telecommunication network (AFTN) and operating as such under the authority or control of a State.

Air-ground control radio station. An aeronautical telecommunication station having primary responsibility for handling communications pertaining to the operation and control of aircraft in a given area.

Aircraft station (RR S1.83). A mobile station in the aeronautical mobile service, other than a survival craft station, located on board an aircraft.

Communication centre. An aeronautical fixed station which relays or retransmits telecommunication traffic from (or to) a number of other aeronautical fixed stations directly connected to it.

Mobile surface station. A station in the aeronautical telecommunication service, other than an aircraft station, intended to be used while in motion or during halts at unspecified points.

Network station. An aeronautical station forming part of a radiotelephony network.

Radio direction finding (RR S1.12). Radio determination using the reception of radio waves for the purpose of determining the direction of a station or object.

Radio direction-finding station (RR S1.91). A radio determination station using radio direction finding.

Note.— The aeronautical application of radio direction finding is in the aeronautical radio navigation service.

Regular station. A station selected from those forming an en-route air-ground radiotelephony network to communicate with or to intercept communications from aircraft in normal conditions.

Tributary station. An aeronautical fixed station that may receive or transmit messages and/or digital data but which does not relay except for the purpose of serving similar stations connected through it to a communication centre.

1.3 COMMUNICATION METHODS

Air-ground communication. Two-way communication between aircraft and stations or locations on the surface of the earth.

Air-to-ground communication. Two way communication with aircraft and ground stations or locations on the surface of the earth originated by Aircraft.

Blind transmission. A transmission from one station to another station in circumstances where two-way communication cannot be established but where it is believed that the called station is able to receive the transmission.

Broadcast. A transmission of information relating to air navigation that is not addressed to a specific station or stations.

Duplex. A method in which telecommunication between two stations can take place in both Directions simultaneously.

Ground-to-air communication. Two way communication with aircraft and ground stations or locations on the surface of the earth to aircraft originated from ground station.

Interpilot air-to-air communication. Two-way communication on the designated air-to-air channel to enable aircraft engaged in flights over remote and oceanic areas out of range of VHF ground stations to exchange necessary operational information and to facilitate the resolution of operational problems.

Non-network communications. Radiotelephony communications conducted by a station of the aeronautical mobile service, other than those conducted as part of a radiotelephony network.

Radiotelephony network. A group of radiotelephony aeronautical stations which operate on and guard frequencies from the same family and which support each other in a defined manner to ensure maximum dependability of air-ground communications and dissemination of air-ground traffic.

Read back. A procedure whereby the receiving station repeats a received message or an appropriate part thereof back to the transmitting station so as to obtain confirmation of correct reception.

Simplex. A method in which telecommunication between two stations takes place in one direction at a time.

Note.— In application to the aeronautical mobile service this method may be subdivided as follows:

a) single channel simplex;

b) double channel simplex;

c) offset frequency simplex**.**

Telecommunication (RR S1.3). Any transmission, emission, or reception of signs, signals, writing, images and sounds or intelligence of any nature by wire, radio, optical or other electromagnetic systems.

1.4 DIRECTION FINDING

Homing. The procedure of using the direction-finding equipment of one radio station with the emission of another radio station, where at least one of the stations is mobile, and whereby the mobile station proceeds continuously towards the other station.

Radio bearing. The angle between the apparent direction of a definite source of emission of electro-magnetic waves and a reference direction, as determined at a radio direction finding station. A true radio bearing is one for which the reference direction is that of true North. A magnetic radio bearing is one for which the reference direction is that of magnetic North.

1.5 TELETYPEWRITER SYSTEMS

Automatic relay installation – A teletypewriter installation where automatic equipment is used to transfer messages from incoming to outgoing circuits.

Note.— This term covers both fully automatic and semiautomatic installations.

Fully automatic relay installation. A teletypewriter installation where interpretation of the relaying responsibility in respect of an incoming message and the resultant setting up of the connections required to effect the appropriate retransmissions is carried out automatically, as well as all other normal operations of relay, thus obviating the need for operator intervention, except for supervisory purposes.

Message field. An assigned area of a message containing specified elements of data.

Semi-automatic relay installation. A teletypewriter installation where interpretation of the relaying responsibility in respect of an incoming message and the resultant setting-up of the connections required to effect the appropriate retransmissions require the intervention of an operator but where all other normal operations of relay are carried out automatically.

1.6 AGENCIES

Aeronautical telecommunication agency. An agency responsible for operating a station or stations in the aeronautical telecommunication service.

Aircraft operating agency. The person, organization or enterprise engaged in, or offering to engage in, an aircraft operation.

1.7 FREQUENCIES

Primary frequency. The radiotelephony frequency assigned to an aircraft as a first choice for air-ground communication in a radiotelephony network.

Secondary frequency. The radiotelephony frequency assigned to an aircraft as a second choice for air-ground communication in a radiotelephony network.

1.8 DATA LINK COMMUNICATIONS

Controller-pilot data link communications (CPDLC). A means of communication between controller and pilot, using data link for ATC communications.

CPDLC message. Information exchanged between an airborne system and its ground counterpart. A CPDLC message consists of a single message element or a combination of message elements conveyed in a single transmission by the initiator**.**

CPDLC message set. A list of standard message elements and free text message elements.

Current data authority. The designated ground system through which a CPDLC dialogue between a pilot and a controller currently responsible for the flight is permitted to take place.

Free text message element: Part of a message that does not conform to any standard message element in the PANS-ATM (Doc 4444).

Logon address. A specified code used for data link logon to an ATS unit.

Next data authority. The ground system so designated by the current data authority through which an onward transfer of communications and control can take place.

Standard message element. Part of a message defined in the PANS-ATM (Doc 4444) in terms of display format, intended use and attributes.

1.9 MISCELLANEOUS

Aeronautical fixed circuit. A circuit forming part of the aeronautical fixed service (AFS).

Aeronautical fixed telecommunication network circuit. A circuit forming part of the aeronautical fixed telecommunication network (AFTN).

Aeronautical telecommunication log. A record of the activities of an aeronautical telecommunication station.

Air-report. A report from an aircraft in flight prepared in conformity with requirements for position, and operational and/or meteorological reporting.

Note.— Details of the AIREP form are given in PANS-ATM (Doc 4444).

Altitude. The vertical distance of a level, a point or an object considered as a point, measured from mean sea level (MSL).

ATS direct speech circuit. An aeronautical fixed service (AFS) telephone circuit, for direct exchange of information between air traffic services (ATS) units.

Automatic telecommunication log. A record of the activities of an aeronautical telecommunication station recorded by electrical or mechanical means.

Flight level. A surface of constant atmospheric pressure which is related to a specific pressure datum, 1 013.2 hectopascals (hPa), and is separated from other such surfaces by specific pressure intervals.

Note 1.— A pressure type altimeter calibrated in accordance with the standard atmosphere:

a) when set to a QNH altimeter setting, will indicate altitude;

b) when set to a QFE altimeter setting, will indicate height above the QFE reference datum;

c) when set to a pressure 1 013.2 hPa, may be used to indicate flight levels.

Note 2.—The terms “height” and “altitude”, used in 1 above; indicate altimetric rather than geometric heights and altitudes.

Frequency channel. A continuous portion of the frequency spectrum appropriate for a transmission utilizing a specified class of emission.

Note.—The classification of emissions and information relevant to the portion of the frequency spectrum appropriate for a given type of transmission (bandwidths) is specified in the ITU Radio Regulations, Article S2 and Appendix S1.

Height. The vertical distance of a level, a point or an object considered as a point, measured from a specified datum.

Human performance. Human capabilities and limitations which have an impact on the safety and efficiency of aeronautical operations.

Location indicator. A four-letter code group formulated in accordance with rules prescribed by ICAO and assigned to the location of an aeronautical fixed station.

Meteorological operational channel. A channel of the aeronautical fixed service (AFS), for the exchange of aeronautical meteorological information.

Meteorological operational telecommunication network. An integrated system of meteorological operational channels, as part of the aeronautical fixed service (AFS), for the exchange of aeronautical meteorological information between the aeronautical fixed stations within the network.

Note.— "Integrated" is to be interpreted as a mode of operation necessary to ensure that the information can be transmitted and received by the stations within the network in accordance with pre-established schedules.

NOTAM. A notice distributed by means of telecommunication containing information concerning the establishment, condition or change in any aeronautical facility, service, procedure or hazard, the timely knowledge of which is essential to personnel concerned with flight operations.

Operational control communications. Communications required for the exercise of authority over the initiation, continuation, diversion or termination of a flight in the interest of the safety of the aircraft and the regularity and efficiency of a flight.

Note. — Such communications are normally required for the exchange of messages between aircraft and aircraft operating agencies.

Route segment. A route or portion of route usually flown without an intermediate stop.

Routing Directory. A list in a communication centre indicating for each addressee the outgoing circuit to be used.

SNOWTAM. A special series NOTAM notifying the presence or removal of hazardous conditions due to snow, ice, slush or standing water associated with snow, slush and ice on the movement area, by means of a specific format.

CHAPTER 2 ADMINISTRATIVE PROVISIONS RELATING TO THE INTERNATIONAL AERONAUTICAL TELECOMMUNICATION SERVICE

2.1 DIVISION OF SERVICE

The international aeronautical telecommunication service shall be divided into four parts:

1) Aeronautical fixed service;

2) Aeronautical mobile service;

3) Aeronautical radio navigation service;

4) Aeronautical broadcasting service.

2.2 TELECOMMUNICATION — ACCESS

All aeronautical telecommunication stations, including end systems and intermediate systems of the aeronautical telecommunication network (ATN), shall be protected from unauthorized direct or remote access.

2.3 HOURS OF SERVICE

2.3.1 Airport & Aviation Services (SL) Ltd (AASL) appointed as the Statutory Service provider for the provision of International Aeronautical Telecommunication Service in Sri Lanka shall give notification of the normal hours of service of stations and offices of the international aeronautical telecommunication service under its control to the aeronautical telecommunication agencies designated to receive this information by other administrations concerned.

2.3.2 Whenever necessary and practicable, AASL shall give notification of any change in the normal hours of service, before such a change is effected, to the aeronautical telecommunication agencies designated to receive this information by other Administrations concerned. Such changes shall also, whenever necessary, be promulgated in NOTAM.

2.3.3 If a station of the international aeronautical telecommunication service, or an aircraft operating agency, requests a change in the hours of service of another station, such change shall be requested as soon as possible after the need for change is known. The station or aircraft operating agency requesting the change shall be informed of the result of its request as soon as possible.

2.4 SUPERVISION

2.4.1 Airport & Aviation Services (SL) Ltd has been appointed for the provision of international aeronautical telecommunication service in accordance with the procedures specified in this Implementing Standard.

2.4.2 Occasional infringements of the procedures contained herein, when not serious, should be dealt with by direct communication between the parties immediately interested either by correspondence or by personal contact.

2.4.3 When a station commits serious or repeated infringements, representations relating to them shall be made to the Airports & Aviation Services (SL) Ltd of Sri Lanka to which the station belongs by the authority which detects them.

2.4.4 Airport & Aviation Services (SL) Ltd of Sri Lanka should exchange information regarding the performance of systems of communication, radio navigation, operation and maintenance, unusual transmission phenomena, etc.

2.5 SUPERFLUOUS TRANSMISSIONS

Airports & Aviation Services (SL) Ltd of Sri Lanka shall ensure that there is no willful transmission of unnecessary or anonymous signals, messages or data by any station within Sri Lanka.

2.6 INTERFERENCE

Before authorizing tests and experiments in any station, each administration, in order to avoid harmful interference, shall prescribe the taking of all possible precautions, such as the choice of frequency and of time, and the reduction or, if possible, the suppression of radiation. Any harmful interference resulting from tests and experiments shall be eliminated as soon as possible.

CHAPTER 3 GENERAL PROCEDURES FOR THE INTERNATIONAL AERONAUTICAL TELECOMMUNICATION SERVICE

3.1 GENERAL

The procedures outlined in this chapter are general in character and shall be applied where appropriate in this implementing Standard.

3.2 EXTENSIONS OF SERVICE AND CLOSING DOWN OF STATIONS

3.2.1 Stations of the international aeronautical telecommunication service shall extend their normal hours of service as required to provide for traffic necessary for flight operation.

3.2.2 Before closing down, a station shall notify its intention to all other stations with which it is in direct communication, confirm that an extension of service is not required and advise the time of re-opening if other than its normal hours of service.

3.2.3 When it is working regularly in a network on a common circuit, a station shall notify its intention of closing down either to the control station, if any, or to all stations in the network. It shall continue watch for two minutes and may then close down if it has received no call during this period.

3.2.4 Stations with other than continuous hours of operation, engaged in, or expected to become engaged in distress, urgency, unlawful interference, or interception traffic, shall extend their normal hours of service to provide the required support to those communications.

3.3 ACCEPTANCE, TRANSMISSION AND DELIVERY OF MESSAGES

3.3.1 Only those messages coming within the categories specified in 4.4.1.1 shall be accepted for transmission by the aeronautical telecommunication service.

3.3.1.1 The responsibility for determining the acceptability of a message shall rest with the station where the message is filed for transmission.

3.3.1.2 Once a message is deemed acceptable, it shall be transmitted, relayed and (or) delivered in accordance with the priority classification and without discrimination or undue delay.

3.3.1.3 T*he authority in control of any station through which a message is relayed, should make representations at a later date to the authority in control of the accepting station regarding any message which is considered un-acceptable.*

3.3.2 Only messages for stations forming part of the aeronautical telecommunication service shall be accepted for transmission, except where special arrangements have been made with the telecommunication authority concerned.

3.3.2.1 Acceptance as a single message of a message intended for two or more addresses, whether at the same station or at different stations, shall be permitted subject, however, to the provisions prescribed in 4.4.3.1.2.3.

3.3.3 Messages handled for aircraft operating agencies shall be accepted only when handed in to the telecommunication station in the form prescribed herein and by an authorized representative of that agency, or when received from that agency over an authorized circuit.

3.3.4 For each station of the aeronautical telecommunication service from which messages are delivered to one or more aircraft operating agencies, a single office for each aircraft operating agency shall be designated by agreement between the aeronautical telecommunication agency and the aircraft operating agency concerned.

3.3.5 Stations of the international aeronautical telecommunication service shall be responsible for delivery of messages to addressee(s) located within the boundaries of the aerodrome(s) served by that station and beyond those boundaries only to such addressee(s) as may be agreed by special arrangements with the Administrations concerned.

3.3.6 Messages shall be delivered in the form of a written record, or other permanent means.

3.3.6.1 I*n cases where telephone or loudspeaker systems are used without recording facilities for the delivery of messages, a written copy should be provided, as confirmation of delivery, as soon as possible.*

3.3.7 Messages originated in the aeronautical mobile service by an aircraft in flight and which require transmission over the aeronautical fixed telecommunication network to effect delivery, shall be reprocessed by the aeronautical telecommunication station into the message format prescribed in 4.4.2 prior to transmission on the AFTN.

3.3.7.1 Messages originated in the aeronautical mobile service by an aircraft in flight and which require transmission over the aeronautical fixed service, other than on AFTN circuits, shall also be reprocessed by the aeronautical telecommunication station into the format prescribed in 4.4.2 except where, subject to the provisions of 3.3.5, prior and other arrangements have been made between the aeronautical telecommunication agency and the aircraft operating agency concerned for predetermined distribution of messages from aircraft.

3.3.7.2 Messages (including air-reports) without specific address containing meteorological information received from an aircraft in flight shall be forwarded without delay to the meteorological office associated with the point of reception.

3.3.7.3 Messages (including air-reports) without specific address containing air traffic services information from aircraft in flight shall be forwarded without delay to the air traffic services unit associated with the communication station receiving the message.

3.3.7.4 When recording the text of air-reports in AIREP form; the data conventions approved by ICAO for this purpose shall be used wherever possible.

Note.— Provisions relating to the composition, including data conventions, of air-reports and to the order and form in which the elements of such reports are transmitted by the aircraft stations and recorded and retransmitted by the aeronautical stations, are contained in the PANS-ATM (Doc 4444).

3.3.7.5 When air-reports in AIREP form are to be retransmitted by telegraphy (including teletype writing), the text transmitted shall be as recorded in compliance with 3.3.7.4.

3.4 TIME SYSTEM

3.4.1 Coordinated Universal Time (UTC) shall be used by all stations in the aeronautical telecommunication service. Midnight shall be designated as 2400 for the end of the day and 0000 for the beginning of the day.

3.4.2 A date-time group shall consist of six figures, the first two figures representing the date of the month and the last four figures the hours and minutes in UTC.

3.5 RECORD OF COMMUNICATIONS

3.5.1 General

3.5.1.1 A telecommunication log, written or automatic, shall be maintained in each station of the aeronautical telecommunication service except that an aircraft station, when using radiotelephony in direct communication with an aeronautical station, need not maintain a telecommunication log.

Note.—The telecommunication log will serve as a protection, should the operator's watch activities be investigated. It may be required as legal evidence.

3.5.1.1.1 A*eronautical stations should record messages at the time of their receipt, except that, if during an emergency the continued manual recording would result in delays in communication, the recording of messages may be temporarily interrupted and completed at the earliest opportunity.*

Note.—In the case of radiotelephony operation it would be desirable if voice recording were provided for use during interruption in manual recording.

3.5.1.1.2 W*hen a record is maintained in an aircraft station, either in a radiotelephone log or elsewhere, concerning distress communications, harmful interference, or interruption to communications, such a record should be associated with information concerning the time and the position, and altitude of the aircraft.*

3.5.1.2 In written logs, entries shall be made only by operators on duty except that other persons having knowledge of facts pertinent to the entries may certify in the log the accuracy of operators' entries.

3.5.1.3 All entries shall be complete, clear, correct and intelligible. Superfluous marks or notations shall not be made in the log.

3.5.1.4 In written logs, any necessary correction in the log shall be made only by the person making the initial entry. The correction shall be accomplished by drawing or typing a single line through the incorrect entry, initialing same, recording the time and date of correction. The correct entry shall be made on the next line after the last entry.

3.5.1.5 Telecommunication logs, written or automatic, shall be retained for a period of at least thirty days. When logs are pertinent to inquiries or investigations they shall be retained for longer periods until it is evident that they will be no longer required.

3.5.1.6 The following information shall be entered in written logs:

a) the name of the agency operating the station;

b) the identification of the station;

c) the date;

d) the time of opening and closing the station;

e) the signature of each operator, with the time the operator assumes and relinquishes a watch;

f) the frequencies being guarded and type of watch (continuous or scheduled) being maintained on each frequency;

g) except at intermediate mechanical relay stations where the provisions of this paragraph need not be complied with, a record of each communication, test transmission, or attempted communication showing text of communication, time communication completed, station(s) communicated with, and frequency

used. The text of the communication may be omitted from the log when copies of the messages handled are available and form part of the log;

h) all distress communications and action thereon;

i) a brief description of communication conditions and difficulties, including harmful interference. Such entries should include, whenever practicable, the time at which interference was experienced, the character, radio frequency and identification of the interfering signal;

j) a brief description of interruption to communications due to equipment failure or other troubles, giving the duration of the interruption and action taken;

k) such additional information as may be considered by the operator to be of value as a part of the record of the station's operations.

3.6 ESTABLISHMENT OF RADIO COMMUNICATION

3.6.1 All stations shall answer calls directed to them by other stations in the aeronautical telecommunication service and shall exchange communications on request.

3.6.2 All stations shall radiate the minimum power necessary to ensure a satisfactory service.

3.7 USE OF ABBREVIATIONS AND CODES

3.7.1 Abbreviations and codes shall be used in the international aeronautical telecommunication service whenever they are appropriate and their use will shorten or otherwise facilitate communication.

3.7.1.1 Where abbreviations and codes other than those approved by ICAO are contained in the text of messages, the originator shall, if so required by the aeronautical telecommunication station accepting the message for transmission, make available to that station a decode for the abbreviations and codes used.

Note.—The use of ICAO approved abbreviations and codes wherever appropriate — for example, those contained in PANS-ABC (Doc 8400) – obviates the need for application of the provisions of 3.7.1.1.

3.8 CANCELLATION OF MESSAGES

Messages shall be cancelled by a telecommunication station only when cancellation is authorized by the message originator.

CHAPTER 4 AERONAUTICAL FIXED SERVICE (AFS)

4.1 GENERAL

4.1.1 The aeronautical fixed service shall comprise the following systems and applications that are used for ground - ground (i.e. point-to-point and/or point-to-multipoint) communications in the international aeronautical telecommunication service:

a) ATS direct speech circuits and networks;

b) meteorological operational circuits, networks and broadcast systems;

c) the aeronautical fixed telecommunications network (AFTN);

d) the common ICAO data interchange network (CIDIN);

e) the air traffic services (ATS) message handling services; and

f) the inter-centre communications (ICC).

Note 1.— Provisions relating to ATS direct speech communications are contained in 4.2.

Note 2.— Provisions relating to meteorological operational channels and meteorological operational telecommunication networks are contained in 4.3.

Note 3.— The AFTN provides a store-and-forward messaging service for the conveyance of text messages in IA-5 format, using character-oriented procedures. Provisions relating to the AFTN are contained in 4.4.

Note 4.— The CIDIN provides a common transport service for the conveyance of binary or text application messages, in support of the AFTN and OPMET applications. Procedural provisions relating to the CIDIN are contained in 4.5.

Note 5.— The ATS (air traffic services) message handling services (ATSMHS) application allows ATS messages to be exchanged between service users over the aeronautical telecommunication network (ATN) internet communication service (ICS). Procedural provisions relating to ATS message handling services are contained in 4.6.

Note 6.— The inter-centre communications applications enable the exchange of information between air traffic service units over the aeronautical telecommunication network (ATN) internet communication service (ICS), in support of notification, coordination, transfer of control, flight planning, airspace management and air traffic

flow management. Procedural provisions relating to inter-centre communications are contained in 4.7.

Note 7.— The aeronautical telecommunication network through its ATSMHS and ICC applications enable the transition of existing AFTN and CIDIN users and systems into the ATN architecture.

4.1.2 Material permitted in AFS messages

Note.— The provisions contained in 4.1.2 do not apply to ATS voice communications.

4.1.2.1 The following characters are allowed in text messages:

Letters: ABCDEFGHIJKLMNOPQRSTUVWXYZ

Figures: 1 2 3 4 5 6 7 8 9 0

Other signs:

-	(hyphen)
?	(question mark)
:	(colon)
(	(open bracket)
)	(close bracket)
.	(full stop, period, or decimal point)
,	(comma)
’	(apostrophe)
≡	(double hyphen or equal sign)
/	(oblique)
+	(plus sign)

Characters other than those listed above shall not be used in messages unless absolutely necessary for understanding of the text. When used, they shall be spelled out in full.

4.1.2.2 N/A

4.1.2.3 For the exchange of messages over the teletypewriter circuits, the following characters of International Alphabet No. 5 (IA-5) shall be permitted:

- characters 0/1 to 0/3, 0/7 — in the priority alarm (see 4.4.15.2.2.5), 0/10, 0/11 — in the ending sequence (see 4.4.15.3.12.1), 0/13;
- characters 2/0, 2/7 to 2/9, 2/11 to 2/15;
- characters 3/0 to 3/10, 3/13, 3/15;

- characters 4/1 to 4/15;
- characters 5/0 to 5/10; and
- character 7/15.

4.1.2.3.1 The exchange of messages using the full IA-5 shall be subject to agreement between the administrations concerned.

4.1.2.4 Roman numerals shall not be employed. If the originator of a message wishes the addressee to be informed that roman figures are intended, the arabic figure or figures shall be written and preceded by the word ROMAN.

4.1.2.5 N/A

4.1.2.6 Messages using IA-5 shall not contain:

1) character 0/1 (SOH) other than the one in the heading as prescribed in 4.4.15.1.1 a);
2) character 0/2 (STX) other than the one in the origin line as prescribed in 4.4.15.2.2.7;
3) character 0/3 (ETX) other than the one in the ending as prescribed in 4.4.15.3.12.1;
4) any uninterrupted sequence of characters 5/10, 4/3, 5/10, 4/3 in this order (ZCZC);
5) any uninterrupted sequence of characters 2/11, 3/10, 2/11, 3/10 in this order (+:+:);
6) any uninterrupted sequence of four times character 4/14 (NNNN); and
7) any uninterrupted sequence of four times character 2/12 (,,,,).

4.1.2.7 The text of messages shall be drafted in plain language or in abbreviations and codes, as prescribed in 3.7. The originator shall avoid the use of plain language when reduction in the length of the text by appropriate abbreviations and codes is practicable. Words and phrases which are not essential, such as expressions of politeness, shall not be used.

4.1.2.8 If the originator of a message wishes alignment functions [<≡] to be transmitted at specific places in the text part of such message (see 4.4.5.3 and 4.4.15.3.6), the sequence [<≡] shall be written on each of those places.

4.2 ATS DIRECT SPEECH CIRCUITS

Note.— Provisions relating to ATS direct speech communications are contained in Chapter 6 of Implementing Standard 025.

4.3 METEOROLOGICAL OPERATIONAL CHANNELS AND METEOROLOGICAL OPERATIONAL TELECOMMUNICATION NETWORKS

Meteorological operational channel procedures and meteorological operational communication network procedures shall be compatible with aeronautical fixed telecommunications network (AFTN) or ATS message handling services (AMHS) procedures.

Note.— "Compatible" is to be interpreted as a mode of operation ensuring that the information exchanged over the meteorological operational channels also can be exchanged over the AFTN or AMHS without harmful effect on the operation of the AFTN or AMHS and vice versa.

4.4 AERONAUTICAL FIXED TELECOMMUNICATION NETWORK (AFTN)

4.4.1 General

4.4.1.1 Categories of messages. Subject to the provisions of 3.3, the following categories of message shall be handled by the aeronautical fixed telecommunication network:

a) distress messages;

b) urgency messages;

c) flight safety messages;

d) meteorological messages;

e) flight regularity messages;

f) aeronautical information services (AIS) messages;

g) aeronautical administrative messages;

h) service messages.

4.4.1.1.1 Distress messages (priority indicator SS). This message category shall comprise those messages sent by mobile stations reporting that they are threatened by grave and imminent danger and all other messages relative to the immediate assistance required by the mobile station in distress.

4.4.1.1.2 Urgency messages (priority indicator DD). This category shall comprise messages concerning the safety of a ship, aircraft or other vehicles, or of some person on board or within sight.

4.4.1.1.3 Flight safety messages (priority indicator FF) shall comprise:

a) movement and control messages as defined in PANS-ATM (Doc 4444), Chapter 11;

b) messages originated by an aircraft operating agency of immediate concern to aircraft in flight or preparing to depart;

c) meteorological messages restricted to SIGMET information, special air-reports, AIRMET messages, volcanic ash and tropical cyclone advisory information and amended forecasts.

4.4.1.1.4 Meteorological messages (priority indicator GG) shall comprise:

a) messages concerning forecasts, e.g. terminal aerodrome forecasts (TAFs), area and route forecasts;

b) messages concerning observations and reports, e.g. METAR, SPECI

4.4.1.1.5 Flight regularity messages (priority indicator GG) shall comprise:

a) aircraft load messages required for weight and balance computation;

b) messages concerning changes in aircraft operating schedules;

c) messages concerning aircraft servicing;

d) messages concerning changes in collective requirements for passengers, crew and cargo covered by deviation from normal operating schedules;

e) messages concerning non-routine landings;

f) messages concerning pre-flight arrangements for air navigation services and operational servicing for non-scheduled aircraft operations, e.g. over flight clearance requests;

g) messages originated by aircraft operating agencies reporting an aircraft arrival or departure;

h) messages concerning parts and materials urgently required for the operation of aircraft.

4.4.1.1.6 Aeronautical information services (AIS) messages (priority indicator GG) shall comprise:

a) messages concerning NOTAMs;

b) messages concerning SNOWTAMs.

4.4.1.1.7 Aeronautical administrative messages (priority indicator KK) shall comprise:

a) messages regarding the operation or maintenance of facilities provided for the safety or regularity of aircraft operations;

b) messages concerning the functioning of aeronautical telecommunication services;

c) messages exchanged between civil aviation authorities relating to aeronautical services.

4.4.1.1.8 Messages requesting information shall take the same priority indicator as the category of message being requested except where a higher priority is warranted for flight safety.

4.4.1.1.9 Service messages (priority indicator as appropriate). This category shall comprise messages originated by aeronautical fixed stations to obtain information or verification concerning other messages which appear to have been transmitted incorrectly by the aeronautical fixed service, confirming channel-sequence numbers, etc.

4.4.1.1.9.1.1 Service messages shall be prepared in the format prescribed in 4.4.2 or 4.4.15. In applying the provisions of 4.4.3.1.2 or 4.4.15.2.1.3 to service messages addressed to an aeronautical fixed station identified only by a location indicator, this indicator shall be immediately followed by the ICAO three-letter designator YFY, followed by an appropriate 8th letter.

4.4.1.1.9.2 Service messages shall be assigned the appropriate priority indicator.

4.4.1.1.9.2.1 W*hen service messages refer to messages previously transmitted, the priority indicator assigned should be that used for the message(s) to which they refer*.

4.4.1.1.9.3 Service messages correcting errors in transmission shall be addressed to all the addressees that will have received the incorrect transmission.

4.4.1.1.9.4 A reply to a service message shall be addressed to the station which originated the initial service message.

4.4.1.1.9.5 T*he text of all service messages should be as concise as possible.*

4.4.1.1.9.6 A service message, other than one acknowledging receipt of SS messages, shall be further identified by the use of the abbreviation SVC as the first item in the text.

4.4.1.1.9.7 When a service message refers to a message previously handled, reference to the previous message shall be made by use of the appropriate transmission identification ((*see* 4.4.2.1.1 b) and (4.4.15.1.1 b) or the filing time and originator indicator groups (*see* 4.4.4 and 4.4.15.2.2) identifying the reference message.

4.4.1.2 Order of priority

4.4.1.2.1 The order of priority for the transmission of messages in the aeronautical fixed telecommunication network shall be as follows:

Transmission Priority	*Priority indicator*
1	SS
2	DD FF
3	GG KK

4.4.1.2.2 T*he messages having the same priority indicator should be transmitted in the order in which they are received for transmission.*

4.4.1.3 Routing of messages

4.4.1.3.1 All communications shall be routed by the most expeditious route available to effect delivery to the addressee.

4.4.1.3.2 Predetermined diversion routing arrangements shall be made, when necessary, to expedite the movement of communication traffic. Each communication centre shall have the appropriate diversion routing lists, agreed to by the administration(s) operating the communication centres affected and shall use them when necessary.

4.4.1.3.2.1 T*he diversion routing should be initiated:*

1) in a fully automatic communication centre:

a) immediately after detection of the circuit outage, when the traffic is to be diverted via a fully automatic communication centre;

b) N/A

2) N/A

4.4.1.3.3 As soon as it is apparent that it will be impossible to dispose of traffic over the aeronautical fixed service within a reasonable period, and when the traffic is held at the station where it was filed, the originator shall be consulted regarding further action to be taken, unless:

a) otherwise agreed between the station concerned and the originator; or

b) arrangements exist whereby delayed traffic is automatically diverted to commercial telecommunication services without reference to the originator.

Note.— The expression "reasonable period" means a period of time such that it seems probable that the traffic will not be delivered to the addressee within any fixed transit period applicable to the category of traffic concerned, or, alternatively, any predetermined period agreed between originators and the telecommunication station concerned.

4.4.1.4 Supervision of message traffic

4.4.1.4.1 Continuity of message traffic. The receiving station shall check the transmission identification of incoming transmissions to ensure the correct sequence of channel sequence numbers of all messages received over that channel.

4.4.1.4.1.1 When the receiving station detects that one or more channel-sequence numbers are missing, it shall send a complete service message (*see* 4.4.1.1.9) to the previous station rejecting receipt of any message that may have been transmitted with such missing number(s). The text of this service message shall comprise the signal QTA, the procedure signal MIS followed by one or more missing transmission identification (*see* 4.4.2.1.1.3 and 4.4.15.1.1.4) and the end of-text signal (*see* 4.4.5.6 and 4.4.15.3.12).

Note.— The following examples illustrate application of the above-mentioned procedure. In example 2) the hyphen (-) separator is understood to mean "through" in plain language.

1) when one channel-sequence number is missing:

SVC→QTA→MIS→ABC↑123↓<≡

2) when several channel-sequence numbers are missing:

SVC→QTA→MIS→ABC↑123-126↓<≡

4.4.1.4.1.1.1 When the provisions of 4.4.1.4.1.1 are applied, the station notified of the missing message(s) condition by the service message shall reassume its responsibility for transmission of the message (or messages) that it had previously transmitted with the transmission identification concerned, and shall retransmit that message (or those messages) with a new (correct in sequence) transmission identification. The receiving station shall synchronize such that the next expected channel-sequence number is the last received channel-sequence number plus one.

4.4.1.4.1.2 W*hen the receiving station detects that a message has a channel sequence number less than that expected, it should advise the previous station using a service message with a text comprising:*

1) the abbreviation SVC;

2) the procedure signal LR followed by the transmission identification of the received message;

3) the procedure signal EXP followed by the transmission identification expected;

4) the end-of-text signal.

Note.— The following example illustrates application of the above-mentioned procedure:

SVC→LR→ABC↑123→↓EXP→ABC↑135↓<≡

4.4.1.4.1.2.1 W*hen the provisions of 4.4.1.4.1.2 are applied, the station receiving the out-of sequence message should synchronize such that the next expected channel-sequence number is the last received channel-sequence number plus one. The previous station should check its outgoing channel-sequence numbers and, if necessary, correct the sequence.*

4.4.1.4.2 Misrouted messages

Note.—A message is considered to have been misrouted when it contains no relaying instructions, expressed or implied, on which the receiving station can take action.

4.4.1.4.2.1 When the receiving station detects that a message has been misrouted to it, it shall either:

1) N/A

2) itself assume responsibility for transmission of the message to all addressee indicators.

Note.— The procedure of 2) may be preferred at stations using fully automatic relay methods or a semi-automatic relay technique without continuous tape.

4.4.1.4.2.2 N/A

4.4.1.4.2.3 When, as a result of the provisions of 4.4.1.4.2.2, a sending station is notified of the misrouted message condition by service message, it shall reassume its responsibility for the message and shall retransmit as necessary on the correct outgoing channel or channels.

4.4.1.4.3 When a circuit becomes interrupted and alternative facilities exist, the last channel-sequence numbers sent and received shall be exchanged between the stations concerned. Such exchanges shall take the form of complete service messages (See 4.4.1.1.9) with the text comprising the abbreviation SVC, the procedure signals LR and LS followed by the transmission identifications of the relevant messages and the end-of-text signal (*see* 4.4.5.6 and 4.4.15.3.12).

Note.—The following example illustrates application of the above-mentioned procedure:

SVC→LR→ABC↑123→↓LS→BAC↑321↓<≡

4.4.1.5 Failure of communications

4.4.1.5.1 Should communication on any fixed service circuit fail, the station concerned shall attempt to re-establish contact as soon as possible.

4.4.1.5.2 I*f contact cannot be re-established within a reasonable period on the normal fixed service circuit, an appropriate alternative circuit should be used. If possible, attempts should be made to establish communication on any authorized fixed service circuit available.*

4.4.1.5.2.1 If these attempts fail, use of any available air-ground frequency shall be permitted only as an exceptional and temporary measure when no interference to aircraft in flight is ensured.

4.4.1.5.2.2 N/A

4.4.1.5.2.3 A station experiencing a circuit or equipment failure shall promptly notify other stations with which it is in direct communication if the failure will affect traffic routing by those stations. Restoration to normal shall also be notified to the same stations.

4.4.1.5.3 Where diverted traffic will not be accepted automatically or where a predetermined diversion routing has not been agreed, a temporary diversion routing shall be established by the exchange of service messages. The text of such service messages shall comprise:

1) the abbreviation SVC;

2) the procedure signal QSP;

3) if required, the procedure signal RQ, NO or CNL to request, refuse or cancel a diversion;

4) identification of the routing areas, States, territories, locations, or stations for which the diversion applies;

5) the end-of-text signal.

Note.— The following examples illustrate application of the above-mentioned procedures:

a) to request a diversion:

SVC→QSP→RQ→C→K→BG→BI↓<≡

b) to accept a diversion:

SVC→QSP→C→K→BG→BI↓<≡

c) to refuse a diversion:

SVC→QSP→NO→C→K→BG→BI↓<≡

d) to cancel a diversion:

SVC→QSP→CNL→C→K→BG→BI↓<≡

4.4.1.6 Long-term retention of AFTN traffic records

4.4.1.6.1 Copies of all messages, in their entirety, transmitted by an AFTN origin station shall be retained for a period of at least 30 days.

Note.— The AFTN origin station, although responsible for ensuring that AFTN traffic is recorded, is not necessarily the unit where the records are made and retained. By local agreement the State concerned may permit the originators to perform those functions.

4.4.1.6.2 AFTN destination stations shall retain, for a period of at least 30 days, a record containing the information necessary to identify all messages received and the action taken thereon.

Note.— The provision for identification of messages mentioned in 4.4.1.6.2 may be obtained by recording the heading, address and origin parts of messages.

4.4.1.6.3 A*FTN communication centres should retain, for a period of at least 30 days, a record containing the information necessary to identify all messages relayed or retransmitted and the action taken thereon.*

Note 1.— The provision for identification of messages mentioned in 4.4.1.6.3 may be obtained by recording the heading, address and origin parts of messages.

Note 2.— Provisions relating to short-term retention of AFTN traffic records in AFTN communication centres are contained in 4.4.1.7.

4.4.1.7 Short-term retention of traffic records

4.4.1.7.1 Except as provided in 4.4.1.7.2, AFTN communication centres shall retain, for a period of at least one hour, a copy of all messages, in their entirety, retransmitted or relayed by that communication centre.

4.4.1.7.2 In cases where acknowledgement is made between AFTN communication centres, a relay centre shall be considered as having no further responsibility for retransmission or repetition of a message for which it has received positive acknowledgement, and it may be deleted from its records.

Note.— Provisions relating to long-term retention of AFTN traffic records in AFTN communication centres are contained in 4.4.1.6.

4.4.1.8 N/A

4.4.1.8.1 N/A

4.4.2 Message format

All messages shall comprise the components specified in 4.4.2.1 to 4.4.6.1 inclusive.

4.4.2.1 Heading

4.4.2.1.1 The heading shall comprise:

a) start-of-message signal, the characters ZCZC;

b) transmission identification comprising:

1) circuit identification;

2) channel-sequence number.

c) additional service information (if necessary) comprising:

1) one SPACE;

2) no more than ten characters.

d) spacing signal.

4.4.2.1.1.1 The circuit identification shall consist of three letters selected and assigned by the transmitting station; the first letter identifying the transmitting, the second letter the receiving end of the circuit and the third letter to identify the channel; where there is only one channel between the transmitting and receiving stations, channel letter A shall be assigned; where more than one channel between stations is provided, the channels shall be identified as A, B, C, etc. in respective order.

4.4.2.1.1.2 The 4-digit channel-sequence number, shall be restarted daily at 0000 hours.

4.4.2.1.1.2.1 N/A

4.4.2.1.1.3 N/A

4.4.2.1.2 N/A

4.4.2.1.3 N/A

4.4.2.1.4 N/A

4.4.3 Address

4.4.3.1 The address shall comprise:

a) alignment function [<≡];

b) priority indicator;

c) addressee indicator(s);

d) alignment function [<≡].

4.4.3.1.1 The priority indicator shall consist of the appropriate two letter group assigned by the originator in accordance with the following.

Message category	**Priority indicator**
Distress messages (*see* 4.4.1.1.1)	SS
Urgency messages (*see* 4.4.1.1.2)	DD
Flight safety messages (*see* 4.4.1.1.3)	FF
Meteorological messages (*see* 4.4.1.1.4)	GG
Flight regularity messages (*see* 4.4.1.1.5)	GG
Aeronautical information services messages (*see* 4.4.1.1.6)	GG
Aeronautical administrative messages (*see* 4.4.1.1.7)	KK
Service messages (*see* 4.4.1.1.9)	*(as appropriate)*

4.4.3.1.2 An addressee indicator, which shall be immediately preceded by a SPACE, except when it is the first address indicator of the second or third line of address shall comprise:

a) the four-letter location indicator of the place of destination;

b) the three-letter designator identifying the organization/ function (aeronautical authority, service or aircraft operating agency) addressed;

c) an additional letter, which shall represent a department, division or process within the organization/function addressed. The letter X shall be used to complete the address when explicit identification is not required.

Note 1.— The four-letter location indicators are listed in Doc 7910 – Location Indicators.

Note 2.—The three-letter designators are listed in Doc 8585 – Designators for Aircraft Operating Agencies, Aeronautical Authorities and Services.

4.4.3.1.2.1 Where a message is to be addressed to an organization that has not been allocated an ICAO three-letter designator of the type prescribed in 4.4.3.1.2, the location indicator of the place of destination shall be followed by the ICAO three-letter designator YYY (or the ICAO three-letter designator YXY in the case of a military service or organization). The name of the addressee organization shall then be included in the first item of the text of the message. The eighth position letter following the ICAO three-letter designator YYY or YXY shall be the filler letter X.

4.4.3.1.2.2 Where a message is to be addressed to an aircraft in flight and, therefore, requires handling over the AFTN for part of its routing before retransmission over the aeronautical mobile service, the location indicator of the aeronautical station which is to relay the message to the aircraft shall be followed by the ICAO three-letter designator ZZZ. The identification of the aircraft shall then be included in the first item of the text of the message. The eighth position letter following the ICAO three-letter designator ZZZ shall be the filler letter X.

Note. —The following examples illustrate application of the Standards in 4.4.3.1.2.1 and 4.4.3.1.2.2:

1) addressee indicators (possible types):

LGATZTZX	aerodrome control tower (ZTZ) at LGAT
LGATYMYF	section (F) of the Meteorological Office (YMY) at LGAT
LGATKLMN	department (N) of the aircraft operating agency KLM (KLM) at LGAT
LGATYYYX	the aircraft operating agency whose name appears in the beginning of the message text and whose office location is served by LGAT
LGATZZZX	the aeronautical station (LGAT) is required to relay this message in the aeronautical mobile service to the aircraft whose identification appears in the beginning of the message text.

2) YYY ICAO three-letter designator:

Example of a message addressed to (say) “Penguin Airlines” at NCRG by the PHNL office of the same aircraft operating agency. The Heading and Ending of the message are not shown in this example of teletypewriter page-copy form.

(Address)	GG NCRGYYYX
(Origin)	311521 PHNLYYYX
(Text)	AIR PENGUIN FLIGHT 801

CANCELLED

3) ZZZ ICAO three-letter designator:

Example of a message addressed to aircraft GABCD via aeronautical station NZAA from Area Control Centre at NZZC. The Heading and Ending of the message are not shown in this example of teletypewriter page-copy form.

(Address) FF NZAAZZZX

(Origin) 031451 NZZCZQZX

Text) GABCD CLR DES 5000FT HK NDB

4.4.3.1.2.3 The complete address shall be restricted to three lines of page-printing copy and, except as provided in 4.4.12, a separate addressee indicator shall be used for each addressee whether at the same or at different locations.

4.4.3.1.2.3.1 Where messages are offered in page-copy form for transmission and contain more addressee indicators than can be accommodated on three lines of a page-copy, such message shall be converted, before transmission, into two or more messages, each of which shall conform with the provisions of 4.4.3.1.2.3. During such conversion, the addressee indicators shall, in so far as practicable, be positioned in the sequence which will ensure that the minimum number of retransmissions will be required at subsequent communication centres.

4.4.3.1.2.3.2 N/A

4.4.4 Origin

The origin shall comprise:

a) filing time;

b) originator indicator;

c) priority alarm (when necessary);

d) optional heading field;

e) alignment function [<≡].

4.4.4.1 The filing time shall comprise the 6-digit date time group indicating the date and time of filing the message for transmission (*see* 3.4.2);

4.4.4.2 An originator indicator, which shall be immediately preceded by a SPACE, shall comprise:

a) the four-letter location indicator of the place at which the message is originated;

b) the three-letter designator identifying the organization function (aeronautical authority, service or aircraft operating agency) which originated the message;

c) an additional letter which shall represent a department, division or process within the organization/function of the originator. The letter X shall be used to complete the address when explicit identification is not required.

4.4.4.2.1 Where a message is originated by an organization that has not been allocated an ICAO three-letter designator of the type prescribed in 4.4.4.2 b), the location indicator of the place at which the message is originated shall be followed immediately by the ICAO three-letter designator YYY followed by the filler letter X (or the ICAO three-letter designator YXY followed by the filler letter X in the case of a military service or organization). The name of the organization (or military service) shall then be included in the first item in the text of the message.

4.4.4.2.2 Where a message originated by an aircraft in flight requires handling on the AFTN for part of its routing before delivery, the originator indicator shall comprise the location indicator of the aeronautical station responsible for transferring the message to the AFTN, followed immediately by the ICAO three-letter designator ZZZ followed by the filler letter X. The identification of the aircraft shall then be included in the first item in the text of the message.

4.4.4.2.3 Messages relayed over the AFTN that have been originated in other networks shall use a valid AFTN originator indicator that has been agreed for use by the relay or gateway function linking the AFTN with the external network.

Note.— The following illustrates the application of 4.4.4.2.2 procedure as it would appear with a message from aircraft KLM153 addressed to the Area Control Centre at CZEG, the message being handled via aeronautical station CYCB.

(Address)	FF CZEGZRZX
Origin)	031821 CYCBZZZX
(Text)	KLM153 [remainder of text as received from aircraft]

4.4.4.3 N/A

4.4.4.4 The inclusion of optional data in the origin line shall be permitted provided a total of 69 characters is not exceeded and subject to agreement between the authorities concerned. The presence of the optional data field shall be indicated by one occurrence of the SPACE character immediately preceding optional data.

4.4.4.4.1 W*hen additional addressing information in a message needs to be exchanged between source and destination addresses, it should be conveyed in the optional data field (ODF), using the following specific format:*

a) characters one and full stop (1.) to indicate the parameter code for the additional address function;

b) three modifier characters, followed by an equal sign [=]and the assigned 8-character ICAO address; and

c) the character hyphen (-) to terminate the additional address parameter field.

4.4.4.4.1.1 W*hen a separate address for service messages or inquiries is different from the originator indicator, the modifier SVC should be used.*

4.4.4.5 The origin line shall be concluded by an alignment function [<≡].

4.4.5 Text

4.4.5.1 The text of messages shall be drafted in accordance with 4.1.2.

4.4.5.2 When an originator's reference is used, it shall appear at the beginning of the text, except as provided in 4.4.5.2.1 and 4.4.5.2.2.

4.4.5.2.1 When the ICAO three-letter designators YXY, YYY or ZZZ comprise the second element of the addressee indicator (*see* 4.4.3.1.2.1 and 4.4.3.1.2.2) and it, therefore, becomes necessary to identify in the text the specific addressee of the message, such identification group will precede the originator's reference (if used) and become the first item of the text.

4.4.5.2.2 When the ICAO three-letter designators YXY, YYY or ZZZ comprise the second element of the originator indicator (see 4.4.4.2.1 and 4.4.4.2.2) and it thus becomes necessary to identify in the text the name of the organization (or military service), or the aircraft, which originated the message, such identification shall be inserted in the first item of the text of the message.

4.4.5.2.3 When applying the provisions of 4.4.5.2.1 and 4.4.5.2.2 to messages where the ICAO three-letter designator(s) YXY, YYY or ZZZ is (are) used to refer to two or more different organizations (or military services), the sequence of further identification in the text shall correspond to the complete sequence used in the address and origin of the message. In such instance, each addressee identification shall be followed immediately by an alignment function. The name of the (YXY, YYY or ZZZ) organization originating the message shall then be preceded with "FROM". "STOP" followed by an alignment function shall then be included in the text at the end of these identifications to precede the remainder of the text wording.

4.4.5.3 An alignment function [<≡] shall be transmitted at the end of each printed line of the text except for the last (see 4.4.5.6).

4.4.5.4 When it is desired to confirm a portion of the text of a message in teletypewriter operation, such confirmation shall be separated from the last text group by an alignment function [<≡], and shall be indicated by the abbreviation CFM followed by the portion being confirmed.

4.4.5.5 When it is discovered that an error has been made in the text, the correction shall be separated from the last text group or confirmation, if any, by an alignment function [<≡] in the case of teletypewriter circuits. This shall be followed by the abbreviation COR and the correction.

4.4.5.5.1 Stations shall make all indicated corrections on the page-copy prior to local delivery.

4.4.5.6 At the end of the text the following end-of-text signal shall be transmitted:

1 LETTER SHIFT [↓], alignment function [<≡].

4.4.5.7 The text of the messages entered by the AFTN origin station shall not exceed 1 800 characters in length.

Note 1.— Where it is desired that a communication with a text exceeding 1 800 characters be transmitted over the aeronautical fixed telecommunication network, 4.4.5.7 requires that such a communication be entered by the AFTN origin station in the form of separate messages, each text of which does not exceed 1 800 characters. Guidance material for forming separate messages from a single long message is given in Attachment B.

Note 2.— The character count includes all printing and non-printing characters in the message from, but not including, the alignment function preceding the beginning of the text to, but not including, the end-of-text signal.

4.4.6 Ending

4.4.6.1 The ending shall comprise:

a) the page-feed sequence consisting of 7 LINE FEEDS [≡ ≡ ≡ ≡ ≡ ≡ ≡];

Note.— This together with the 1 LINE FEED of the preceding alignment function, will provide sufficient separation between messages when appearing in page copy form.

b) the end-of-message signal, consisting of the letter N (letter case of signal no. 14), appearing FOUR times in undivided sequence.

Note.— This component, transmitted intact from the moment of the first transmission of the message until ultimate delivery, is required so that connections set up for cross-office transmission, at a semi-automatic or fully automatic relay installation, can be cleared for following message traffic.

c) N/A

Note 1.— N/A

Note 2.— The following illustrates the procedures specified in 4.4.2 to 4.4.6.1 inclusive for a message in page-copy form:

(Heading)	*ZCZC LPA183
(Address)	GG LGGGZRZX LGATKLMW
(Origin)	201838 EGLLKLMW
(Text)	As required
(Ending)	(Page feed*)*
	*NNNN***

*Note 2A.— N/A

**Note 2B.— In the circumstances described in Note 2A, the heading of the next message received would be printed on page-copy at this position.

Note 2C.— In actual station practice, messages would be separated on page-copy by tearing through the page-feed sequence. The end-of-message signal would then appear to have become a component part of the next message. This apparent misplacement is, however, unlikely to give rise to any misunderstanding on the part of communicators or addressees since, in practice, the end-of-message signal has no significance on page-copy.

4.4.6.2 AFTN messages entered by the AFTN origin station shall not exceed 2 100 characters in length.

Note.—The character count includes all printing and non-printing characters in the message from and including the start-of-message signal (ZCZC) to and including the end-o f message signal (NNNN).

4.4.7 Tape feed - N/A

4.4.7.1 N/A

4.4.7.1.1 N/A

4.4.8 Stripped address

When applying the provisions of 4.4.3 or 4.4.15.2.1, an AFTN communication centre shall omit from the address all the addressee indicators not required for

a) Onward transmission by the AFTN communication centre to which the message is transmitted

b) Local delivery to the addressee(s)by the AFTN destination station

c) Onward transmission or local delivery by the aggregate of stations on a multi-point circuit

4.4.9 Teletypewriter operating procedure – general N/A

4.4.9.1 N/A

4.4.9.1.1 N/A

4.4.9.1.2 N/A

4.4.9.2 N/A

4.4.9.3 N/A

4.4.9.3.1 N/A

4.4.9.3.2 N/A

4.4.9.3.3 N/A

4.4.9.3.4 N/A

4.4.9.3.5 N/A

4.4.10 Normal teletypewriter transmission procedures - N/A

4.4.10.1 N/A

4.4.10.1.1 N/A

4.4.10.1.1.1N/A

4.4.10.1.1.2N/A

4.4.10.1.2 N/A

4.4.10.1.2.1N/A

4.4.10.1.3 N/A

4.4.10.1.3.1N/A

4.4.10.1.4 N/A

4.4.10.1.4.1N/A

4.4.10.1.4.1.1 N/A

4.4.10.1.4.1.2 N/A

4.4.10.1.4.1.3 N/A

4.4.10.1.4.2N/A

4.4.10.1.4.2.1 N/A

4.4.10.1.5 N/A

4.4.10.1.6 N/A

4.4.10.1.6.1N/A

4.4.10.1.7 N/A

4.4.11 Action on mutilated or improperly formatted messages detected in Teletypewriter relay stations

4.4.11.1 N/A

4.4.11.2 N/A

4.4.11.3 N/A

4.4.11.4 N/A

4.4.11.5 N/A

4.4.11.6 N/A

4.4.11.7 N/A

4.4.11.8 If, after a message has been transmitted in toto, a station detects that the text or the origin of the message was mutilated or incomplete, it shall transmit to all addressees concerned a service message with the following text, if an unmutilated copy of the message is available in the station:

SVC CORRECTION (the origin of the incorrect message)
STOP (followed by the correct text)

Note.— This circumstance of detection of a mutilation or incomplete message may only be possible at “torn-tape” relay stations or at semi-automatic stations using continuous-tape.

4.4.11.9 N/A

4.4.11.10 N/A

4.4.11.11 N/A

4.4.11.12 N/A

4.4.11.12.1 N/A

4.4.11.12.2 N/A

4.4.11.13 N/A

4.4.11.13.1 N/A

4.4.11.13.2 N/A

4.4.11.13.3 N/A

4.4.11.13.4 N/A

4.4.11.14 N/A

4.4.11.14.1 N/A

4.4.11.14.2 N/A

4.4.11.15 N/A

4.4.11.15.1 N/A

4.4.11.15.2 N/A

4.4.12 N/A

4.4.12.1 N/A

4.4.12.2 N/A

4.4.12.3 N/A

4.4.12.4 N/A

4.4.12.5 N/A

4.4.12.6 N/A

4.4.13 N /A

4.4.13.1 N/A

4.4.13.2 N/A

4.4.13.3 N/A

4.4.13.4 N/A

4.4.13.5 N/A

4.4.14 Predetermined distribution system for AFTN messages

4.4.14.1 When it has been agreed between the administrations concerned to make use of a predetermined distribution system for AFTN messages, the system described below shall be used.

4.4.14.2 The Predetermined Distribution Addressee Indicator (PDAI) shall be constructed as follows:

a) The first and second letters:

The first two letters of the Location Indicator of the Colombo Communications Centre which has agreed to implement the system and which receives messages over a circuit for which it has a predetermined routing responsibility;

b) The third and fourth letters:

The letters ZZ, indicating a requirement for special distribution;

c) The fifth, sixth and seventh letters:

1) The fifth, sixth and seventh letters taken from the series A to Z and denoting the national and/or international distribution list(s) to be used by the receiving AFTN centre;

2) “N” and “S”, as the fifth letter, are reserved for NOTAM and SNOWTAM respectively detailed specifications concerning NOTAM, including formats for SNOWTAM are contained in the Procedures for Air Navigation Services — Aeronautical Information Management (PANS-AIM, Doc 10066));

d) The eighth letter:

Either the filler letter “X” or a letter taken from the series A to Z to further define the national and/or international distribution list(s) to be used by the receiving AFTN centre.

Note 1.— To avoid conflict with the AFTN start-of message signal, combinations with ZC or CZ will not be used.

Note 2.— To avoid conflict with the AFTN end-of message signal, combinations with NN will not be used.

4.4.14.3 P*redetermined Distribution Addressee Indicators (PDAIs) should be used whenever possible on AFTN messages between States which have agreed to make use of the predetermined distribution system.*

4.4.14.4 AFTN messages carrying Predetermined Distribution Addressee Indicators allocated by the State receiving the message shall be routed to the addressees listed on the associated list of Addressee Indicators described in 4.4.14.5.

4.4.14.5 AASL shall send their list of selected Predetermined Distribution Addressee Indicators together with the associated lists of Addressee Indicators to:

a) the States from which they will receive AFTN messages for predetermined distribution, to assure correct routing; and

b) the States which will originate AFTN messages for predetermined distribution to facilitate the treatment of requests for retransmission and to assist originators in using the Predetermined Distribution Addressee Indicators correctly.

4.4.14.5.1 The list of Addressee Indicators associated with a Predetermined Distribution Addressee Indicator shall include either:

a) Addressee Indicators for national distribution; or

b) Addressee Indicators for international distribution; or

c) Predetermined Distribution Addressee Indicators for international distribution; or

d) any combination of a), b) and c).

4.4.15 Message format — International Alphabet No. 5 (IA-5)

When it has been agreed between the Administrations concerned to use International Alphabet No. 5 (IA-5) the format described in 4.4.15 through 4.4.15.3 shall be used. It shall be the responsibility of Administrations using IA-5.

All messages, other than those prescribed in 4.4.1.8 and 4.4.9.3 shall comprise the components specified in 4.4.15.1 to 4.4.15.6 inclusive.

Note 1.— An illustration of the IA-5 message format is given in Figure 4-4.

Note 2.— In the subsequent standards relative to message format the following symbols have been used in making reference to the functions assigned to certain signals in IA-5. (See IS 039, 8.6.1 and Tables 8-2 and 8-3.)

Symbol	Signification
<	CARRIAGE RETURN (character position 0/13)

≡ LINE FEED (character position 0/10)
→ SPACE (character position 2/0).

4.4.15.1 HEADING

4.4.15.1.1 The heading shall comprise:

a) start-of-heading (SOH) character 0/1;

b) transmission identification comprising:

1) circuit or link identification;

2) channel-sequence number;

c) additional service information (if necessary) comprising:

1) one SPACE;

2) no more than 10 characters.

4.4.15.1.1.1 On point-to-point circuits or links, the identification shall consist of three letters selected and assigned by the transmitting station; the first letter identifying the transmitting, the second letter the receiving end of the circuit, and the third letter the channel. Where only one channel exists, the letter A shall be assigned. Where more than one channel between stations is provided, the channels shall be identified as A, B, C, etc., in respective order. On multipoint channels, the identification shall consist of three letters selected and assigned by the circuit control or master station.

4.4.15.1.1.2 Except as provided in 4.4.15.1.1.3, three-digit channel-sequence numbers from 001 to 000 (representing 1 000) shall be assigned sequentially by telecommunication stations to all messages transmitted directly from one station to another. A separate series of these numbers shall be assigned for each channel and a new series shall be started daily at 0000 hours.

4.4.15.1.1.3 T*he expansion of the channel-sequence number to preclude duplication of the same numbers during the 24-hour period should be permitted subject to agreement between the Authorities responsible for the operation of the circuit.*

4.4.15.1.1.4 The transmission identification shall be sent over the circuit in the following sequence:

a) transmitting-terminal letter;

b) receiving-terminal letter;

c) channel-identification letter;

d) channel-sequence number.

4.4.15.1.1.5 Additional service information shall be permitted to be inserted following the transmission identification subject to agreement between the Authorities responsible for the operation of the circuit. Such additional service information shall be preceded by a SPACE (→) followed by not more than 10 characters inserted into the heading of message immediately following the last digit of the channel-sequence number and shall not contain any alignment functions. When no such additional service information is added, the information in 4.4.15.1.1.4 shall be followed immediately by that of 4.4.15.2.

4.4.15.2 ADDRESS

4.4.15.2.1 The address shall comprise:

a) alignment function [<≡];

b) priority indicator;

c) addressee indicator(s);

d) alignment function [<≡].

4.4.15.2.1.1 The priority indicator shall consist of the appropriate two-letter group assigned by the originator in accordance with the following:

Priority indicator	Message category
SS	distress messages
DD	urgency messages (see 4.4.1.1.2)
FF	flight safety messages (see 4.4.1.1.3)
GG	meteorological messages (see 4.4.1.1.4)
GG	flight regularity messages (see 4.4.1.1.5)
GG	aeronautical information services messages (see 4.4.1.1.6)
KK	aeronautical administrative messages (see 4.4.1.1.7) as appropriate service messages (see 4.4.1.1.9)

4.4.15.2.1.2 The order of priority shall be the same as specified in 4.4.1.2.

4.4.15.2.1.3 An addressee indicator, which shall be immediately preceded by a SPACE, except when it is the first address indicator of the second or third line of addresses, shall comprise:

a) the four-letter location indicator of the place of destination;

b) the three-letter designator identifying the organization/function (aeronautical authority, service or aircraft operating agency) addressed;

c) an additional letter, which shall represent a department, division or process within the organization/function addressed. The letter X shall be used to complete the address when explicit identification is not required.

4.4.15.2.1.3.1 Where a message is to be addressed to an organization that has not been allocated an ICAO three-letter designator of the type prescribed in 4.4.15.2.1.3, the location indicator of the place of destination shall be followed by the ICAO three-letter designator YYY (or the ICAO three-letter designator YXY in the case of a military service or organization). The name of the addressee organization shall then be included in the first item in the text of the message. The eighth position letter following the ICAO three-letter designator YYY or YXY shall be the filler letter X.

4.4.15.2.1.3.2 Where a message is to be addressed to an aircraft in flight and, therefore, requires handling over the AFTN for part of its routing before retransmission over the Aeronautical Mobile Service, the location indicator of the aeronautical station which is to relay the message to the aircraft shall be followed by the ICAO three-letter designator ZZZ. The identification of the aircraft shall then be included in the first item of the text of the message. The eighth position letter following the ICAO three-letter designator ZZZ shall be the filler letter X.

4.4.15.2.1.4 The complete address shall be restricted to three lines of page-printing copy, and, except as provided in 4.4.16, a separate addressee indicator shall be used for each addressee whether at the same or different locations.

4.4.15.2.1.5 The completion of the addressee indicator group(s) in the address of a message shall be immediately followed by the alignment function.

Message part		*Component of the message part*	*Elements of the component*	*Teletypewriter character*
THE HEADING	HEADING LINE (*see* 4.4.15.1.1)	Start-of-Heading Character	One Character (0/1)	SOH
		Transmission Identification	a) Transmitting-terminal letter b) Receiving-terminal letter (*Example:* NRA062) c) Channel-identification letter d) Channel-sequence number	……
		(*If necessary*) Additional Service Indication	a) One SPACE b) No more than the remainder of the line (*Example:* 270930)	→
	ADDRESS (*see* 4.4.15.2.1)	Alignment Function	One CARRIAGE RETURN, one LINE FEED	<≡
		Priority Indicator	The relevant 2-letter group	··
		Addressee Indicator(s)	One SPACE An 8-letter group given in sequence for each addressee (*Example:* **EGLLZRZX→EGLLYKYX→EGLLACAD)**	
		Alignment Function(s)	One CARRIAGE RETURN, one LINE FEED	<≡
	ORIGIN (*see* 4.4.15.2.2)	Filing Time	6-digit date-time group specifying when the message was filed for transmission	……
		Originator Indicator	a) One SPACE b) 8-letter group identifying the message originator	→……
		Priority Alarm (*used only in teletypewriter operation for Distress Messages*)	Five characters (0/7)(BEL)	
		Optional Heading Information	a) One SPACE b) Additional data not to exceed the remainder of the line. See 4.4.15.2.2.6.	
		Alignment Function	One CARRIAGE RETURN, one LINE FEED	<≡
		Start-of-Text Character	One character (0/2)	STX
TEXT (*see* 4.4.15.3)		Beginning of the Text	Specific identification of Addressee(s) *(if necessary) with* each followed by one CARRIAGE RETURN, one LINE FEED *(if necessary)* The English word FROM *(if necessary)*(*see* 4.4.15.3.5) Specific identification of Originator *(if necessary)* The English word STOP followed by one CARRIAGE RETURN, one LINE FEED *(if necessary)* (*see* 4.4.15.3.5) *and/or* Originator's reference *(if used)*	
		Message Text	Message Text with one CARRIAGE RETURN, one LINE FEED at the end of each printed line of the Text except for the last one (*see* 4.4.15.3.6)	
		Confirmation *(if necessary)*	a) One CARRIAGE RETURN, one LINE FEED b) The abbreviation CFM followed by the portion of the Text being confirmed	
		Correction *(if necessary)*	a) One CARRIAGE RETURN, one LINE FEED b) The abbreviation COR followed by the correction of an error made in the preceding Text	
ENDING (*see* 4.4.15.3.12.1)		Alignment Function	One CARRIAGE RETURN, one LINE FEED	<≡
		Page-feed Sequence	One character (0/11)	VT
		End-of-Text character	One character (0/3)	ETX

Figure 4-4. Message format International Alphabet No. 5 (IA-5)
(the above illustrates the teletypewriter message format described in 4.4.15)

4.4.15.2.1.6 Where messages are offered in page-copy form for transmission and contain more addressee indicators than can be accommodated on three lines of a page copy, such messages shall be converted, before transmission, into two or more messages, each of which shall conform with the provisions of 4.4.15.2.1.5. During such conversion, the addressee indicators shall, in so far as practicable, be positioned in the sequence which will ensure that the minimum number of retransmissions will be required at subsequent communication centres.

4.4.15.2.2 ORIGIN

The origin shall comprise:

a) filing time;

b) originator indicator;

c) priority alarm (when necessary);

d) optional heading information;

e) alignment function [<≡];

f) start-of-text character, character 0/2 (STX).

4.4.15.2.2.1 The filing time shall comprise the 6-digit date-time group indicating the date and time of filing the message for transmission (see 3.4.2).

4.4.15.2.2.2 The originator indicator, which shall be immediately preceded by a SPACE, shall comprise:

a) the four-letter location indicator of the place at which the message is originated;

b) the three-letter designator identifying the organization/function (aeronautical authority, service or aircraft operating agency) which originated the message;

c) an additional letter which shall represent a department, division or process within the organization/function of the originator. The letter X shall be used to complete the address when explicit identification is not required.

4.4.15.2.2.3 Where a message is originated by an organization that has not been allocated an ICAO three-letter designator of the type prescribed in 4.4.15.2.2.2, the location indicator of the place at which the message is originated shall be followed immediately by the ICAO three-letter designator YYY followed by the filler letter X (or the ICAO three-letter designator YXY followed by the filler letter X in the case of a military service or organization). The name of the organization (or military service) shall then be included in the first item in the text of the message.

4.4.15.2.2.3.1 Messages relayed over the AFTN that have been originated in other networks shall use a valid AFTN originator indicator that has been agreed for use by the relay or gateway function linking the AFTN with the external network.

4.4.15.2.2.4 Where a message originated by an aircraft in flight requires handling on the AFTN for part of its routing before delivery, the originator indicator shall comprise the location indicator of the aeronautical station responsible for transferring the message to the AFTN, followed immediately by the ICAO three-letter designator ZZZ followed by the filler letter X. The identification of the aircraft shall then be included in the first item in the text of the message.

4.4.15.2.2.5 The priority alarm shall be used only for distress messages. When used it shall consist of five successive BEL (0/7) characters.

Note.— Fully automatic stations provide an alarm on receipt of priority indicator SS, thereby alerting supervisory personnel at relay centres and operators at tributary stations, so that immediate attention may be given to the message.

4.4.15.2.2.6 The inclusion of optional data in the origin line shall be permitted provided a total of 69 characters is not exceeded and subject to agreement between the Administrations concerned. The presence of the optional data field shall be indicated by one occurrence of the SPACE character immediately preceding optional data.

4.4.15.2.2.6.1 W*hen additional addressing information in a message needs to be exchanged between source and destination addresses, it should be conveyed in the optional data field (ODF), using the following specific format:*

a) characters one and full stop (1.) to indicate the parameter code for the additional address function;

b) three modifier characters, followed by an equal sign (=) and the assigned 8-character ICAO address; and

c) the character hyphen (-) to terminate the additional address parameter field.

4.4.15.2.2.6.1.1 *When a separate address for service messages or inquiries is different from the originator indicator, the modifier SVC should be used.*

4.4.15.2.2.7 The origin line shall be concluded by an alignment function [<≡] and the start-of-text (STX) (0/2) character.

4.4.15.3 TEXT

4.4.15.3.1 The text of messages shall be drafted in accordance with 4.1.2 and shall consist of all data between STX and ETX.

4.4.15.3.2 When an originator's reference is used, it shall appear at the beginning of the text, except as provided in 4.4.15.3.3 and 4.4.15.3.4.

4.4.15.3.3 When the ICAO three-letter designators YXY, YYY or ZZZ comprise the second element of the addressee indicator (see 4.4.15.2.1.3.1 and 4.4.15.2.1.3.2) and it, therefore, becomes necessary to identify in the text the specific addressee of the message, such identification group shall precede the originator's reference (if used) and become the first item of the text.

4.4.15.3.4 When the ICAO three-letter designators YXY, YYY or ZZZ comprise the second element of the originator indicator (see 4.4.15.2.2.3 and 4.4.15.2.2.4) and it thus becomes necessary to identify in the text the name of the organization (or military service) or the aircraft which originated the message, such identification shall be inserted in the first item of the text of the message.

4.4.15.3.5 When applying the provisions of 4.4.15.3.3 and 4.4.15.3.4 to messages where the ICAO three-letter designator(s) YXY, YYY, ZZZ refer to two or more different organizations (or military services), the sequence of further identification in the text shall correspond to the complete sequence used in the address and originator indicator of the message. In such instance, each addressee identification shall be followed immediately by an alignment function. The name of the (YXY, YYY or ZZZ) organization originating the message shall then be preceded with "FROM". "STOP" followed by an alignment function shall then be included in the text at the end of this identification and preceding the remainder of text.

4.4.15.3.6 N/A

4.4.15.3.7 N/A

4.4.15.3.8 N/A

4.4.15.3.9 N/A

4.4.15.3.10 Stations shall make all indicated corrections on the page-copy prior to local delivery or a transfer to a manually operated circuit.

4.4.15.3.11 When messages are transmitted only on low-speed circuits, the text of messages entered by the AFTN origin station shall not exceed 1 800 characters in length. AFTN messages exceeding 1 800 characters shall be entered by the AFTN origin station in the form of separate messages.

Note 1.— Low-speed circuits operate at 300 bits per second or less.

Note 2.— Guidance material for forming separate messages from a single long message is given in Attachment B.

Note 3.— The character count includes all printing and non-printing characters in the text from, but not including, the start-of-text signal to, but not including, the first alignment function of the ending.

4.4.15.3.11.1 The transmission on medium- or high-speed circuits of AFTN messages with text exceeding 1 800 characters that have not been entered by the AFTN origin station in the form of separate messages shall be subject to agreement between the Administrations concerned and not diminish the performance characteristics of the network or link.

Note 1.— Medium-speed circuits operate at speeds in the range between 300 and 3 000 bits per second. High-speed circuits operate at speeds in excess of 3 000 bits per second.

Note 2.— Guidance material for forming separate messages from a single long message is given in Attachment B.

Note 3.— The character count includes all printing and non-printing characters in the text from, but not including, the start-of-text signal to, but not including, the first alignment function of the ending.

4.4.15.3.12 ENDING

4.4.15.3.12.1 The ending of a message shall comprise the following in the order stated:

a) an alignment [<≡] function following the last line of text;

b) page-feed character, character 0/11 (VT);

c) end-of-text character 0/3 (ETX).

4.4.15.3.12.1.1 Station terminal equipment (page printers) on the International Alphabet Number 5 (IA-5) shall be provided with a capability to generate sufficient line feed functions for local station use upon the reception of a VERTICAL TAB character (0/11).

4.4.15.3.12.1.2 N/A

4.4.15.3.12.1.3 When messages are transmitted only on low-speed circuits, messages entered by the AFTN origin station shall not exceed 2 100 characters in length.

Note 1.— Low-speed circuits operate at 300 bits per second or less.

Note 2.— The character count includes all printing and non-printing characters in the message from and including the start-of-heading character (SOH) to and including the end-of-text character.

4.4.15.3.12.1.4 The transmission on medium- or high-speed circuits of AFTN messages exceeding 2 100 characters that have not been entered by the AFTN origin station in the form of separate messages shall be subject to agreement between the Administrations concerned and not diminish the performance characteristics of the network or link.

Note 1.— Medium-speed circuits operate at speeds in the range between 300 and 3 000 bits per second. High-speed circuits operate at speeds in excess of 3 000 bits per second.

Note 2.— The character count includes all printing and non-printing characters in the message from and including the start-of-heading character (SOH) to and including the end-of-text character.

4.4.15.4 Except as provided in 4.4.15.5 to 4.4.15.6 and 4.4.16, the procedures of 4.4.8 and 4.4.9 to 4.4.13 shall be used for messages using IA-5 code.

4.4.15.4.1 The transmission of message texts that do not require conversion to the IA-2 code and format and with message lines containing more than 69 printable and non-printable characters shall be subject to agreement between the Administrations concerned.

4.4.15.5 N/A

4.4.15.5.1 N/A

4.4.15.6 The receipt of distress messages (priority indicator SS, see 4.4.1.1.1) shall be individually acknowledged by the AFTN destination station by sending a service message (see 4.4.1.1.9) to the AFTN origin station. Such acknowledgement of receipt shall take the format of a complete message addressed to the AFTN origin station, shall be assigned priority indicator SS and the associated priority alarm (see 4.4.15.2.2.5), and shall have a text comprising:

1) the procedure signal R;

2) the origin line (see 4.4.15.2.2) without priority alarm, or optional heading information of the message being acknowledged;

3) the ending (see 4.4.15.3.12.1).

Note.— The following example illustrates the application of the 4.4.15.6 procedures:

Heading (see 4.4.15.1.1)

<≡ SS → LECBZRZX <≡

121322 → EGLLYFYX (Priority Alarm) <≡

S
TR → 121319 → LECBZRZX <≡
X

Ending (see 4.4.15.3.12.1).

4.4.16 Action taken on mutilated messages in IA-5 detected in computerized AFTN relay stations

4.4.16.1 On channels employing continuous control, the mutilation detection and subsequent recovery shall be a function of the link control procedures and shall not require the subsequent sending of service or CHECK TEXT NEW ENDING ADDED messages.

4.4.16.2 On channels not employing continuous control, the relay station shall employ the following procedures:

4.4.16.2.1 If, during the reception of a message a relay station detects that the message has been mutilated at some point ahead of the end-of-text character, it shall:

1) cancel the onward routing responsibility for the message;

2) send a service message to the transmitting station requesting a retransmission.

Note.— The following example illustrates a typical text of a service message in which the foregoing procedure has been applied in respect of a mutilated message:

SVC→QTA→RPT→ABC 123 (ending — see 4.4.15.3.12.1)

4.4.16.2.2 When the provisions of 4.4.16.2.1 are applied, the station receiving the service message shall reassume responsibility for the referenced message with a new (i.e. correct in sequence) transmission identification (see 4.4.15.2.1). If that station is not in possession of an unmutilated copy of the original message, it shall send a message to the originator as identified by the originator indicator in the origin of the mutilated message, requesting repetition of the incorrectly received message.

Note.— The following example illustrates a typical text of a service message in which the foregoing procedure has been applied in respect of a mutilated message having as its origin “141335 CYULACAX”:

SVC→QTA→RPT→141335→CYULACAX
(ending — see 4.4.15.3.12.1)

4.4.16.3 If, after transmission of the text material of a message, a relay station can detect that there is no complete end of-text character, but has no practical means of discovering whether the irregularity has affected only the end-of-text character, or whether it has also caused part of the original text to have been lost, it shall insert into the channel the following:

1) <≡CHECK≡TEXT≡

NEW →ENDING→ADDED

2) its own station identification;

3) (ending — see 4.4.15.3.12.1).

4.4.17 Transfer of AFTN messages over code and byte independent circuits and networks

When AFTN messages are transferred across code and byte independent circuits and networks of the AFS, the following shall apply.

4.4.17.1 Except as provided in 4.4.17.3, the heading line of the message shall be omitted. The message shall start with an alignment function followed by the address.

4.4.17.2 The message shall end with a complete ending.

4.4.17.3 F*or the purposes of technical supervision, entry centres should be permitted to insert additional data preceding the first alignment function and/or following the ending of the message. Such data may be disregarded by the receiving station.*

4.4.17.3.1 When the provisions of 4.4.17.3 are applied, the data added shall not include either carriage return or line feed characters or any of the combinations listed in 4.1.2.4.

4.5 COMMON ICAO DATA INTERCHANGE NETWORK (CIDIN) - N/A

4.6 ATS MESSAGE HANDLING SERVICES (ATSMHS)

The ATS message service of the ATS (air traffic services) message handling service (ATSMHS) application shall be used to exchange ATS messages between users over the aeronautical telecommunication network (ATN) internet.

Note 1.— The ATS message service comprised in the ATS message handling service application aims at providing generic message services over the ATN internet communication service (ICS). It may, in turn, be used as a communication system by user-applications communicating over the ATN. This may be achieved, for example, by means of application programme interfaces to the ATS message service.

Note 2.— The detailed specification of the ATS message handling service application is included in the Manual on Detailed Technical Specifications for the Aeronautical Telecommunication Network (ATN) using ISO/OSI Standards and Protocols (Doc 9880), Part II.

Note 3.— The ATS message service is provided by the implementation over the ATN internet communication service of the message handling systems specified in ISO/IEC (International Organization for Standardization/International Electrotechnical Commission) 10021 and ITU-T (International Telecommunication Union — Telecommunication Standardization Sector) X.400 and complemented by the additional requirements specified in the Manual on Detailed Technical Specifications for the Aeronautical Telecommunication Network (ATN) using ISO/OSI Standards and Protocols (Doc 9880), Part II. The two sets of documents, the ISO/IEC MOTIS (Message-Oriented Text Interchange System) International Standards and the ITU-T X.400 Series of Recommendations (1988 or later) are, in principle, aligned with each other. However, there are a small number of differences. In the above-mentioned document, reference is made to the relevant ISO International Standards and International Standardized Profiles (ISP), where applicable. Where necessary, e.g. for reasons of interworking or to point out differences, reference is also made to the relevant X.400 Recommendations.

Note 4.— The following types of ATN end systems performing ATS message handling services are defined in the Manual on Detailed Technical Specifications for the Aeronautical Telecommunication Network (ATN) using ISO/OSI Standards and Protocols (Doc 9880), Part II:

1) an ATS message server;

2) an ATS message user agent; and

3) an AFTN/AMHS gateway (aeronautical fixed telecommunication network/ATS message handling system).

Connections may be established over the internet communications service between any pair constituted of these ATN end systems (see Table 4-1).

Table 4-1. Communications between ATN end systems implementing ATS message handling services

ATN End System 1	ATN End System 2
ATS Message Server	ATS Message Server
ATS Message Server	AFTN/AMHS Gateway
ATS Message Server	ATS Message User Agent
AFTN/AMHS Gateway	AFTN/AMHS Gateway

4.7 INTER-CENTRE COMMUNICATIONS (ICC)

The inter-centre communications (ICC) applications set shall be used to exchange ATS messages between air traffic service users over the ATN internet.

Note 1.— The ICC applications set enables the exchange of information in support of the following operational services:

a) flight notification;

b) flight coordination;

c) transfer of control and communications;

d) flight planning;

e) airspace management; and

f) air traffic flow management.

Note 2.— The first of the applications developed for the ICC set is the ATS inter-facility data communication (AIDC).

Note 3.— The AIDC application exchanges information between ATS units (ATSUs) for support of critical air traffic control (ATC) functions, such as notification of flights approaching a flight information region (FIR) boundary, coordination of boundary conditions and transfer of control and communications authority.

CHAPTER 5 AERONAUTICAL MOBILE SERVICE — VOICE COMMUNICATIONS

5.1 GENERAL

Note 1.— For the purposes of these provisions, the communication procedures applicable to the aeronautical mobile service, as appropriate, also apply to the aeronautical mobile satellite service.

Note 2.— Guidance material for the implementation of the aeronautical mobile satellite service is contained in the Manual on the Aeronautical Mobile Satellite (Route) Service (Doc 9925). Additional guidance for satellite voice communications (SATVOICE) is contained in the Satellite Voice Operations Manual (Doc 10038) and the Performance-based Communication and Surveillance (PBCS) Manual (Doc 9869).

5.1.1 In all communications the highest standard of discipline shall be observed at all times.

5.1.1.1 ICAO standardized phraseology shall be used in all situations for which it has been specified. Only when standardized phraseology cannot serve an intended transmission, plain language shall be used.

Note.— Detailed language proficiency requirements appear in the Implementing Standard 092.

5.1.1.2 The transmission of messages, other than those specified in 5.1.8, on aeronautical mobile frequencies when the aeronautical fixed services are able to serve the intended purpose, shall be avoided.

5.1.1.3 I*n all communications, the consequences of human performance which could affect the accurate reception and comprehension of messages should be taken into consideration.*

Note.— Guidance material on human performance can be found in the Human Factors Training Manual (Doc 9683).

5.1.2 Where it is necessary for an aircraft station to send signals for testing or adjustment which are liable to interfere with the working of a neighbouring aeronautical station, the consent of the station shall be obtained before such signals are sent. Such transmissions shall be kept to a minimum.

5.1.3 When it is necessary for a station in the aeronautical mobile service to make test signals, either for the adjustment of a transmitter before making a call or for the adjustment of a receiver, such signals shall not continue for more than 10 seconds and shall be composed of spoken numerals (ONE, TWO, THREE, etc.) in radiotelephony, followed by the radio call sign of the station transmitting the test signals. Such transmissions shall be kept to a minimum.

5.1.4 Except as otherwise provided, the responsibility of establishing communication shall rest with the station having traffic to transmit.

Note.—In certain cases when SELCAL is used the procedures respecting the establishment of communications are contained in 5.2.4.

5.1.5 After a call has been made to the aeronautical station, a period of at least 10 seconds should elapse before a second call is made. This should eliminate unnecessary transmissions while the aeronautical station is getting ready to reply to the initial call.

5.1.6 When an aeronautical station is called simultaneously by several aircraft stations, the aeronautical station shall decide the order in which aircraft shall communicate.

5.1.7 In communications between aircraft stations, the duration of communication shall be controlled by the aircraft station which is receiving, subject to the intervention of an aeronautical station. If such communications take place on an ATS frequency, prior permission of the aeronautical station shall be obtained. Such requests for permission are not required for brief exchanges.

5.1.8 Categories of messages

The categories of messages handled by the aeronautical mobile service and the order of priority in the establishment of communications and the transmission of messages shall be in accordance with the following table.

Message category and order of priority signal	**Radiotelephony signal**
a) Distress calls, distress messages and distress traffic	MAYDAY
b) Urgency messages, including messages preceded by the medical transports signal	PAN, PAN or PAN PAN MEDICAL
c) Communications relating to direction finding	—
d) Flight safety messages	—
e) Meteorological messages	—
f) Flight regularity messages	—

Note 1.— Messages concerning acts of unlawful interference constitute a case of exceptional circumstances which may preclude the use of recognized communication procedures used to determine message category and priority.

Note 2.— A NOTAM may qualify for any of the categories or priorities c) to f) inclusive. The decision as to which priority will depend on the contents of the NOTAM and its importance to the aircraft concerned.

5.1.8.1 Distress messages and distress traffic shall be handled in accordance with the provisions of 5.3.

5.1.8.2 Urgency messages and urgency traffic, including messages preceded by the medical transports signal, shall be handled in accordance with the provisions of 5.3.

Note.— The term "medical transports" is defined in the 1949 Geneva Conventions and Additional Protocols (see also RR S33 Section III) and refers to "any means of transportation by land, water, or air, whether military or civilian, permanent or temporary, assigned exclusively to medical transportation and under the control of a competent authority of a Party to the conflict".

5.1.8.3 Communications relating to direction finding shall be handled in accordance with Chapter 6.

5.1.8.4 Flight safety messages shall comprise the following:

1) movement and control messages [*see* PANS-ATM (Doc 4444)];

2) messages originated by an aircraft operating agency or by an aircraft, of immediate concern to an aircraft in flight;

3) meteorological advice of immediate concern to an aircraft in flight or about to depart (individually communicated or for broadcast);

4) other messages concerning aircraft in flight or about to depart.

5.1.8.5 Meteorological messages shall comprise meteorological information to or from aircraft, other than those in 5.1.8.4, 3).

5.1.8.6 Flight regularity messages shall comprise the following:

1) messages regarding the operation or maintenance of facilities essential for the safety or regularity of aircraft operation;

2) messages concerning the servicing of aircraft;

3) instructions to aircraft operating agency representatives concerning changes in requirements for passengers and crew caused by unavoidable deviations from normal operating schedules. Individual requirements of passengers or crew shall not be admissible in this type of message;

4) messages concerning non-routine landings to be made by the aircraft;

5) messages concerning aircraft parts and materials urgently required;

6) messages concerning changes in aircraft operating schedules.

5.1.8.6.1 Air traffic services units using direct pilot controller communication channels shall only be required to handle flight regularity messages provided this can be achieved without interference with their primary role and no other channels are available for the handling of such messages.

Note.— The messages at 5.1.8.4, 2) and 5.1.8.6, 1) to 6) typify some of the operational control communications defined in Chapter 1.

5.1.8.7 M*essages having the same priority should, in general, be transmitted in the order in which they are received for transmission.*

5.1.8.8 Interpilot air-to-air communication shall comprise messages related to any matter affecting safety and regularity of flight. The category and priority of these messages shall be determined on the basis of their content in accordance with 5.1.8.

5.1.9 Cancellation of messages

5.1.9.1 Incomplete transmissions. If a message has not been completely transmitted when instructions to cancel are received, the station transmitting the message shall instruct the receiving station to disregard the incomplete transmission. This shall be effected in radiotelephony by use of an appropriate phrase.

5.1.9.2 Complete transmissions

W*hen a completed message transmission is being held pending correction and the receiving station is to be informed to take no forwarding action, or when delivery or onward relay cannot be accomplished, transmission should be cancelled. This should be effected in radiotelephony by the use of an appropriate phrase.*

5.1.9.3 The station canceling a transmission shall be responsible for any further action required.

5.2 RADIOTELEPHONY PROCEDURES

Note.— When Selective Calling (SELCAL) equipment is used certain of the following procedures are superseded by those contained in 5.2.4.

5.2.1 General

5.2.1.1 W*hen a controller or pilot communicates via voice, the response should be via voice. Except as provided by 8.2.12.1, when a controller or pilot communicates via CPDLC, the response should be via CPDLC.*

5.2.1.2 Language to be used

5.2.1.2.1 The air-ground radiotelephony communications shall be conducted in the English language.

Note 1.— N/A

Note 2.— The level of language proficiency required for aeronautical radiotelephony communications is specified in Implementing Standard 092.

5.2.1.2.2 The English language shall be available, on request from any aircraft station, at all stations on the ground serving designated airports and routes used by international air services.

5.2.1.2.3 The languages available at a given station on the ground shall form part of the Aeronautical Information Publications and other published aeronautical information concerning such facilities.

5.2.1.3 Word spelling in radiotelephony. When proper names, service abbreviations and words of which the spelling is doubtful are spelled out in radiotelephony the alphabet in Figure 5-1 shall be used.

Note 1.— The pronunciation of the words in the alphabet as well as numbers may vary according to the language habits of the speakers. In order to eliminate wide variations in pronunciation, posters illustrating the desired pronunciation are available from ICAO.

Note 2.— The Spelling Alphabet specified in 5.2.1.3 is also prescribed for use in the Maritime Mobile Service (ITU Radio Regulations, Appendix S14).

Letter	*Word*	*Approximate pronunciation*	
		International Phonetic Convention	*Latin alphabet representation*
A	**Alfa**	'ælfa	AL FAH
B	**Bravo**	'bra:'vo	BRAH VOH
C	**Charlie**	'tʃɑ:li *or* 'ʃɑ:li	CHAR LEE *or* SHAR LEE
D	**Delta**	'deltɑ	DELL TAH
E	**Echo**	'eko	ECK OH
F	**Foxtrot**	'fɔkstrɔt	FOKS TROT
G	**Golf**	gʌlf	GOLF
H	**Hotel**	ho:'tel	HO TELL
I	**India**	'indi·ɑ	IN DEE AH
J	**Juliett**	'dʒu:li·'et	JEW LEE ETT
K	**Kilo**	'ki:lo	KEY LOH
L	**Lima**	'li:mɑ	LEE MAH
M	**Mike**	maik	MIKE
N	**November**	no'vembə	NO VEM BER
O	**Oscar**	'ɔskɑ	OSS CAH
P	**Papa**	pə'pɑ	PAH PAH
Q	**Quebec**	ke'bek	KEH BECK
R	**Romeo**	'ro:mi·o	ROW ME OH
S	**Sierra**	si'erɑ	SEE AIR RAH
T	**Tango**	'tængo	TANG GO
U	**Uniform**	'ju:nifɔ:m *or* 'u:nifɔrm	YOU NEE FORM *or* OO NEE FORM
V	**Victor**	'viktɑ	VIK TAH
W	**Whiskey**	'wiski	WISS KEY
X	**X-ray**	'eks'rei	ECKS RAY
Y	**Yankee**	'jænki	YANG KEY
Z	**Zulu**	'zu:lu:	ZOO LOO
Note.— In the approximate representation using the Latin alphabet, syllables to be emphasized are underlined.			

Note 1.— The pronunciation of the words in the alphabet may vary according to the language habits of the speakers. In order to eliminate wide variations in pronunciation, posters illustrating the desired pronunciation are available from ICAO.

Note 2.— The Spelling Alphabet specified in 5.2.1.3 is also prescribed for use in the Maritime Mobile Service (ITU Radio Regulations, Appendix S14).

Figure 5-1. The Radiotelephony Spelling Alphabet (*see* 5.2.1.3)

5.2.1.4 TRANSMISSION OF NUMBERS IN RADIOTELEPHONY

5.2.1.4.1 TRANSMISSION OF NUMBERS

5.2.1.4.1.1 All numbers, except as prescribed in 5.2.1.4.1.2 to 5.2.1.4.1.6, shall be transmitted by pronouncing each digit separately.

Note.— The following examples illustrate the application of this procedure (see 5.2.1.4.3.1 for pronunciation).

Aircraft call signs	**transmitted as**
CCA 238	Air China **two three eight**
OAL 242	Olympic **two four two**

Headings	**transmitted as**
100 degrees	heading **one zero zero**
080 degrees	heading **zero eight zero**

Wind direction and speed	**transmitted as**
200 degrees 70 knots	wind **two zero zero** degrees **seven zero** knots
160 degrees 18 knots	wind **one six zero** degrees **one eight** knots gusting three zero knots gusting 30 knots

Runway	**transmitted as**
27	runway **two seven**
30	runway **three zero**

5.2.1.4.1.2 Flight levels shall be transmitted by pronouncing each digit separately except for the case of flight levels in whole hundreds, which shall be transmitted by pronouncing the digit of the whole hundred followed by the word HUNDRED.

Note.— The following examples illustrate the application of this procedure (see 5.2.1.4.3.1 for pronunciation).

Flight levels	**transmitted as**
FL 180	flight **level one eight zero**
FL 200	flight **level two hundred**

5.2.1.4.1.3 The altimeter setting shall be transmitted by pronouncing each digit separately except for the case of a setting of 1 000 hPa which shall be transmitted as ONE THOUSAND.

Note.— The following examples illustrate the application of this procedure (see 5.2.1.4.3.1 for pronunciation).

Altimeter setting	**transmitted as**
1009	QNH **one zero zero nine**
1000	QNH **one thousand**
993	QNH **nine nine three**

5.2.1.4.1.4 All numbers used in the transmission of transponder codes shall be transmitted by pronouncing each digit separately except that, when the transponder codes contain whole thousands only, the information shall be transmitted by pronouncing the digit in the number of thousands followed by the word THOUSAND.

Note.— The following examples illustrate the application of this procedure (see 5.2.1.4.3.1 for pronunciation).

Transponder codes	**transmitted as**
2400	squawk **two four zero zero**
1000	squawk **one thousand**
2000	squawk **two thousand**

5.2.1.4.1.5 All numbers used in the transmission of altitude, cloud height, visibility and runway visual range (RVR) information, which contain whole hundreds and whole thousands, shall be transmitted by pronouncing each digit in the number of hundreds or thousands followed by the word HUNDRED or THOUSAND as appropriate. Combinations of thousands and whole hundreds shall be transmitted by pronouncing each digit in the number of thousands followed by the word THOUSAND followed by the number of hundreds followed by the word HUNDRED.

Note.— The following examples illustrate the application of this procedure (see 5.2.1.4.3.1 for pronunciation).

Altitude	**transmitted as**
800	**eight hundred**
3 400	**three thousand four hundred**
12 000	**one two thousand**

Cloud height	**transmitted as**
2 200	**two thousand two hundred**
4 300	**four thousand three hundred**

Visibility	**transmitted as**
1 000	visibility **one thousand**
700	visibility **seven hundred**

Runway visual range	**transmitted as**
600	RVR **six hundred**
1 700	RVR **one thousand seven hundred**

5.2.1.4.1.6 When providing information regarding relative bearing to an object or to conflicting traffic in terms of the 12-hour clock, the information shall be given pronouncing the double digits as TEN, ELEVEN, or TWELVE [O'CLOCK].

5.2.1.4.1.7 Numbers containing a decimal point shall be transmitted as prescribed in 5.2.1.4.1.1, with the decimal point in appropriate sequence being indicated by the word DECIMAL.

Note 1.— The following examples illustrate the application of this procedure:

Number	**Transmitted as**
100.3	ONE ZERO ZERO DECIMAL THREE
38 143.9	THREE EIGHT ONE FOUR THREE DECIMAL NINE

Note 2.— For identification of VHF frequencies, the number of digits used after the decimal point are determined on the basis of the channel spacing (5.2.1.7.3.4.3 refers to frequencies separated by 25 kHz, 5.2.1.7.3.4.4 refers to frequencies separated by 8.33 kHz).

Note 3.— The channelling/frequency pairing relationship for 8.33 kHz and 25 kHz is found in Table 4-1 (bis), IS 044.

5.2.1.4.1.8 W*hen transmitting time, only the minutes of the hour should normally be required. Each digit should be pronounced separately. However, the hour should be included when any possibility of confusion is likely to result.*

Note.— The following example illustrates the application of this procedure when applying the provisions of 5.2.1.2.2:

Time	Statement
0920 (9:20 A.M.)	TOO ZE-RO or ZE-RO NIN-er TOO ZE-RO
1643 (4:43 P.M.)	FOW-er TREE or WUN SIX FOW-er TREE

5.2.1.4.2 VERIFICATION OF NUMBERS

5.2.1.4.2.1 When it is desired to verify the accurate reception of numbers, the person transmitting the message shall request the person receiving the message to read back the numbers.

5.2.1.4.3 PRONUNCIATION OF NUMBERS

5.2.1.4.3.1 When the language used for communication is English, numbers shall be transmitted using the following pronunciation:

Numeral or numeral element	Pronunciation
0	ZE-RO
1	WUN
2	TOO
3	TREE
4	FOW-er
5	FIFE
6	SIX
7	SEV-en
8	AIT
9	NIN-er
Decimal	DAY-SEE-MAL
Hundred	HUN-dred
Thousand	TOU-SAND

Note.— The syllables printed in capital letters in the above list are to be stressed; for example, the two syllables in ZE-RO are given equal emphasis, whereas the first syllable of FOW-er is given primary emphasis.

5.2.1.5 TRANSMITTING TECHNIQUE

5.2.1.5.1 E*ach written message should be read prior to commencement of transmission in order to eliminate unnecessary delays in communications.*

5.2.1.5.2 Transmissions shall be conducted concisely in a normal conversational tone.

Note.— See the language proficiency requirements in Implementing Standard 092.

5.2.1.5.3 S*peech transmitting technique should be such that the highest possible intelligibility is incorporated in each transmission. Fulfilment of this aim requires that air crew and ground personnel should:*

a) enunciate each word clearly and distinctly;

b) maintain an even rate of speech not exceeding 100 words per minute. When a message is transmitted to an aircraft and its contents need to be recorded the speaking rate should be at a slower rate to allow for the writing process. A slight pause preceding and following numerals makes them easier to understand;

c) maintain the speaking volume at a constant level;

d) be familiar with the microphone operating techniques particularly in relation to the maintenance of a constant distance from the microphone if a modulator with a constant level is not used;

e) suspend speech temporarily if it becomes necessary to turn the head away from the microphone.

5.2.1.5.4 S*peech transmitting technique should be adapted to the prevailing communications conditions.*

5.2.1.5.5 M*essages accepted for transmission should be transmitted in plain language or ICAO phraseologies without altering the sense of the message in any way. Approved ICAO abbreviations contained in the text of the message to be transmitted to aircraft should normally be converted into the unabbreviated words or phrases which these abbreviations represent in the language used, except for those which, owing to frequent and common practice, are generally understood by aeronautical personnel.*

Note.— The abbreviations which constitute the exceptions mentioned in 5.2.1.5.5 are specifically identified in the abbreviation encode sections of the PANS-ABC (Doc 8400).

5.2.1.5.6 T*o expedite communication, the use of phonetic spelling should be dispensed with, if there is no risk of this affecting correct reception and intelligibility of the message.*

5.2.1.5.7 T*he transmission of long messages should be interrupted momentarily from time to time to permit the transmitting operator to confirm that the frequency in use is clear and, if necessary, to permit the receiving operator to request repetition of parts not received.*

5.2.1.5.8 The following words and phrases shall be used in radiotelephony communications as appropriate and shall have the meaning ascribed hereunder:

Phrase	**Meaning**
ACKNOWLEDGE	"Let me know that you have received and understood this message."
AFFIRM	"Yes."
APPROVED	"Permission for proposed action granted."
BREAK	"I hereby indicate the separation between portions of the message." (To be used where there is no clear distinction between the text and other portions of the message.)

BREAK BREAK	"I hereby indicate the separation between messages transmitted to different aircraft in a very busy environment."
CANCEL	"Annul the previously transmitted clearance."
CHECK	"Examine a system or procedure." (Not to be used in any other context. No answer is normally expected.)
CLEARED	"Authorized to proceed under the conditions specified."
CONFIRM	"I request verification of: (clearance, instruction, action, information)."
CONTACT	"Establish communications with..."
CORRECT	"True" or "Accurate".
CORRECTION	"An error has been made in this transmission (*or* message indicated). The correct version is..."
DISREGARD	"Ignore."
HOW DO YOU READ"	"What is the readability of my transmission?- (see 5.2.1.8.4.)
I SAY AGAIN	"I repeat for clarity or emphasis."
MAINTAIN	"Continue in accordance with the condition(s) specified" or in its literal sense, e.g. "Maintain VFR".
MONITOR	"Listen out on (frequency)"
NEGATIVE	"No" or "Permission not granted" or" That is not correct" or "Not capable".
OVER	"My transmission is ended, and I expect a response from you."

Note – Not normally used in VHF communications.

OUT	"This exchange of transmissions is ended and no response is expected."

Note.— Not normally used in VHF or satellite voice communications.

READ BACK	"Repeat all, or the specified part, of this message back to me exactly as received."
RECLEARED	"A change has been made to your last clearance and this new clearance supersedes your previous clearance or part thereof."
REPORT	"Pass me the following information..."
REQUEST	"I should like to know..." or "I wish to obtain..."
ROGER	"I have received your entire last transmission."

Note – Under no circumstances to be used in reply to a question requiring" READ BACK" or a direct answer in the affirmative (AFFIRM) or negative(NEGATIVE).

SAY AGAIN	"Repeat all, or the following part, of your last transmission."
SPEAK SLOWER	"Reduce your rate of speech."

Note – For normal rate of speech, see 5.2.1.5.3b)

STANDBY	"Wait and I will call you."

Note – The caller would normally re-establish contact if the delay is lengthy. STANDBY is not an approval or denial.

UNABLE	"I cannot comply with your request, instruction, or clearance."

Note – UNABLE is normally followed by a reason.

WILCO	(Abbreviation for "will comply") "I understand your message and will comply with it."
WORDS TWICE	a) As a request: "Communication is difficult. Please send every word, or group of words, twice." b) As information: "Since communication is difficult, every word, or group of words, in this message will be sent twice."

5.2.1.6 Composition of messages

5.2.1.6.1 Messages handled entirely by the aeronautical mobile service shall comprise the following parts in the order stated:

a) call indicating the addressee and the originator (see 5.2.1.7.3);

b) text (see 5.2.1.6.2.1.1).

Note – The following examples illustrate the application of this procedure:

(call) NEW YORK RADIO SWISSAIR ONE ZERO

(text) REQUEST SELCAL CHECK

or

(call) SWISSAIR ONE ONE ZERO NEW YORK RADIO

(text) CONTACT SAN JUAN ON FIVE SIX

5.2.1.6.2 Messages requiring handling by the AFTN for part of their routing and similarly messages which are not handled in accordance with predetermined distribution arrangements (*see* 3.3.7.1) shall be composed as follows:

5.2.1.6.2.1 When originated in an aircraft:

1) call (see 5.2.1.7.3);

2) the word FOR;

3) the name of the organization addressed;

4) the name of the station of destination;

5) the text.

5.2.1.6.2.1.1 The text shall be as short as practicable to convey the necessary information; full use shall be made of ICAO phraseologies.

Note – The following example illustrates the application of this procedure:

(call) BOSTON RADIO SWISSAIR ONE TWO EIGHT

(address) FOR SWISSAIR BOSTON

(text) NUMBER ONE ENGINE CHANGE REQUIRED

5.2.1.6.2.2 When addressed to an aircraft. When a message, prepared in accordance with 4.4.2, is retransmitted by an aeronautical station to an aircraft in flight, the heading and address of the AFTN message format shall be omitted during the retransmission on the aeronautical mobile service.

5.2.1.6.2.2.1 When the provisions of 5.2.1.6.2.2 are applied, the aeronautical mobile service message transmission shall comprise:

a) the text [incorporating any corrections (COR) contained in the AFTN message];

b) the word FROM;

c) the name of the originating organization and its location (taken from the origin section of the AFTN message).

5.2.1.6.2.2.2 W*hen the text of a message to be transmitted by an aeronautical station to an aircraft in flight contains approved ICAO abbreviations, these abbreviations should normally be converted during the transmission of the message into the unabbreviated words or phrases which the abbreviations represent in the language used, except for those which, owing to frequent or common practice, are generally understood by aeronautical personnel.*

Note.— The abbreviations which constitute the exceptions mentioned in 5.2.1.6.2.2.2 are specifically identified in the abbreviations encode sections of the PANS-ABC (Doc 8400).

5.2.1.7 Calling

5.2.1.7.1 Radiotelephony call signs for aeronautical stations

The formation of call signs as specified in ITU Radio Regulations S19 Section III and Section VII.

5.2.1.7.1.1 Aeronautical stations in the aeronautical mobile service shall be identified by:

a) the name of the location; and

b) the unit or service available.

5.2.1.7.1.2 The unit or service shall be identified in accordance with the table below except that the name of the location or the unit/service may be omitted provided satisfactory communication has been established.

Unit/service available	*Call sign suffix*
area control centre	CONTROL
approach control	APPROACH
approach control radar arrivals	ARRIVAL
approach control radar departures	DEPARTURE
aerodrome control	TOWER
surface movement control	GROUND
radar (in general)	RADAR
precision approach radar	PRECISION
direction-finding station	HOMER
flight information service	INFORMATION
clearance delivery	DELIVERY
apron control	APRON
company dispatch	DISPATCH
aeronautical station	RADIO

5.2.1.7.2 Radiotelephony call signs for aircraft

5.2.1.7.2.1 Full call signs

5.2.1.7.2.1.1 An aircraft radiotelephony call sign shall be one of the following types:

Type a) — the characters corresponding to the registration marking of the aircraft; or

Type b) — the telephony designator of the aircraft operating agency, followed by the last four characters of the registration marking of the aircraft;

Type c) — the telephony designator of the aircraft operating agency, followed by the flight identification.

Note 1.— The name of the aircraft manufacturer or of the aircraft model may be used as a radiotelephony prefix to the Type a) call sign (see Table 5-1).

Note 2.— The telephony designators referred to in Types b) and c) are contained in Doc 8585 — Designators for Aircraft Operating Agencies, Aeronautical Authorities and Services.

Note 3.— Any of the foregoing call signs may be inserted in field 7 of the ICAO flight plan as the aircraft identification. Instructions on the completion of the flight plan form are contained in the PANS-ATM (Doc 4444).

5.2.1.7.2.2 Abbreviated call signs

5.2.1.7.2.2.1 The aircraft radiotelephony call signs shown in 5.2.1.7.2.1.1, with the exception of Type c), may be abbreviated in the circumstances prescribed in 5.2.1.7.3.3.1. Abbreviated call signs shall be in the following form:

Type a) — the first character of the registration and at least the last two characters of the call sign;

Type b) — the telephony designator of the aircraft operating agency, followed by at least the last two characters of the call sign;

Type c) — no abbreviated form

Note.— Either the name of the aircraft manufacturer or of the aircraft model may be used in place of the first character in Type a).

Table 5-1. Examples of full call signs and abbreviated call signs
(*see* 5.2.1.7.2.1 and 5.2.1.7.2.2)

	Type a)			*Type b)*	*Type c)*
Full call sign	N 57826	*CESSNA FABCD	*CITATION FABCD	VARIG PVMA	SCANDINAVIAN 937
Abbreviated call sign	N26 or N826	CESSNA CD or CESSNA BCD	CITATION CD or CITATION BCD	VARIG MA or VARIG VMA	(no abbreviated form)

* *Examples illustrate the application of Note 1 to 5.2.1.7.2.1.1.*

5.2.1.7.3 Radiotelephony procedures

5.2.1.7.3.1 An aircraft shall not change the type of its radiotelephony call sign during flight, except temporarily on the instruction of an air traffic control unit in the interests of Safety.

5.2.1.7.3.1.1 Except for reasons of safety no transmission shall be directed to an aircraft during take-off, during the last part of the final approach or during the landing roll.

5.2.1.7.3.2 Establishment of radiotelephony communications

5.2.1.7.3.2.1 Full radiotelephony call signs shall always be used when establishing communication. The calling procedure of an aircraft establishing communication shall be in accordance with Table 5-2.

Table 5-2. Radiotelephony calling procedure* (*see* 5.2.1.7.3.2.1)

	Type a)	*Type b)*	*Type c)*
Designation of the station called	NEW YORK RADIO	NEW YORK RADIO	NEW YORK RADIO
Designation of the station calling	GABCD**	SPEEDBIRD ABCD**	AEROFLOT 321**

** In certain cases where the call is initiated by the aeronautical station, the call may be effected by transmission of coded tone signals.

** With the exception of the telephony designators and the type of aircraft, each character in the call sign shall be spoken separately. When individual letters are spelled out, the radiotelephony spelling alphabet prescribed in 5.2.1.3 shall be used. Numbers are to be spoken in accordance with 5.2.1.4.

5.2.1.7.3.2.2 S*tations having a requirement to transmit information to all stations likely to intercept should preface such transmission by the general call ALL STATIONS, followed by the identification of the calling station.*

Note.— No reply is expected to such general calls unless individual stations are subsequently called to acknowledge receipt.

5.2.1.7.3.2.3 The reply to the above calls shall be in accordance with Table 5-3.The use of the calling aeronautical station's call sign followed by the answering aeronautical station's call sign shall be considered the invitation to proceed with transmission by the stations calling.

Table 5-3. Radiotelephony reply procedure (*see* 5.2.1.7.3.2.3)

	Type a)	*Type b)*	*Type c)*
Designation of the station called	GABCD*	SPEEDBIRD ABCD*	AEROFLOT 321*
Designation of the answering station	NEW YORK RADIO	NEW YORK RADIO	NEW YORK RADIO

* With the exception of the telephony designators and the type of aircraft, each character in the call sign shall be spoken separately. When individual letters are spelled out, the radiotelephony spelling alphabet prescribed in 5.2.1.3 shall be used. Numbers are to be spoken in accordance with 5.2.1.4.

5.2.1.7.3.2.4 W*hen a station is called but is uncertain of the identification of the calling station, it should reply by transmitting the following:*

STATION CALLING . . . (station called) SAY AGAIN YOUR CALL SIGN

Note.— The following example illustrates the application of this procedure:
(CAIRO station replying)

STATION CALLING CAIRO *(pause)* SAY AGAIN YOUR CALL SIGN

5.2.1.7.3.2.5 Communications shall commence with a call and a reply when it is desired to establish contact, except that, when it is certain that the station called will receive the call, the calling station may transmit the message, without waiting for a reply from the station called.

5.2.1.7.3.2.6 Interpilot air-to-air communication shall be established on the air-to-air channel 123.45 MHz by either a directed call to a specific aircraft station or a general call, taking into account conditions pertaining to use of this channel.

Note.— For conditions on use of air-to-air channels see 4.1.3.2.1 of IS 044 and 5.2.2.1.1.4 in this Implementing Standard.

5.2.1.7.3.2.6.1 A*s the aircraft may be guarding more than one frequency, the initial call should include the distinctive channel identification "INTERPILOT".*

Note.— The following examples illustrate the application of this calling procedure.
CLIPPER 123 — SABENA 901 — INTERPILOT — DO YOU READ

or

ANY AIRCRAFT VICINITY OF 30 NORTH 160 EAST — JAPANAIR 401 — INTERPILOT — OVER

5.2.1.7.3.3 Subsequent radiotelephony communications

5.2.1.7.3.3.1 Abbreviated radiotelephony call signs, as prescribed in 5.2.1.7.2.2, shall be used only after satisfactory communication has been established and provided that no confusion is likely to arise. An aircraft station shall use its abbreviated call sign only after it has been addressed in this manner by the aeronautical station.

5.2.1.7.3.3.2 After contact has been established, continuous two-way communication shall be permitted without further identification or call until termination of the contact.

5.2.1.7.3.3.3 In order to avoid any possible confusion, when issuing ATC clearances and reading back such clearances, controllers and pilots shall always add the call sign of the aircraft to which the clearance applies.

5.2.1.7.3.4 Indication of transmitting frequency

5.2.1.7.3.4.1 A*s the aeronautical station operator generally guards more than one frequency, the call should be followed by an indication of the frequency used, unless other suitable means of identifying the frequency are known to exist.*

5.2.1.7.3.4.2 W*hen no confusion is likely to arise, only the first two digits of the High Frequency (in kHz) need be used to identify the transmitting channel.*

Note.— The following example illustrates the application of this procedure:

(PAA 325 calling Kingston on 8 871 kHz)

KINGSTON CLIPPER THREE TWO FIVE — ON EIGHT EIGHT

5.2.1.7.3.4.3 E*xcept as specified in 5.2.1.7.3.4.4 all six digits of the numerical designator should be used to identify the transmitting channel in VHF radiotelephony communications. Except in the case of both the fifth and sixth digits being zeros in which case only the first four digits should be used.*

Note 1.— The following examples illustrate the application of this procedure in 5.2.1.7.3.4.3:

Channel	**Transmitted as**
118.000	ONE ONE EIGHT DECIMAL ZERO
118.005	ONE ONE EIGHT DECIMAL ZERO ZERO FIVE
118.010	ONE ONE EIGHT DECIMAL ZERO ONE ZERO
118.025	ONE ONE EIGHT DECIMAL ZERO TWO FIVE
118.050	ONE ONE EIGHT DECIMAL ZERO FIVE ZERO
118.100	ONE ONE EIGHT DECIMAL ONE

Note 2.— Caution must be exercised with respect to the indication of transmitting channels in VHF radiotelephony communications when all six digits of the numerical designator are used in airspace where communication channels are separated by 25 kHz, because on aircraft installations with a channel separation capability of 25 kHz or more, it is only possible to select the first five digits of the numerical designator on the radio management panel.

Note 3.— The numerical designator corresponds to the channel identification in IS 044, Table 4-1 (bis).

5.2.1.7.3.4.4 In air space where all VHF voice communication channels are separated by 25 kHz or more and the use of six digits as in 5.2.1.7.3.4.3 is not substantiated by the operational requirement determined by the Civil Aviation Authority of Sri Lanka, the first five digits of the numerical designator should be used except in the case of both the fifth and sixth digits being zeros, in which case only the first four digits should be used.

Note 1.— The following examples illustrate the application of the procedure in 5.2.1.7.3.4.4 and the associated settings of the aircraft radio management panel for communication equipment with channel separation capabilities of 25 kHz and 8.33/25 kHz:

Channel	Transmitted as	Radio management panel setting for communication equipment with	
		25 kHz (five Digits)	8.33/25 kHz (six digits)
118.000	ONE ONE EIGHT DECIMAL ZERO	118.00	118.000
118.025	ONE ONE EIGHT DECIMAL ZERO TWO	118.02	118.025
118.050	ONE ONE EIGHT DECIMAL ZERO FIVE	118.05	118.050

118.075	ONE ONE EIGHT DECIMAL ZERO SEVEN	118.07	118.075
118.100	ONE ONE EIGHT DECIMAL ONE	118.100	118.100

Note 2.— Caution must be exercised with respect to the indication of transmitting channels in VHF radiotelephony communications when five digits of the numerical designator are used in airspace where aircraft are also operated with channel separation capabilities of 8.33/25 kHz. On aircraft installations with a channel separation capability of 8.33 kHz and more, it is possible to select six digits on the radio management panel. It should therefore be ensured that the fifth and sixth digits are set to 25 kHz channels (see Note 1).

Note 3.— The numerical designator corresponds to the channel identification in IS 044, Table 4-1 (bis).

5.2.1.8 Test procedures

5.2.1.8.1 T*he form of test transmissions should be as follows:*

a) the identification of the station being called;

b) the aircraft identification;

c) the words "RADIO CHECK";

d) the frequency being used.

5.2.1.8.2 T*he reply to a test transmission should be as follows:*

a) the identification of the aircraft;

b) the identification of the aeronautical station replying;

c) information regarding the readability of the aircraft transmission.

5.2.1.8.3 T*he test transmission and reply thereto should be recorded at the aeronautical station.*

5.2.1.8.4 W*hen the tests are made, the following readability scale should be used:*

Readability Scale

1 Unreadable

2 Readable now and then

3 Readable but with difficulty

4 Readable

5 Perfectly readable

5.2.1.9 Exchange of communications

5.2.1.9.1 Communications shall be concise and unambiguous, using standard phraseology whenever available.

5.2.1.9.1.1 A*bbreviated procedures should only be used after initial contact has been established and where no confusion is likely to arise.*

5.2.1.9.2 Acknowledgement of receipt. The receiving operator shall make certain that the message has been received correctly before acknowledging receipt.

Note.—Acknowledgement of receipt is not to be confused with acknowledgement of intercept in radiotelephony network operations.

5.2.1.9.2.1 When transmitted by an aircraft station, the acknowledgement of receipt of a message shall comprise the call sign of that aircraft.

5.2.1.9.2.2 A*n aircraft station should acknowledge receipt of important air traffic control messages or parts thereof by reading them back and terminating the read back by its radio call sign.*

Note 1.—Air traffic control clearances, instructions and information requiring read back are specified in PANS-ATM (Doc 4444).

Note 2.— The following example illustrates the application of this procedure:
(ATC clearance by network station to an aircraft*)*

Station:

TWA NINE SIX THREE MADRID

Aircraft:

MADRID TWA NINE SIX THREE

Station*:*

TWA NINE SIX THREE MADRID — ATC CLEARS TWA NINE SIX THREE TO DESCEND TO NINE THOUSAND FEET

Aircraft (acknowledging):

CLEARED TO DESCEND TO NINE THOUSAND FEET — TWA NINE SIX THREE

Station (denoting accuracy of read-back):

MADRID

5.2.1.9.2.3 When acknowledgement of receipt is transmitted by an aeronautical station:

1) to an aircraft station: it shall comprise the call sign of the aircraft, followed if considered necessary by the call sign of the aeronautical station;

2) to another aeronautical station: it shall comprise the call sign of the aeronautical station that is acknowledging receipt.

5.2.1.9.2.3.1 A*n aeronautical station should acknowledge position reports and other flight progress reports by reading back the report and terminating the read back by its call sign, except that the read back procedure may be suspended temporarily whenever it will alleviate congestion on the communication channel.*

5.2.1.9.2.4 I*t is permissible for verification for the receiving station to read back the message as an additional acknowledgement of receipt. In such instances, the station to which the information is read back should acknowledge the correctness of read back by transmitting its call sign.*

5.2.1.9.2.5 I*f both position report and other information such as weather reports — are received in the same message, the information should be acknowledged with the words such as "WEATHER RECEIVED" after the position report has been read back, except when intercept of the information is required by other network stations. Other messages should be acknowledged, the aeronautical station transmitting its call sign only.*

5.2.1.9.3 End of conversation. A radiotelephone conversation shall be terminated by the receiving station using its own call sign.

5.2.1.9.4 CORRECTIONS AND REPETITIONS

5.2.1.9.4.1 When an error has been made in transmission, the word "CORRECTION" shall be spoken, the last correct group or phrase repeated, and then the correct version transmitted.

5.2.1.9.4.2 If a correction can best be made by repeating the entire message, the operator shall use the phrase "CORRECTION, I SAY AGAIN" before transmitting the message a second time.

5.2.1.9.4.3 Wh*en an operator transmitting a message considers that reception is likely to be difficult, he should transmit the important elements of the message twice.*

5.2.1.9.4.4 If the receiving operator is in doubt as to the correctness of the message received, he shall request repetition either in full or in part.

5.2.1.9.4.5 If repetition of an entire message is required, the words "SAY AGAIN" shall be spoken. If repetition of a portion of a message is required, the operator shall state: "SAY AGAIN ALL BEFORE... (First word satisfactorily received)"; or "SAY AGAIN...(word before missing portion) TO...(word after missing portion)"; or "SAY AGAIN ALL AFTER...(last word satisfactorily received)".

5.2.1.9.4.6 S*pecific items should be requested, as appropriate, such as "SAY AGAIN ALTIMETER", "SAY AGAIN WIND".*

5.2.1.9.4.7 If, in checking the correctness of a read back, an operator notices incorrect items, he shall transmit the words "NEGATIVE I SAY AGAIN" at the conclusion of the readback followed by the correct version of the items concerned.

5.2.1.9.5 "OPERATIONS NORMAL" REPORTS

When "operations normal" reports are transmitted by aircraft, they should consist of the prescribed call followed by the words "OPERATIONS NORMAL".

5.2.2 Establishment and assurance of communications

5.2.2.1 COMMUNICATIONS WATCH/ HOURS OF SERVICE

5.2.2.1.1 During flight, aircraft stations shall maintain watch as required by the ANSP and shall not cease watch, except for reasons of safety, without informing the aeronautical station(s) concerned.

5.2.2.1.1.1 Aircraft on long over-water flights, or on flights over designated areas over which the carriage of an emergency locator transmitter (ELT) is required, shall continuously guard the VHF emergency frequency 121.5 MHz, except for those periods when aircraft are carrying out communications on other VHF channels or when airborne equipment limitations or cockpit duties do not permit simultaneous guarding of two channels.

5.2.2.1.1.2 Aircraft shall continuously guard the VHF emergency frequency 121.5 MHz in areas or over routes where the possibility of interception of aircraft or other hazardous situations exist, and a requirement has been established by the ANSP.

5.2.2.1.1.3 A*ircraft on flights other than those specified in 5.2.2.1.1.1 and 5.2.2.1.1.2 should guard the emergency frequency 121.5 MHz to the extent possible.*

5.2.2.1.1.4 The user of the air-to-air VHF communications channel shall ensure that adequate watch is maintained on designated ATS frequencies, the frequency of the aeronautical emergency channel, and any other mandatory watch frequencies.

5.2.2.1.2 Aeronautical stations shall maintain watch as required by the ANSP.

5.2.2.1.3 Aeronautical stations shall maintain a continuous listening watch on VHF emergency channel 121.5 MHz during the hours of service of the units at which it is installed.

Note.— See IS 044, 4.1.3.1.1 for provisions related to the utilization of 121.5 MHz at aeronautical stations.

5.2.2.1.4 When it is necessary for an aircraft station or aeronautical station to suspend operation for any reason, it shall, if possible, so inform other stations concerned, giving the time at which it is expected that operation will be resumed. When operation is resumed, other stations concerned shall be so informed.

5.2.2.1.4.1 When it is necessary to suspend operation beyond the time specified in the original notice, a revised time of resumption of operation shall, if possible, be transmitted at or near the time first specified.

5.2.2.1.5 T*hat when two or more ATS frequencies are being used by a controller, consideration should be given to providing facilities to allow ATS and aircraft transmissions on any of the frequencies to be simultaneously retransmitted on the other frequencies in use thus permitting aircraft stations within range to hear all transmissions to and from the controller.*

5.2.2.2 PRINCIPLES OF NETWORK OPERATION (HF COMMUNICATIONS)

5.2.2.2.1 T*he aeronautical stations of a radiotelephony network should assist each other in accordance with the following network principles, in order to provide the air-ground communication service required of the network by aircraft flying on the air routes for which the network is responsible.*

5.2.2.2.2 W*hen the network comprises a large number of stations, network communications for flights on any individual route segment should be provided by selected stations, termed "regular stations" for that segment.*

Note 1.— The selection of stations to act as regular stations for a particular route segment will, where necessary, be undertaken by regional or local agreement, after consultation, if necessary, between the States responsible for the network.

Note 2.— In principle, the regular stations will be those serving the locations immediately concerned with flights on that route segment, i.e. points of take-off and landing, appropriate flight information centres or area control centres and, in some cases, additional suitably located stations required to complete the communication coverage or for intercept purposes.

Note 3.— In selecting the regular stations, account will be taken of the propagation characteristics of the frequencies used.

5.2.2.2.3 I*n areas or on routes where radio conditions, length of flights or distance between aeronautical stations require additional measures to ensure continuity of air-ground communication throughout the route segment, the regular stations should share between them a responsibility of primary guard whereby each station will provide the primary guard for that portion of the flight during which the messages from the aircraft can be handled most effectively by that station.*

5.2.2.2.4 D*uring its tenure of primary guard, each regular station should, among other things:*

a) be responsible for designating suitable primary and secondary frequencies for its communications with the aircraft;

b) receive all position reports and handle other messages from and to the aircraft essential to the safe conduct of the flight;

c) be responsible for the action required in case of failure of communications (see 5.2.2.7.2).

5.2.2.2.5 T*he transfer of primary guard from one station to the next will normally take place at the time of the traversing of flight information region or control area boundaries, this guard being provided at any time, as far as possible, by the station serving the flight information centre or area control centre in whose area the aircraft is flying.*

However, where communication conditions so demand, a station may be required to retain primary guard beyond such geographical boundaries or release its guard before the aircraft reaches the boundary, if appreciable improvement in air-ground communication can be effected thereby.

5.2.2.3 FREQUENCIES TO BE USED

5.2.2.3.1 Aircraft stations shall operate on the appropriate radio frequencies.

5.2.2.3.1.1 The air-ground control radio station shall designate the frequency (ies) to be used under normal conditions by aircraft stations operating under its control.

5.2.2.3.1.2 I*n network operation, the initial designation of primary and secondary frequencies should be made by the network station with which the aircraft makes pre-flight check or its initial contact after take-off. This station should also ensure that other network stations are advised, as required, of the frequency (ies) designated.*

5.2.2.3.2 A*n aeronautical station, when designating frequencies in accordance with 5.2.2.3.1.1 or 5.2.2.3.1.2, should take into account the appropriate propagation data and distance over which communications are required.*

5.2.2.3.3 I*f a frequency designated by an aeronautical station proves to be unsuitable, the aircraft station should suggest an alternative frequency.*

5.2.2.3.4 W*hen, notwithstanding the provisions of 5.1.1, air-ground frequencies are used for the exchange between network stations of messages essential for coordination and cooperation between the stations, such communication should, so far as possible, be effected over network frequencies not being used at that time for the bulk of the air-ground traffic. In all cases, the communication with aircraft stations should take priority over the inter-ground station communications.*

5.2.2.4 ESTABLISHMENT OF COMMUNICATIONS

5.2.2.4.1 Aircraft stations shall, if possible, communicate directly with the air-ground control radio station appropriate to the area in which the aircraft are flying. If unable to do so, aircraft stations shall use any relay means available and appropriate to transmit messages to the air-ground control radio station.

5.2.2.4.2 When normal communications from an aeronautical station to an aircraft station cannot be established, the aeronautical station shall use any relay means available and appropriate to transmit messages to the aircraft station. If these efforts fail, the originator shall be advised in accordance with procedures prescribed by the ANSP.

5.2.2.4.3 W*hen, in network operation, communication between an aircraft station and a regular station has not been established after calls on the primary and secondary frequencies, aid should be rendered by one of the other regular stations for that flight, either by calling the attention of the station first called or, in the case of a call made by an aircraft station, by answering the call and taking the traffic.*

5.2.2.4.3.1 O*ther stations of the network should render assistance by taking similar action only if attempts to establish communications by the regular stations have proved unsuccessful.*

5.2.2.4.4 T*he provisions of 5.2.2.4.3 and 5.2.2.4.3.1 should also be applied:*

a) on request of the air traffic services unit concerned;

b) when an expected communication from an aircraft has not been received within a time period such that the occurrence of a communication failure is suspected.

Note.— A specific time period may be prescribed by the appropriate ATS Authority.

5.2.2.5 TRANSFER OF HF COMMUNICATIONS

5.2.2.5.1 A*n aircraft station should be advised by the appropriate aeronautical station to transfer from one radio frequency or network to another. In the absence of such advice, the aircraft station should notify the appropriate aeronautical station before such transfer takes place.*

5.2.2.5.2 I*n the case of transfer from one network to another, the transfer should preferably take place while the aircraft is in communication with a station operating in both networks to ensure continuity of communications. If, however, the change of network must take place concurrently with the transfer of communication to another network station, the transfer should be coordinated by the two network stations prior to advising or authorizing the frequency change. The aircraft should also be advised of the primary and secondary frequencies to be used after the transfer.*

5.2.2.5.3 An aircraft station which has transferred communications watch from one radio frequency to another shall, when so required by the appropriate ATS Authority, inform the aeronautical station concerned that communications watch has been established on the new frequency.

5.2.2.5.4 W*hen entering a network after takeoff, an aircraft station should transmit its take-off time or time over the last check-point, to the appropriate regular station.*

5.2.2.5.5 W*hen entering a new network, an aircraft station should transmit the time over the last checkpoint, or of its last reported position, to the appropriate regular station.*

5.2.2.5.6 B*efore leaving the network, an aircraft station should in all cases advise the appropriate regular station of its intention to do so by transmitting one of the following phrases, as appropriate:*

a) when transferring to a pilot-to-controller channel:

Aircraft: CHANGING TO . . . (air traffic services unit concerned

b) after landing:

Aircraft: LANDED . . . (location) . . . (time)

5.2.2.6 TRANSFER OF VHF COMMUNICATIONS

5.2.2.6.1 An aircraft shall be advised by the appropriate aeronautical station to transfer from one radio frequency to another in accordance with agreed procedures. In the absence of such advice, the aircraft station shall notify the appropriate aeronautical station before such a transfer takes place.

5.2.2.6.2 When establishing initial contact on, or when leaving, a VHF frequency, an aircraft station shall transmit such information as may be prescribed by the ANSP.

5.2.2.7 VOICE COMMUNICATIONS FAILURE

5.2.2.7.1 AIR-GROUND

5.2.2.7.1.1 When an aircraft station fails to establish contact with the aeronautical station on the designated frequency, it shall attempt to establish contact on another frequency appropriate to the route. If this attempt fails, the aircraft station shall attempt to establish communication with other aircraft or other aeronautical stations on frequencies appropriate to the route. In addition, an aircraft operating within a network shall monitor the appropriate VHF frequency for calls from nearby aircraft.

5.2.2.7.1.2 If the attempts specified under 5.2.2.7.1.1 fail, the aircraft station shall transmit its message twice on the designated frequency (ies), preceded by the phrase “TRANSMITTING BLIND” and, if necessary, include the addressee(s) for which the message is intended.

5.2.2.7.1.2.1 I*n network operation, a message which is transmitted blind should be transmitted twice on both primary and secondary frequencies. Before changing frequency, the aircraft station should announce the frequency to which it is changing.*

5.2.2.7.1.3 Receiver failure

5.2.2.7.1.3.1 When an aircraft station is unable to establish communication due to receiver failure, it shall transmit reports at the scheduled times, or positions, on the frequency in use, preceded by the phrase “TRANSMITTING BLIND DUE TO RECEIVER FAILURE”. The aircraft station shall transmit the intended message, following this by a complete repetition. During this procedure, the aircraft shall also advise the time of its next intended transmission.

5.2.2.7.1.3.2 An aircraft which is provided with air traffic control or advisory service shall, in addition to complying with 5.2.2.7.1.3.1, transmit information regarding the intention of the pilot-in-command with respect to the continuation of the flight of the aircraft.

5.2.2.7.1.3.3 When an aircraft is unable to establish communication due to airborne equipment failure it shall, when so equipped, select the appropriate SSR code to indicate radio failure.

Note.— General rules which are applicable in the event of communications failure are contained in IS 026.

5.2.2.7.2 GROUND-TO-AIR

5.2.2.7.2.1 When an aeronautical station has been unable to establish contact with an aircraft station after calls on the frequencies on which the aircraft is believed to be listening, it shall:

a) request other aeronautical stations to render assistance by calling the aircraft and relaying traffic, if necessary;

b) request aircraft on the route to attempt to establish communication with the aircraft and relay traffic, if necessary.

5.2.2.7.2.2 The provisions of 5.2.2.7.2.1 shall also be applied:

a) on request of the air traffic services unit concerned;

b) when an expected communication from an aircraft has not been received within a time period such that the occurrence of a communication failure is suspected.

Note.— A specific time period may be prescribed by the appropriate ATS Authority.

5.2.2.7.2.3 I*f the attempts specified in 5.2.2.7.2.1 fail, the aeronautical station should transmit messages addressed to the aircraft, other than messages containing air traffic control clearances, by blind transmission on the frequency (ies) on which the aircraft is believed to be listening.*

5.2.2.7.2.4 Blind transmission of air traffic control clearances shall not be made to aircraft, except at the specific request of the originator.

5.2.2.7.3 Notification of communications failure. The air-ground control radio station shall notify the appropriate air traffic services unit and the aircraft operating agency, as soon as possible, of any failure in air-ground communication.

5.2.3 HF message handling

5.2.3.1 General

5.2.3.1.1 W*hen operating within a network, an aircraft station should, in principle, whenever communications conditions so permit, transmit its messages to the stations of the network from which they can be most readily delivered to their ultimate destinations. In particular, aircraft reports required by air traffic services should be transmitted to the network station serving the flight information centre or area control centre in whose area the aircraft is flying. Conversely, messages to aircraft in flight should, whenever possible, be transmitted directly to the aircraft by the network station serving the location of the originator.*

Note.— Exceptionally, an aircraft may need to communicate with an aeronautical station outside the network appropriate to its particular route segment. This is permissible, provided it can be done without interrupting the continuous watch with the communication network appropriate to the route segment, when such watch is required by the appropriate ATS Authority, and provided it does not cause undue interference with the operation of other aeronautical stations.

5.2.3.1.2 M*essages passed from an aircraft to a network station should, whenever possible, be intercepted and acknowledged by other stations of the network, which serve locations where the information is also required.*

Note 1.— Determination of the arrangements for dissemination of air-ground messages without address will be a matter for multilateral or local agreement.

Note 2.— In principle, the number of stations required to intercept are to be kept to a minimum consistent with the operational requirement.

5.2.3.1.2.1 A*cknowledgement of intercept should be made immediately after the acknowledgement of receipt by the station to which the message was passed.*

5.2.3.1.2.2 A*cknowledgement of an intercept message should be made by transmitting the radio call sign of the station having intercepted the message, followed by the word ROGER, if desired, and the call sign of the station having transmitted the message.*

5.2.3.1.2.3 I*n the absence of acknowledgement of intercept within one minute, the station accepting the message from the aircraft should forward it, normally over the aeronautical fixed service, to the station(s) which have failed to acknowledge intercept.*

5.2.3.1.2.3.1 I*f, in abnormal circumstances, forwarding is necessary using the air-ground channels, the provisions of 5.2.2.3.4 should be observed.*

5.2.3.1.2.4 W*hen such forwarding is done over the aeronautical fixed telecommunication network, the messages should be addressed to the network station(s) concerned.*

5.2.3.1.2.5 T*he station(s) to which the messages have been forwarded should carry out local distribution of them in the same way as if they had been received directly from the aircraft over the air-ground channel.*

5.2.3.1.2.6 The aeronautical station receiving an air report or a message containing meteorological information transmitted by an aircraft in flight shall forward the message without delay:

1) to the air traffic services unit and meteorological offices associated with the station;

2) to the aircraft operating agency concerned or its representative when that agency has made a specific request to receive such messages.

5.2.3.1.3 T*he provisions of 5.2.3.1.2 should also be applied, if practicable, in non-network operation.*

5.2.3.1.4 W*hen a message addressed to an aircraft in flight is received by the aeronautical station included in the address, and when that station is not able to establish communication with the aircraft to which the message is addressed, the message should be forwarded to those aeronautical stations on the route which may be able to establish communication with the aircraft.*

Note.— This does not preclude the transmission by the forwarding aeronautical station, of the original message to the aircraft addressed, if the forwarding station is later able to communicate with that aircraft.

5.2.3.1.4.1 I*f the aeronautical station to which the message is addressed is unable to dispose of the message in accordance with 5.2.3.1.4, the station of origin should be advised.*

5.2.3.1.4.2 The aeronautical station forwarding the message shall amend the address thereof, by substituting for its own location indicator the location indicator of the aeronautical station to which the message is being forwarded.

5.2.3.2 TRANSMISSION OF ATS MESSAGES TO AIRCRAFT

5.2.3.2.1 I*f it is not possible to deliver an ATS message to the aircraft within the time specified by ATS, the aeronautical station should notify the originator. Thereafter, it should take no further action with respect to this message unless specifically instructed by ATS.*

5.2.3.2.2 I*f delivery of an ATS message is uncertain because of inability to secure an acknowledgement, the aeronautical station should assume that the message has not been received by the aircraft and should advise the originator immediately that, although the message has been transmitted, it has not been acknowledged.*

5.2.3.2.3 T*he aeronautical station, having received the message from ATS, should not delegate to another station the responsibility for delivery of the message to the aircraft. However, in case of communication difficulties, other stations should assist, when requested, in relaying the message to the aircraft. In this case, the station having received the message from ATS should obtain without delay definite assurance that the aircraft has correctly acknowledged the message.*

5.2.3.3 RECORDING OF AIR-GROUND COMMUNICATIONS ON TELETYPEWRITER

5.2.3.3.1 W*hen recording on teletypewriter, the following procedure should be used:*

a) each line should begin at the left margin;

b) a new line should be used for each transmission;

c) each communication should contain some or all of the following items in the order shown:

1) call sign of the calling station;

2) text of the message;

3) call sign of the station called or the receiving station, followed by the appropriate abbreviation to indicate "Received", "Readback", or "No reply heard";

4) *call sign of station(s) acknowledging intercept followed by appropriate abbreviation to indicate "Received";*

5) *designation of frequency used;*

6) *time in UTC of the communication;*

d) *missing parts of the message text should be indicated by typing the three periods (space . space . space . space) or three letters M (space M space M space M space);*

e) *Correction of typing errors should be made by keyboard manipulation (space E space E space E space), followed by the correct information. Errors detected after the completion of the entry should be corrected after the last entry, using the abbreviation COR, followed by the correct information.*

5.2.4 SELCAL procedures

Note.— The procedures contained in 5.2.4 are applicable when SELCAL is used and replace certain of the procedures related to calling contained in 5.2.1.

5.2.4.1 General

5.2.4.1.1 W*ith the selective calling system known as SELCAL, the voice calling is replaced by the transmission of coded tones to the aircraft over the radiotelephony channels. A single selective call consists of a combination of four pre-selected audio tones whose transmission requires approximately 2 seconds. The tones are generated in the aeronautical station coder and are received by a decoder connected to the audio output of the airborne receiver. Receipt of the assigned tone code (SELCAL code) activates a cockpit call system in the form of light and/or chime signals.*

Note.— Due to the limited number of SELCAL codes, similar code assignments to multiple aircraft may be expected. Therefore, the use of correct radiotelephony (RTF) procedures contained in this chapter is emphasized when establishing communications via SELCAL.

5.2.4.1.2 S*ELCAL should be utilized by suitably equipped stations for ground-to-air selective calling on the en-route HF and VHF radio channels.*

5.2.4.1.3 O*n aircraft equipped with SELCAL, the pilot is still able to keep a conventional listening watch if required.*

5.2.4.2 NOTIFICATION TO AERONAUTICAL STATIONS OF AIRCRAFT SELCAL CODES

5.2.4.2.1 I*t is the responsibility of the aircraft operating agency and the aircraft to ensure that all aeronautical stations, with which the aircraft would normally communicate during a particular flight, know the SELCAL code associated with its radiotelephony call sign.*

5.2.4.2.2 W*hen practicable, the aircraft operating agency should disseminate to all aeronautical stations concerned, at regular intervals, a list of SELCAL codes assigned to its aircraft or flights.*

5.2.4.2.3 T*he aircraft should:*

a) Include the SELCAL code in the flight plan submitted to the appropriate air traffic services unit; and

b) ensure that the HF aeronautical station has the correct SELCAL code information by establishing communications temporarily with the HF aeronautical station while still within VHF coverage.

Note.— Provisions regarding completion of the flight plan are set forth in the PANS-ATM (Doc 4444).

5.2.4.3 PRE-FLIGHT CHECK

5.2.4.3.1 T*he aircraft station should contact the appropriate aeronautical station and request a pre-flight SELCAL check and, if necessary, give its SELCAL code.*

5.2.4.3.2 W*hen primary and secondary frequencies are assigned, a SELCAL check should normally be made first on the secondary frequency and then on the primary frequency. The aircraft station would then be ready for continued communication on the primary frequency.*

5.2.4.3.3 S*hould the pre-flight check reveal that either the ground or airborne SELCAL installation is inoperative, the aircraft should maintain a continuous listening watch on its subsequent flight until SELCAL again becomes available.*

5.2.4.4 ESTABLISHMENT OF COMMUNICATIONS

5.2.4.4.1 W*hen an aeronautical station initiates a call by SELCAL, the aircraft replies with its radio call sign, followed by the phrase "GO AHEAD".*

5.2.4.5 EN-ROUTE PROCEDURES

5.2.4.5.1 A*ircraft stations should ensure that the appropriate aeronautical station(s) are aware that SELCAL watch is being established or maintained.*

5.2.4.5.2 W*hen so prescribed on the basis of regional air navigation agreements, calls for scheduled reports from aircraft may be initiated by an aeronautical station by means of SELCAL.*

5.2.4.5.3 O*nce SELCAL watch has been established by a particular aircraft station, aeronautical stations should employ SELCAL whenever they require to call aircraft.*

5.2.4.5.4 I*n the event the SELCAL signal remains unanswered after two calls on the primary frequency and two calls on the secondary frequency, the aeronautical station should revert to voice calling.*

5.2.4.5.5 S*tations in a network should keep each other immediately advised when malfunctioning occurs in a SELCAL installation on the ground or in the air. Likewise, the aircraft should ensure that the aeronautical stations concerned with its flight are immediately made aware of any malfunctioning of its SELCAL installation, and that voice calling is necessary.*

5.2.4.5.6 A*ll stations should be advised when the SELCAL installation is again functioning normally.*

5.2.4.6 SELCAL CODE ASSIGNMENT AIRCRAFT

5.2.4.6.1 I*n principle, the SELCAL code in the aircraft should be associated with the radiotelephony call sign, i.e. where the flight number (service number) is employed in the radio call sign, the SELCAL code in the aircraft should be listed against the flight number. In all other cases, the SELCAL code in the aircraft should be listed against the aircraft registration.*

Note.— The use of aircraft radio call signs, consisting of the airline abbreviation followed by the flight service number, is increasing among aircraft operators throughout the world. The SELCAL equipment in aircraft should, therefore, be of a type which permits a particular code being associated with a particular flight number, i.e. equipment which is capable of adjustment in code combinations. At this stage, however, many aircraft still carry SELCAL equipment of the single code type, and it will not be possible for aircraft with such equipment to satisfy the principle set out above. This should not militate against use of the flight number type of radio call sign by an aircraft so equipped if it wishes to apply this type of call sign, but it is essential

when a single code airborne equipment is used in conjunction with a flight number type radio call sign that the ground stations be advised in connection with each flight of the SELCAL code available in the aircraft.

5.3 DISTRESS AND URGENCY RADIOTELEPHONY COMMUNICATION PROCEDURES

5.3.1 General

Note.— The distress and urgency procedures contained in 5.3 relate to the use of radiotelephony. The provisions of Article S30 and Appendix S13 of the ITU Radio Regulations are generally applicable, except that S30.9 permits other procedures to be employed where special arrangements between governments exist, and are also applicable to radiotelephony communications between aircraft stations and stations in the maritime mobile service.

5.3.1.1 Distress and urgency traffic shall comprise all radiotelephony messages relative to the distress and urgency conditions respectively. Distress and urgency conditions are defined as:

a) Distress: a condition of being threatened by serious and/or imminent danger and of requiring immediate assistance.

b) Urgency: a condition concerning the safety of an aircraft or other vehicle, or of some person on board or within sight, but which does not require immediate assistance.

5.3.1.2 The radiotelephony distress signal MAYDAY and the radiotelephony urgency signal PAN PAN shall be used at the commencement of the first distress and urgency communication respectively.

5.3.1.2.1 At the commencement of any subsequent communication in distress and urgency traffic, it shall be permissible to use the radiotelephony distress and urgency signals.

5.3.1.3 The originator of messages addressed to an aircraft in distress or urgency condition shall restrict to the, minimum the number and volume and content of such messages as required by the condition.

5.3.1.4 If no acknowledgement of the distress or urgency message is made by the station addressed by the aircraft, other stations shall render assistance, as prescribed in 5.3.2.2 and 5.3.3.2 respectively.

Note.— "Other stations" is intended to refer to any other station which has received the distress or urgency message and has become aware that it has not been acknowledged by the station addressed.

5.3.1.5 Distress and urgency traffic shall normally be maintained on the frequency on which such traffic was initiated until it is considered that better assistance can be provided by transferring that traffic to another frequency.

Note.— 121.5 MHz or alternative available VHF or HF frequencies may be used as appropriate.

5.3.1.6 In cases of distress and urgency communications, in general, the transmissions by radiotelephony shall be made slowly and distinctly, each word being clearly pronounced to facilitate transcription.

5.3.2 RADIOTELEPHONY DISTRESS COMMUNICATIONS

5.3.2.1 ACTION BY THE AIRCRAFT IN DISTRESS

5.3.2.1.1 In addition to being preceded by the radiotelephony distress signal MAYDAY (see 5.3.1.2), preferably spoken three times, and the distress message to be sent by an aircraft in distress shall:

a) be on the air-ground frequency in use at the time;

b) consist of as many as possible of the following elements spoken distinctly and, if possible, in the following order:

1) name of the station addressed (time and circumstances permitting);

2) the identification of the aircraft;

3) the nature of the distress condition;

4) intention of the person in command;

5) present position, level (i.e. flight level, altitude, etc., as appropriate) and heading.

Note 1.— The foregoing provisions may be supplemented by the following measures:

a) the distress message of an aircraft in distress being made on the emergency frequency 121.5 MHz or another aeronautical mobile frequency, if considered necessary or desirable. Not all aeronautical stations maintain a continuous guard on the emergency frequency;

b) the distress message of an aircraft in distress being broadcast, if time and circumstances make this course preferable;

c) the aircraft transmitting on the maritime mobile service radiotelephony calling frequencies;

d) the aircraft using any means at its disposal to attract attention and make known its conditions (including the activation of the appropriate SSR mode and code);

e) any station taking any means at its disposal to assist an aircraft in distress;

f) any variation on the elements listed under 5.3.2.1.1 b), when the transmitting station is not itself in distress, provided that such circumstance is clearly stated in the distress message.

Note 2.— The station addressed will normally be that station communicating with the aircraft or in whose area of responsibility the aircraft is operating.

5.3.2.2 ACTION BY THE STATION ADDRESSED OR FIRST STATION ACKNOWLEDGING THE DISTRESS MESSAGE

5.3.2.2.1 The station addressed by aircraft in distress, or first station acknowledging the distress message, shall:

a) immediately acknowledge the distress message;

b) take control of the communications or specifically and clearly transfer that responsibility, advising the aircraft if a transfer is made;

c) take immediate action to ensure that all necessary information is made available, as soon as possible, to:

1) the ATS unit concerned;

2) the aircraft operating agency concerned, or its representative, in accordance with pre-established arrangements;

Note.— The requirement to inform the aircraft operating agency concerned does not have priority over any other action which involves the safety of the flight in distress, or of any other flight in the area, or which might affect the progress of expected flights in the area.

d) warn other stations, as appropriate, in order to prevent the transfer of traffic to the frequency of the distress communication.

5.3.2.3 IMPOSITION OF SILENCE

5.3.2.3.1 The station in distress, or the station in control of distress traffic, shall be permitted to impose silence, either on all stations of the mobile service in the area or on any station which interferes with the distress traffic. It shall address these instructions "to all stations", or to one station only, according to circumstances. In either case, it shall use:

— STOP TRANSMITTING;

— the radiotelephony distress signal MAYDAY.

5.3.2.3.2 The use of the signals specified in 5.3.2.3.1 shall be reserved for the aircraft station in distress and for the station controlling the distress traffic.

5.3.2.4 ACTION BY ALL OTHER STATIONS

5.3.2.4.1 The distress communications have absolute priority over all other communications, and a station aware of them shall not transmit on the frequency concerned, unless:

a) the distress is cancelled or the distress traffic is terminated;

b) all distress traffic has been transferred to other frequencies;

c) the station controlling communications gives permission;

d) it has itself to render assistance.

5.3.2.4.2 Any station which has knowledge of distress traffic, and which cannot itself assist the station in distress, shall nevertheless continue listening to such traffic until it is evident that assistance is being provided.

5.3.2.5 TERMINATION OF DISTRESS COMMUNICATIONS OF SILENCE

5.3.2.5.1 When an aircraft is no longer in distress, it shall transmit a message canceling the distress condition.

5.3.2.5.2 When the station which has controlled the distress communication traffic becomes aware that the distress condition is ended, it shall take immediate action to ensure that this information is made available, as soon as possible, to:

1) the ATS unit concerned;

2) the aircraft operating agency concerned, or its representative, in accordance with pre-established arrangements.

5.3.2.5.3 The distress communication and silence conditions shall be terminated by transmitting a message, including the words "DISTRESS TRAFFIC ENDED", on the frequency or frequencies being used for the distress traffic. This message shall be originated only by the station controlling the communications when, after the reception of the message prescribed in 5.3.2.5.1, it is authorized to do so by the appropriate authority.

5.3.3 Radiotelephony urgency communications

5.3.3.1 ACTION BY THE AIRCRAFT REPORTING URGENCY CONDITION EXCEPT AS INDICATED IN 5.3.3.4

5.3.3.1.1 In addition to being preceded by the radiotelephony urgency signal PAN PAN (see 5.3.1.2), preferably spoken three times and each word of the group pronounced as the French word "panne", the urgency message to be sent by an aircraft reporting an urgency condition shall:

a) be on the air-ground frequency in use at the time;

b) consist of as many as required of the following elements spoken distinctly and, if possible, in the following order:

1) the name of the station addressed;

2) the identification of the aircraft;

3) the nature of the urgency condition;

4) the intention of the person in command;

5) present position, level (i.e. flight level, altitude, etc., as appropriate) and heading;

6) any other useful information.

Note 1.— The foregoing provisions of 5.3.3.1.1 are not intended to prevent an aircraft broadcasting an urgency message, if time and circumstances make this course preferable.

Note 2.— The station addressed will normally be that station communicating with the aircraft or in whose area of responsibility the aircraft is operating.

5.3.3.2 ACTION BY THE STATION ADDRESSED OR FIRST STATION ACKNOWLEDGING THE URGENCY MESSAGE

5.3.3.2.1 The station addressed by an aircraft reporting an urgency condition, or first station acknowledging the urgency message, shall:

a) acknowledge the urgency message;

b) take immediate action to ensure that all necessary information is made available, as soon as possible, to:

1) the ATS unit concerned;

2) the aircraft operating agency concerned, or its representative, in accordance with pre-established arrangements;

Note.— The requirement to inform the aircraft operating agency concerned does not have priority over any other action which involves the safety of the flight in distress, or of any other flight in the area, or which might affect the progress of expected flights in the area.

c) if necessary, exercise control of communications.

5.3.3.3 ACTION BY ALL OTHER STATIONS

5.3.3.3.1 The urgency communications have priority over all other communications, except distress, and all stations shall take care not to interfere with the transmission of urgency traffic.

5.3.3.4 ACTION BY AN AIRCRAFT USED FOR MEDICAL TRANSPORTS

5.3.3.4.1 The use of the signal described in 5.3.3.4.2 shall indicate that the message which follows concerns a protected medical transport pursuant to the 1949 Geneva Conventions and Additional Protocols.

5.3.3.4.2 For the purpose of announcing and identifying aircraft used for medical transports, a transmission of the radiotelephony urgency signal PAN PAN, preferably spoken three times, and each word of the group pronounced as the French word “panne”, shall be followed by the radiotelephony signal for medical transports MAY-DEE-CAL, pronounced as in the French “médical”. The use of the signals described above indicates that the message which follows concerns a protected medical transport. The message shall convey the following data:

a) the call sign or other recognized means of identification of the medical transports;

b) position of the medical transports;

c) number and type of medical transports;

d) intended route;

e) estimated time en route and of departure and arrival, as appropriate; and

f) any other information such as flight altitude, radio frequencies guarded, languages used, and secondary surveillance radar modes and codes.

5.3.3.5 ACTION BY THE STATION ADDRESSED BY OTHER STATIONS RECEIVING A MEDICAL TRANSPORTS MESSAGE

5.3.3.5.1 The provisions of 5.3.3.2 and 5.3.3.3 shall apply as appropriate to stations receiving a medical transports message.

5.4 COMMUNICATIONS RELATED TO ACTS OF UNLAWFUL INTERFERENCE

The station addressed by an aircraft being subjected to an act of unlawful interference, or first station acknowledging a call from such aircraft, shall render all possible assistance, including notification of appropriate ATS units as well as any other station, agency or person in a position to facilitate the flight.

CHAPTER 6 AERONAUTICAL RADIO NAVIGATION SERVICE

6.1 GENERAL

6.1.1 The aeronautical radio navigation service shall comprise all types and systems of radio navigation aids in the international aeronautical service.

6.1.2 An aeronautical radio navigation aid which is not in continuous operation shall, if practicable, be put into operation on receipt of a request from an aircraft, any controlling authority on the ground, or an authorized representative of an aircraft operating agency.

6.1.2.1 R*equests from aircraft should be made to the aeronautical station concerned on the air-ground frequency normally in use*.

6.1.3 Arrangements shall be made for the local aeronautical information service unit to receive without delay essential information about changes in the operational status of non-visual aids as required for pre-flight briefing and dissemination in accordance with the provisions of Implementing Standard No 028.

6.2 DIRECTION FINDING

Introductory Notes

1) *Direction-finding stations work either singly or in groups of two or more stations under the direction of a main direction-finding station.*

2) *A direction-finding station working alone can only determine the direction of an aircraft in relation to itself.*

6.2.1 A direction-finding station working alone should give the following, as requested:

1) *true bearing of the aircraft, using the appropriate phrase;*

2) *true heading to be steered by the aircraft, with no wind, to head for the direction-finding station using the appropriate phrase;*

3) *magnetic bearing of the aircraft, using the appropriate phrase;*

4) *magnetic heading to be steered by the aircraft with no wind to make for the station, using the appropriate phrase.*

6.2.2 When direction-finding stations work as a network to determine the position of an aircraft, the bearings taken by each station should be sent immediately to the station controlling the direction-finding network to enable the position of the aircraft to be determined.

6.2.2.1 T*he station controlling the network should, on request, give the aircraft its position in one of the following ways:*

1) position in relation to a point of reference or in latitude and longitude, using the appropriate phrase;

2) true bearing of the aircraft in relation to the direction finding station or other specified point, using the appropriate phrase, and its distance from the direction finding station or point, using the appropriate phrase;

3) magnetic heading to steer with no wind, to make for the direction-finding station or other specified point using the appropriate phrase, and its distance from the direction-finding station or point, using the appropriate phrase.

6.2.3 Aircraft stations shall normally make requests for bearings, courses or positions, to the aeronautical station responsible, or to the station controlling the direction-finding network.

6.2.4 To request a bearing, heading or position, the aircraft station shall call the aeronautical station or the direction-finding control station on the listening frequency. The aircraft shall then specify the type of service that is desired by the use of the appropriate phrase.

6.2.5 As soon as the direction-finding station or group of stations is ready, the station originally called by the aircraft station shall where necessary request transmission for direction-finding service and, if necessary, indicate the frequency to be used by the aircraft station, the number of times the transmission should be repeated, the duration of the transmission required or any special transmission requirement.

6.2.5.1 In radiotelephony, an aircraft station which requests a bearing shall end the transmission by repeating its call sign. If the transmission has been too short for the direction-finding station to obtain a bearing, the aircraft shall give a longer transmission for two periods of approximately ten seconds, or alternatively provide such other signals as may be requested by the direction-finding station.

Note.— Certain types of VHF/DF stations require the provision of a modulated signal (voice transmission) in order to take a bearing.

6.2.6 When a direction-finding station is not satisfied with its observation, it shall request the aircraft station to repeat the transmission.

6.2.7 When a heading or bearing has been requested, the direction-finding station shall advise the aircraft station in the following form:

1) the appropriate phrase;

2) bearing or heading in degrees in relation to the direction-finding station, sent as three figures;

3) class of bearing;

4) time of observation, if necessary.

6.2.8 When a position has been requested, the direction finding control station, after plotting all simultaneous observations, shall determine the observed position of the aircraft and shall advise the aircraft station in the following form:

1) the appropriate phrase;

2) the position;

3) class of position;

4) time of observation.

6.2.9 As soon as the aircraft station has received the bearing, heading or position, it shall repeat back the message for confirmation or correction.

6.2.10 When positions are given by bearing or heading and distance from a known point other than the station making the report, the reference point shall be an aerodrome, prominent town or geographic feature. An aerodrome shall be given in preference to other places. When a large city or town is used as a reference place, the bearing or heading, and the distance given shall be measured from its centre.

6.2.11 When the position is expressed in latitude and longitude, groups of figures for degrees and minutes shall be used followed by the letter N or S for latitude and the letter E or W for longitude, respectively. In radiotelephony, the words NORTH, SOUTH, EAST or WEST shall be used.

6.2.12 According to the estimate by the direction-finding station of the accuracy of the observations, bearings and positions shall be classified as follows:

Bearings:

Class A — accurate within plus or minus 2 degrees;

Class B — accurate within plus or minus 5 degrees;

Class C — accurate within plus or minus 10 degrees;

Class D — accuracy less than Class C.

Positions:

Class A — accurate within 9.3 km (5 NM);

Class B — accurate within 37 km (20 NM);

Class C — accurate within 92 km (50 NM);

Class D — accuracy less than Class C.

6.2.13 Direction-finding stations shall have authority to refuse to give bearings, heading or positions when conditions are unsatisfactory or when bearings do not fall within the calibrated limits of the station, stating the reason at the time of refusal.

CHAPTER 7 AERONAUTICAL BROADCASTING SERVICE

7.1 GENERAL

7.1.1 Broadcast material

The text of broadcast material shall be prepared by the originator in the form desired for transmission.

7.1.2 Frequencies and schedules

7.1.2.1 Broadcasts shall be made on specified frequencies and at specified times.

7.1.2.2 Schedules and frequencies of all broadcasts shall be publicized in appropriate documents. Any change in frequencies or times shall be publicized by NOTAM at least two weeks in advance of the change. Additionally, any such change shall, if practicable, be announced on all regular broadcasts for 48 hours preceding the change and shall be transmitted once at the beginning and once at the end of each broadcast.

Note.— This does not prevent an emergency change of frequency when required in circumstances which do not permit the promulgation of a NOTAM at least two weeks in advance of the change.

7.1.2.3 Scheduled broadcasts (other than sequential collective type broadcasts), shall be started at the scheduled time by the general call. If a broadcast must be delayed, a short notice shall be transmitted at the scheduled time advising recipients to “stand by” and stating the approximate number of minutes of delay.

7.1.2.3.1 After definite advice has been given to stand by for a certain period, the broadcast shall not be started until the end of the standby period.

7.1.2.4 Where broadcasts are conducted on a time allotment basis, transmission shall be terminated by each station promptly at the end of the allotted time period whether or not transmission of all material has been completed.

7.1.2.4.1 In sequential collective type broadcasts each station shall be ready to commence its broadcasts at the designated time. If for any reason a station does not commence its broadcast at the designated time, the station immediately following in sequence shall wait and then commence its broadcast at its own designated time.

7.1.3 Interruption of service

In the event of interruption of service at the station responsible for a broadcast, the broadcast shall, if possible, be made by another station until normal service is resumed. If this is not possible, and the broadcast is of the type intended for interception by fixed stations, the stations which are required to copy the broadcasts shall continue to listen on the specified frequencies until normal service is resumed.

7.2 RADIOTELEPHONE BROADCAST PROCEDURES

7.2.1 Broadcast technique

7.2.1.1 Transmissions by radiotelephone shall be as natural, short and concise as practicable consistent with clarity.

7.2.1.2 Rate of speech on radiotelephone broadcasts shall not exceed 100 words per minute.

7.2.2 Preamble of the general call

The preamble of each radiotelephone broadcast shall consist of the general call, station name, and optionally the time of broadcast (UTC).

Note.— The following example illustrates the application of this procedure:

(general call)	ALL STATIONS
(the words THIS IS)	THIS IS
(station name)	NEW YORK RADIO
(time of broadcast)	TIME, ZERO ZERO FOUR FIVE

CHAPTER 8 AERONAUTICAL MOBILE SERVICE — DATA LINK COMMUNICATIONS

8.1 GENERAL

Note 1.— While the provisions of Chapter 8 are based primarily on the use of controller-pilot data link communications (CPDLC), the provisions of 8.1 would apply to other data link applications, where applicable, including surveillance — contract (ADS-C) and data link-flight information services (e.g. D-ATIS, D-VOLMET, etc.).

Note 2.— For the purposes of these provisions, the communication procedures applicable to the aeronautical mobile service, as appropriate, also apply to the aeronautical mobile satellite service.

Note 3.— Guidance material relating to CPDLC, ADS-C and related data link initiation capability (DLIC) can be found in the Global Operational Data Link (GOLD) Manual (Doc 10037).

8.1.1 Data link initiation capability (DLIC)

8.1.1.1 GENERAL

8.1.1.1.1 Before entering an airspace where data link applications are used by the ATS unit, data link communications shall be initiated between the aircraft and the ATS unit in order to register the aircraft and, when necessary, allow the start of a data link application. This shall be initiated by the aircraft, either automatically or by the pilot, or by the ATS unit on address forwarding.

8.1.1.1.2 The logon address associated with an ATS unit shall be published in the Aeronautical Information Publications in accordance with Implementing Standard No 028.

Note 1.— A given FIR may have multiple logon addresses; and more than one FIR may share the same logon address.

Note 2.— Detailed specifications concerning aeronautical information publications presentation and contents are contained in the Procedures for Air Navigation Services — Aeronautical Information Management (PANS-AIM, Doc 10066), Appendix 2.

8.1.1.2 AIRCRAFT INITIATION

On receipt of a valid data link initiation request from an aircraft approaching or within a data link service area, the ATS unit shall accept the request and, if able to correlate it with a flight plan, shall establish a connection with the aircraft.

8.1.1.3 ATS UNIT FORWARDING

The ground system initially contacted by the aircraft shall provide to the next ATS unit any relevant updated aircraft information in sufficient time to permit the establishment of data link communications.

8.1.1.4 FAILURE

8.1.1.4.1 In the case of a data link initiation failure, the data link system shall provide an indication of the failure to the appropriate ATS unit(s). The data link system shall also provide an indication of the failure to the flight crew when a data link initiation failure results from a logon initiated by the flight crew.

Note.— When the aircraft's logon request results from responding to a contact request by a transferring ATS unit, then both ATS units will receive the indication.

8.1.1.4.2 The ATS unit shall establish procedures to resolve, as soon as practicable, data link initiation failures. Procedures shall include, as a minimum, verifying that the aircraft is initiating a data link request with the appropriate ATS unit (i.e. the aircraft is approaching or within the ATS unit's control area); and if so:

a) when a flight plan is available, verify that the aircraft identification, aircraft registration, or aircraft address and other details contained in the data link initiation request correspond with details in the flight plan, and where differences are detected verify the correct information and then make the necessary changes; or

b) when a flight plan is not available, create a flight plan with sufficient information in the flight data processing system, to achieve a successful data link initiation; then

c) arrange for the re-initiation of data link.

8.1.1.4.3 The aircraft operator shall establish procedures to resolve, as soon as practicable, data link initiation failures. Procedures shall include, as a minimum, that the pilot:

a) verify the correctness and consistency of the flight plan information available in the FMS or equipment from which data link is initiated, and where differences are detected make the necessary changes; and

b) verify the correct address of the ATS unit; then

c) re-initiate data link.

8.1.2 Composition of data link messages

8.1.2.1 The text of messages shall be composed in standard message format (e.g. CPDLC message set), in plain language or in abbreviations and codes, as prescribed in 3.7. Plain language shall be avoided when the length of the text can be reduced by using appropriate abbreviations and codes. Non-essential words and phrases, such as expressions of politeness, shall not be used.

8.1.2.2 The following characters are allowed in the composition of messages:

Letters: ABCDEFGHIJKLMNOPQRSTUVWXYZ
(upper case only)

Figures: 1 2 3 4 5 6 7 8 9 0

Other signs:

-	(hyphen)
?	(Question mark)
:	(colon)
(	(open bracket)
)	(close bracket)
.	(full stop, period, or decimal point)
,	(comma)
’	(apostrophe)
=	(double hyphen or equal sign)
/	(oblique)
+	(plus sign)

and the space character.

Characters other than those listed above shall not be used in messages.

8.1.2.3 Roman numerals shall not be employed. If the originator of a message wishes the addressee to be informed that Roman figures are intended, the Arabic figure or figures shall be written and preceded by the word ROMAN.

8.1.3 Display of data link messages

8.1.3.1 Ground and airborne systems shall allow for messages to be appropriately displayed, printed when required, and stored in a manner that permits timely and convenient retrieval should such action be necessary.

8.1.3.2 Whenever textual presentation is required, the English language shall be displayed as a minimum.

8.2 CPDLC PROCEDURES

Note.— The CPDLC message set referred to in this section can be found in the PANS-ATM, Appendix 5.

8.2.1 In all communications the highest standard of discipline shall be observed at all times.

8.2.1.1 C*onsequences of human performance, which could affect the accurate reception and comprehension of messages, should be taken into consideration when composing a message.*

Note.— Guidance material on human performance can be found in the Human Factors Training Manual (Doc 9683) and Human Factors Guidelines for Air Traffic Management (ATM) Systems (Doc 9758).

8.2.2 Ground and airborne systems shall provide controllers and pilots with the capability to review and validate any operational messages they send.

8.2.3 Ground and airborne systems shall provide controllers and pilots with the capability to review, validate and when applicable, acknowledge any operational messages they receive.

8.2.4 The controller shall be provided with the capability to respond to messages, including emergencies, to issue clearances, instructions and advisories, and to request and provide information, as appropriate.

8.2.5 The pilot shall be provided with the capability to respond to messages, to request clearances and information, to report information, and to declare or cancel an emergency.

8.2.6 The pilot and the controller shall be provided with the capability to exchange messages which include standard message elements, free text message elements or a combination of both.

8.2.7 Unless specified by the appropriate ATS Authority, voice read-back of CPDLC messages shall not be required.

8.2.8 Establishment of CPDLC

8.2.8.1 The controller and the pilot shall be informed when CPDLC has been successfully established.

8.2.8.2 CPDLC shall be established in sufficient time to ensure that the aircraft is communicating with the appropriate ATC unit.

8.2.8.3 The controller and pilot shall be informed when CPDLC is available for operational use, at initial establishment, as well as on resumption of CPDLC after a failure.

8.2.8.4 The pilot shall be able to identify the air traffic control unit providing the air traffic control service at any time while the service is being provided.

8.2.8.5 When the airborne system detects that CPDLC is available for operational use, it shall send the CPDLC downlink message element CURRENT DATA AUTHORITY.

8.2.8.6 AIRBORNE-INITIATED CPDLC

8.2.8.6.1 When an ATC unit receives an unexpected request for CPDLC from an aircraft, the circumstances leading to the request shall be obtained from the aircraft to determine further action.

8.2.8.6.2 When the ATC unit rejects a request for CPDLC, it shall provide the pilot with the reason for the rejection using an appropriate CPDLC message.

8.2.8.7 ATC UNIT-INITIATED CPDLC

8.2.8.7.1 An ATC unit shall only establish CPDLC with an aircraft if the aircraft has no CPDLC link established, or when authorized by the ATC unit currently having CPDLC established with the aircraft.

8.2.8.7.2 When a request for CPDLC is rejected by an aircraft, the reason for the rejection shall be provided using CPDLC downlink message element NOT CURRENT DATA AUTHORITY or message element NOT AUTHORIZED NEXT DATA AUTHORITY, as appropriate. Local procedures shall dictate whether the reason for rejection is presented to the controller. No other reasons for airborne rejection of ATC unit-initiation of CPDLC shall be permitted.

8.2.9 Exchange of operational CPDLC messages

8.2.9.1 Controllers and pilots shall construct CPDLC messages using standard message elements, free text message elements or a combination of both.

8.2.9.1.1 When CPDLC is being used, and the intent of the message is included in the CPDLC message set contained in the PANS-ATM, Appendix 5, the associated standard message elements shall be used.

8.2.9.1.2 E*xcept as provided by 8.2.12.1, when a controller or pilot communicates via CPDLC, the response should be via CPDLC. When a controller or pilot communicates via voice, the response should be via voice.*

8.2.9.1.3 Whenever a correction to a message sent via CPDLC is deemed necessary or the contents of a message needs to be clarified, the controller or pilot shall use the most appropriate means available for issuing the correct details or for providing clarification.

Note.— The following procedures may be applied by the controller, in terms of correcting clearances, instructions or information, or by a pilot, in terms of correcting a reply to an uplink message or correcting previously advised requests or information.

8.2.9.1.3.1 When voice communications are used to correct a CPDLC message for which no operational response has yet been received, the controller's or pilot's transmission shall be prefaced by the phrase: "DISREGARD CPDLC (message type) MESSAGE, BREAK" — followed by the correct clearance, instruction, information or request.

Note.— It is possible that, at the time the voice communicated clarification is transmitted, the CPDLC message being referred to has not yet reached the recipient, or has reached the recipient but has not been acted upon, or has reached the recipient and has been acted upon.

8.2.9.1.3.2 W*hen referring to and identifying the CPDLC message to be disregarded, caution should be exercised in its phrasing so as to avoid any ambiguity with the issuance of the accompanying corrected clearance, instruction, information or request.*

Note.— For example, if SAS445, maintaining FL290, had been instructed via CPDLC to climb to FL350, and the controller needs to correct the clearance utilizing voice communications, the following phrase might be used:

SAS445 DISREGARD CPDLC CLIMB CLEARANCE MESSAGE, BREAK, CLIMB TO FL310.

8.2.9.1.3.3 If a CPDLC message that requires an operational response is subsequently negotiated via voice, an appropriate CPDLC message closure response shall be sent to ensure proper synchronization of the CPDLC dialogue. This could be achieved either by explicitly instructing the recipient of the message via voice to close the dialogue or by allowing the system to automatically close the dialogue.

8.2.9.2 The composition of a CPDLC message shall not exceed five message elements, only two of which may contain the route clearance variable.

8.2.9.2.1 T*he use of long messages or messages with multiple clearance elements, multiple clearance request elements or messages with a combination of clearances and information should be avoided where possible.*

Note.— Guidance material on the development of local operating procedures and CPDLC good operating technique can be found in the Human Factors Guidelines for Air Traffic Management (ATM) Systems (Doc 9758).

8.2.9.3 CPDLC ground systems and airborne systems shall be capable of using the CPDLC message alert attributes in order to draw attention to higher priority messages.

Note.— Message attributes dictate certain message handling requirements for the CPDLC user receiving a message. Each CPDLC message has two attributes: alert and response attributes. When a message contains multiple message elements, the highest precedence message element attribute type becomes the attribute type for the entire message.

8.2.9.3.1 The alert attribute shall delineate the type of alerting required upon message receipt. Alert types are presented in Table 8-1.

8.2.9.3.2 The response attribute shall delineate valid responses for a given message element. Response types are presented in Table 8-2 for uplink messages and Table 8-3 for downlink messages.

Table 8-1. Alert Attribute (Uplink and Downlink)

Type	***Description***	***Precedence***
H	High	1
M	Medium	2
L	Low	3
N	No alerting required	4

Table 8-2. Response Attribute (Uplink)

Type	Response required	Valid responses	Precedence
W/U	Yes	WILCO, UNABLE, STANDBY, NOT CURRENT DATA AUTHORITY, NOT AUTHORIZED NEXT DATA AUTHORITY, LOGICAL ACKNOWLEDGEMENT (only if required), ERROR	1
A/N	Yes	AFFIRM, NEGATIVE, STANDBY, NOT CURRENT DATA AUTHORITY, NOT AUTHORIZED NEXT DATA AUTHORITY, LOGICAL ACKNOWLEDGEMENT (only if required), ERROR	2
R	Yes	ROGER, UNABLE, STANDBY, NOT CURRENT DATA AUTHORITY, NOT AUTHORIZED NEXT DATA AUTHORITY, LOGICAL ACKNOWLEDGEMENT (only if required), ERROR	3
Y	Yes	Any CPDLC downlink message, LOGICAL ACKNOWLEDGEMENT (only if required)	4
N	No, unless logical acknowledgement required	LOGICAL ACKNOWLEDGEMENT (only if required), NOT CURRENT DATA AUTHORITY, NOT AUTHORIZED NEXT DATA AUTHORITY, ERROR	5

Table 8-3. Response Attribute (Downlink)

Type	Response required	Valid responses	Precedence
Y	Yes	Any CPDLC uplink message, LOGICAL ACKNOWLEDGEMENT (only if required)	1
N	No, unless logical acknowledgement required	LOGICAL ACKNOWLEDGEMENT (only if required), MESSAGE NOT SUPPORTED BY THIS ATC UNIT, ERROR	2

8.2.9.3.2.1 When a multi-element message requires a response, the response shall apply to all message elements.

Note.— For example, a multi-element message containing CLIMB TO FL310 MAINTAIN MACH.84, a WILCO response applies to, and indicates compliance with, both elements of the message.

8.2.9.3.2.2 When a single message element clearance or any part of a multi-element clearance message cannot be complied with, the pilot shall send an UNABLE response for the whole message.

8.2.9.3.2.3 The controller shall respond with an UNABLE message that applies to all elements of the request when no element(s) of a single or multi-element clearance request can be approved. The current clearance(s) shall not be restated.

8.2.9.3.2.4 When a multi-element clearance request can only be partially accommodated, the controller shall respond with an UNABLE message applying to all the message elements of the request and, if appropriate, include a reason and/or information on when a clearance may be expected.

Note.— A separate CPDLC message (or messages) may subsequently be transmitted to respond to those elements that can be accommodated.

8.2.9.3.2.5 When all elements of a single or multi-element clearance request can be accommodated, the controller shall respond with clearances corresponding to each element of the request. This response should be a single uplink message.

Note.— For example, while messages containing multi-element clearance requests are to be avoided, a multi-element downlink message containing the indicated message elements:

REQUEST CLEARANCE YQM YYG YYT YQX TRACK X EINN EDDF

REQUEST CLIMB TO FL350

REQUEST MACH 0.84

could be responded to with

CLEARED YQM YYG YYT YQX TRACK X EINN EDDF

CLIMB TO FL350

REPORT MAINTAINING

CROSS YYG AT OR AFTER 1150

NO SPEED RESTRICTION

8.2.9.3.2.6 When a CPDLC message contains more than one message element and the response attribute for the message is Y, when utilized, the single response message shall contain the corresponding number of replies in the same order.

Note.— For example, a multi-element uplink message containing

CONFIRM SQUAWK
WHEN CAN YOU ACCEPT FL410

could be responded to with

SQUAWKING 5525
WE CAN ACCEPT FL410 AT 1636Z

8.2.9.4 When a ground or airborne system generates the CPDLC message ERROR, the reason for the error shall be included in the message.

8.2.9.5 The appropriate ATS Authority shall select those message elements contained in the PANS-ATM, Appendix 5 that support operations in their airspace. Should an ATS Authority choose to select a subset of the message elements, and a received message does not belong to this subset, the ATC unit shall respond by uplinking the message element MESSAGE NOT SUPPORTED BY THIS ATC UNIT.

Note.— Further processing of the received message is not required.

8.2.9.5.1 O*nly the uplink messages appropriate to a particular control sector's operations should be provided to the controller.*

Note.— The CPDLC message set contained in the PANS-ATM, Appendix 5 was developed to encompass different air traffic management environments.

8.2.9.5.2 Information concerning CPDLC message elements subset utilized shall be published in the Aeronautical Information Publications (AIPs).

8.2.9.6 TRANSFER OF CPDLC

Note.— Details on CPDLC transfer can be found in the Manual of Air Traffic Services Data Link Applications (Doc 9694).

8.2.9.6.1 When CPDLC is transferred, the transfer of voice communications and CPDLC shall commence concurrently.

8.2.9.6.2 When an aircraft is transferred from an ATC unit where CPDLC is available to an ATC unit where CPDLC is not available, CPDLC termination shall commence concurrent with the transfer of voice communications.

8.2.9.6.3 When a transfer of CPDLC results in a change of data authority, and there are still messages for which the closure response has not been received (i.e. messages outstanding), the controller transferring the CPDLC shall be informed.

8.2.9.6.3.1 If the controller needs to transfer the aircraft without replying to any downlink message(s) outstanding, the system shall have the capability to automatically send the appropriate closure response message(s). In such cases, the contents of any automatically sent closure response message(s) shall be promulgated in local instructions.

8.2.9.6.3.2 When the controller decides to transfer the aircraft without receiving pilot responses to any uplink message(s) outstanding, the ground system shall have the capability to automatically end the dialogue for each message prior to the transfer.

8.2.9.6.3.2.1 T*he controller should revert to voice communications to clarify any ambiguity associated with the message(s) outstanding.*

8.2.9.6.4 When a transfer of CPDLC does not result in a change of data authority, and there are still messages outstanding, these messages shall either be forwarded to the appropriate controller or shall be closed in accordance with local instructions and, if necessary, letters of agreement.

8.2.10 Display of CPDLC messages

ATC units utilizing a CPDLC message contained in the PANS-ATM should display the associated text pertaining to that message as presented in the PANS-ATM, Appendix 5.

8.2.11 Free text message elements

8.2.11.1 T*he use of free text message elements by controllers or pilots should be avoided.*

Note.— Whilst it is recognized that non-routine and emergency situations may necessitate the use of free text, particularly when voice communication has failed, the avoidance of utilizing free text messages is intended to reduce the possibility of misinterpretation and ambiguity.

8.2.11.2 When the CPDLC message set contained in the PANS-ATM (Doc 4444) does not provide for specific circumstances, the appropriate ATS Authority may determine that it is acceptable to use free text message elements. In such cases, the appropriate ATS Authority, in consultation with operators and other ATS authorities that may be concerned, shall define display format, intended use and attributes for each free text message element and publish them with relevant procedures in the AIPs.

8.2.11.3 F*ree text message elements should be stored for selection within the aircraft or ground system to facilitate their use.*

8.2.12 Emergencies, hazards and equipment failure procedures

8.2.12.1 When a CPDLC emergency message is received, the controller shall acknowledge receipt of the message by the most efficient means available.

8.2.12.2 When responding via CPDLC to all other emergency or urgency messages, uplink message ROGER shall be used.

8.2.12.3 When a CPDLC message requires a logical acknowledgement and/or an operational response, and such a response is not received, the pilot or controller, as appropriate, shall be alerted.

8.2.12.4 FAILURE OF CPDLC

Note 1.— Action to be taken in the event of a data link initiation failure is covered in 8.1.1.4.

Note 2.— Action to be taken in the event of the failure of a single CPDLC message is covered in 8.2.12.6.

8.2.12.4.1 A *CPDLC failure should be detected in a timely manner.*

8.2.12.4.2 The controller and pilot shall be alerted to a failure of CPDLC as soon as a failure has been detected.

8.2.12.4.3 W*hen a controller or pilot is alerted that CPDLC has failed, and the controller or pilot needs to communicate prior to CPDLC being restored, the controller or pilot should revert to voice, if possible, and preface the information with the phrase:*

CPDLC FAILURE

8.2.12.4.4 C*ontrollers having a requirement to transmit information concerning a complete CPDLC ground system failure to all stations likely to intercept should preface such a transmission by the general call ALL STATIONS CPDLC FAILURE, followed by the identification of the calling station.*

Note.— No reply is expected to such general calls unless individual stations are subsequently called to acknowledge receipt.

8.2.12.4.5 W*hen CPDLC fails and communications revert to voice, all CPDLC messages outstanding should be considered not delivered and the entire dialogue involving the messages outstanding should be recommenced by voice.*

8.2.12.4.6 W*hen CPDLC fails but is restored prior to a need to revert to voice communications, all messages outstanding should be considered not delivered and the entire dialogue involving the messages outstanding should be recommenced via CPDLC.*

8.2.12.5 INTENTIONAL SHUTDOWN OF CPDLC

8.2.12.5.1 When a system shutdown of the communications network or the CPDLC ground system is planned, a NOTAM shall be published to inform all affected parties of the shutdown period and if necessary, the details of the voice communication frequencies to be used.

8.2.12.5.2 Aircraft currently in communication with the ATC unit shall be informed by voice or CPDLC of any imminent loss of CPDLC service.

8.2.12.5.3 The controller and pilot shall be provided with the capability to abort CPDLC.

8.2.12.6 FAILURE OF A SINGLE CPDLC MESSAGE

When a controller or pilot is alerted that a single CPDLC message has failed, the controller or pilot shall take one of the following actions, as appropriate:

a) via voice, confirm the actions that will be undertaken with respect to the related dialogue, prefacing the information with the phrase:

CPDLC MESSAGE FAILURE;

b) via CPDLC, reissue the CPDLC message that failed.

8.2.12.7 DISCONTINUATION OF THE USE OF CPDLC PILOT REQUESTS

8.2.12.7.1 When a controller requires all stations or a specific flight to avoid sending CPDLC requests for a limited period of time, the following phrase shall be used:

((call sign) or ALL STATIONS) STOP SENDING CPDLC REQUESTS [UNTIL ADVISED] [(reason)]

Note.— Under these circumstances, CPDLC remains available for the pilot to, if necessary, respond to messages, report information, and declare and cancel an emergency.

8.2.12.7.2 The resumption of the normal use of CPDLC shall be advised by using the following phrase:

((call sign) or ALL STATIONS) RESUME NORMAL CPDLC OPERATIONS

8.2.13 Where the testing of CPDLC with an aircraft could affect the air traffic services being provided to the aircraft, coordination shall be effected prior to such testing.

ATTACHMENTS TO IMPLEMENTING STANDARD 038

ATTACHMENT A TO IMPLEMENTING STANDARD 038 — LIST OF SPECIALIZED COM TERMS AND THEIR DEFINITIONS RELATED TO AERONAUTICAL TELECOMMUNICATIONS PLANNING

1. FOR GENERAL USE

***Aeronautical telecommunication agency.** An agency responsible for operating a station or stations in the aeronautical telecommunication service.

***Aeronautical telecommunication service.** A telecommunication service provided for any aeronautical purpose.

***Aeronautical telecommunication station.** A station in the aeronautical telecommunication service.

***Aircraft operating agency.** A person, organization or enterprise engaged in, or offering to engage in, an aircraft operation.

***Double channel simplex.** Simplex using two frequency channels, one in each direction.

Note.— This method was sometimes referred to as cross-band.

***Duplex.** A method in which telecommunication between two stations can take place in both directions simultaneously.

***Frequency channel.** A continuous portion of the frequency spectrum appropriate for a transmission utilizing a specified class of emission.

Note.— The classification of emissions and information relevant to the portion of the frequency spectrum appropriate for a given type of transmission (bandwidths) are specified in the ITU Radio Regulations, Article S2 and Appendix S1.

***International telecommunication service.** A telecommunication service between offices or stations of different States, or between mobile stations which are not in the same State, or are subject to different States.

***Offset frequency simplex.** A variation of single channel simplex wherein telecommunication between two stations is effected by using in each direction frequencies that are intentionally slightly different but contained within a portion of the spectrum allotted for the operation.

***Simplex.** A method in which telecommunication between two stations takes place in one direction at a time.

Note.— In application to the aeronautical mobile service this method may be subdivided as follows:

a) single channel simplex;

b) double channel simplex;

c) offset frequency simplex.

***Single channel simplex.** Simplex using the same frequency channel in each direction.

2. FOR USE IN AERONAUTICAL FIXED SERVICE PLANNING

***Aeronautical fixed service (AFS).** A telecommunication service between specified fixed points provided primarily for the safety of air navigation and for the regular, efficient and economical operation of air services.

***Aeronautical fixed telecommunication network (AFTN).** A worldwide system of aeronautical fixed circuits provided, as part of the aeronautical fixed service, for the exchange of messages and/or digital data between aeronautical fixed stations having the same or compatible communications characteristics.

***AFTN communication centre.** An AFTN station whose primary function is the relay or retransmission of AFTN traffic from (or to) a number of other AFTN stations connected to it.

***AFTN destination station.** An AFTN station to which messages and/or digital data are addressed for processing for delivery to the addressee.

AFTN entry-exit points. Centres through which AFTN traffic entering and leaving an ICAO Air Navigation Region should flow.

***AFTN group.** Three or more radio stations in the aeronautical fixed telecommunications network exchanging communications on the same radio frequency.

***AFTN origin station.** An AFTN station where messages and/or digital data are accepted for transmission over the AFTN.

***AFTN station.** A station forming part of the aeronautical fixed telecommunication network (AFTN) and operating as such under the authority or control of a State.

***Automatic relay installation.** A teletypewriter installation where automatic equipment is used to transfer messages from incoming to outgoing circuits.

Note.— This term covers both fully automatic and semi-automatic installations.

Channel. A single means of direct fixed service communication between two points.

Circuit. A communication system which includes all the direct AFTN channels between two points.

***Communication centre.** An aeronautical fixed station which relays or retransmits telecommunication traffic from (or to) a number of other aeronautical fixed stations directly connected to it.

***Fully automatic relay installation.** A teletypewriter installation where interpretation of the relaying responsibility in respect of an incoming message and the resultant setting-up of the connections required to effect the appropriate retransmissions is carried out automatically, as well as all other normal operations of relay, thus obviating the need for operator intervention, except for supervisory purposes.

***Incoming circuit responsibility list.** A list, for each incoming circuit of a communication centre, of the location indicators for which relay responsibilities are to be accepted in respect of messages arriving on that circuit.

***Location indicator.** A four-letter code group formulated in accordance with rules prescribed by ICAO and assigned to the location of an aeronautical fixed station.

Relay time. The relay time of a COM centre is the elapsed time between the instant that a message has been completely received at that centre and the instant that it has been completely retransmitted on an outgoing circuit.

Route (AFTN). The path followed by a particular channel of a circuit.

Routing (AFTN). The chosen itinerary to be followed by messages on the AFTN between acceptance and delivery.

***Routing Directory.** A list in a communication centre indicating for each addressee the outgoing circuit to be used.

***Routing List.** A list in a communication centre indicating for each addressee the outgoing circuit to be used.

***Semi-automatic relay installation.** A teletypewriter installation where interpretation of the relaying responsibility in respect of an incoming message and the resultant setting -up of the connections required to effect the appropriate retransmissions require the intervention of an operator but where all other normal operations of relay are carried out automatically.

Transit time. The elapsed time between the instant of filing a message with an AFTN station for transmission on the network, and the instant that it is made available to the addressee.

***Tributary station.** An aeronautical fixed station that may receive or transmit messages and/or digital data but which does not relay except for the purpose of serving similar stations connected through it to a communication centre.

3. FOR USE IN AERONAUTICAL MOBILE SERVICE PLANNING

***Aerodrome control radio station.** A station providing radiocommunication between an aerodrome control tower and aircraft or mobile aeronautical stations.

***Aeronautical mobile service (RR S1.32).** A mobile service between aeronautical stations and aircraft stations, or between aircraft stations, in which survival craft stations may participate; emergency position-indicating radiobeacon stations may also participate in this service on designated distress and emergency frequencies.

***Aeronautical station (RR S1.81).** A land station in the aeronautical mobile service. In certain instances, an aeronautical station may be on board a ship or on an earth satellite.

***Aircraft station (RR S1.83).** A mobile station in the aeronautical mobile service, other than a survival craft station, located on board an aircraft.

***Air-ground communication.** Two-way communication between aircraft and stations or locations on the surface of the earth.

***Air-ground control radio station.** An aeronautical telecommunication station having primary responsibility for handling communications pertaining to the operation and control of aircraft in a given area.

***Air-to-ground communication.** One-way communication from aircraft to stations or locations on the surface of the earth.

***Alternative means of communication.** A means of communication provided with equal status, and in addition to the primary means.

General purpose system (GP). Air-ground radiotelephony facilities providing for all categories of traffic listed in 5.1.8.

Note.— In this system communication is normally indirect, i.e. exchanged through the intermediary of a third person.

***Ground-to-air communication.** One-way communication from stations or locations on the surface of the earth to aircraft.

***Non-network communications.** Radiotelephony communications conducted by a station of the aeronautical mobile service, other than those conducted as part of a radiotelephony network.

***Operational control communications.** Communications required for the exercise of authority over the initiation, continuation, diversion or termination of a flight in the interest of the safety of the aircraft and the regularity and efficiency of a flight.

Note.— Such communications are normally required for the exchange of messages between aircraft and aircraft operating agencies.

"Pilot-controller" system. Air-ground radiotelephony facilities implemented primarily to provide a means of direct communication between pilots and controllers.

***Primary means of communication.** The means of communication to be adopted normally by aircraft and ground stations as a first choice where alternative means of communication exist.

***Radiotelephony network.** A group of radiotelephony aeronautical stations which operate on and guard frequencies from the same family and which support each other in a defined manner to ensure maximum dependability of air-ground communications and dissemination of air-ground traffic.

***Regular station.** A station selected from those forming an en-route air-ground radiotelephony network to communicate with or to intercept communications from aircraft in normal conditions.

ATTACHMENT B TO IMPLEMENTING STANDARD 038— GUIDANCE MATERIAL FOR THE TRANSMISSION OF LONG MESSAGES ON THE AFTN

1. INTRODUCTION

The requirement for the transmission of separate messages over the AFTN when a text exceeding 1 800 characters is encountered is detailed in 4.4.5.7 and 4.4.15.3.11. When messages have to be divided into two or more parts, the following procedure should be applied.

2. PROCEDURE

Each message part should carry the same address and origin with the sequence of each part indicated on the last line of text as follows:

(End of first message)	/ / END PART 01 / /
(End of second message)	/ / END PART 02 / /
... etc. ...	
(End of last message)	/ / END PART XX/XX / /

Note.— The following example illustrates the application of the above procedure, for a three-part message. The message part sequence information is included in the text character count.

a) First message:

(Address)	GG EGLLYMYX
(Origin)	102030 KWBCYMYX
(Text)	text
	/ / END PART 01 / /
(Ending)	NNNN

b) Second message:

(Address)	GG EGLLYMYX
(Origin)	102030 KWBCYMYX
(Text)	text continued
	/ / END PART 02 / /
(Ending)	NNNN

c) Third and last message:

(Address)	GG EGLLYMYX
(Origin)	102030 KWBCYMYX
(Text)	remainder of text
	/ / END PART 03/03 / /
(Ending)	NNNN