

**COMMUNICATION , NAVIGATION
& SURVEILLANCE MANUAL
VOLUME II**

(COMMUNICATION PROCEDURES)

First Edition - 2006



AIRPORTS AUTHORITY OF INDIA

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PREFACE

Airports Authority of India(AAI) , came into existence on 1st April 1995. It was formed under the Act of Parliament (Airports Authority of India Act 1994) by merging the erstwhile International Airports Authority of India and National Airports Authority with a view to accelerate the integrated development, expansion and modernization of air traffic services, passenger terminals, operational areas and cargo facilities at the airports in the country.

Communication (OPS) Directorate at AAI Corporate Headquarters oversees corporate strategy, development of processes and procedures for safety and uniformity in the provision of aeronautical communication in air traffic services, strategic supervision, aeronautical radio frequency spectrum management , training , rating and coordination with other concerned organizations in and outside India

CNS Manual Volume II (CNSM - Volume II) is prepared and maintained by the Directorate of Communication (OPS) , CHQ , on behalf of the Airports Authority of India for the use and guidance of executives and staff of AAI . The Manual provides procedures, processes and instructions for International Aeronautical Telecommunication Service that comply with the Standard and Recommended Practices laid down in Annex 10 Vol-II. It serves as an essential tool for the provision of safe and efficient air services within the airspace under the jurisdiction of AAI and at airports and aeronautical stations where Air Traffic services / Communication services are provided by Airports Authority of India including coordination with neighbouring/adjacent states.

This Manual shall be read in conjunction with the following:

- a) Annex 10 Vol - II
- b) Doc 7910 - Location Indicators
- c) Doc 8585 - Designators for Aircraft Operating Agencies, Aeronautical Authorities and Services
- d) Doc 8400 - ICAO Abbreviations and Codes

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- e) Doc 7030 - Regional Supplementary Procedures**
- f) Doc 9734 - Safety Oversight Manual**
- g) Doc 9705 - Manual of Technical Provisions for the Aeronautical Telecommunication Network (ATN)**
- h) Doc 9683 - Human Factors Training Manual**

The Functional Charts of Communication (OPS) Departments in AAI are illustrated in the following pages .



**FUNCTIONAL CHART OF COMMUNICATION (OPS) DEPARTMENT
IN AIRPORTS AUTHORITY OF INDIA (AAI)**

Table A

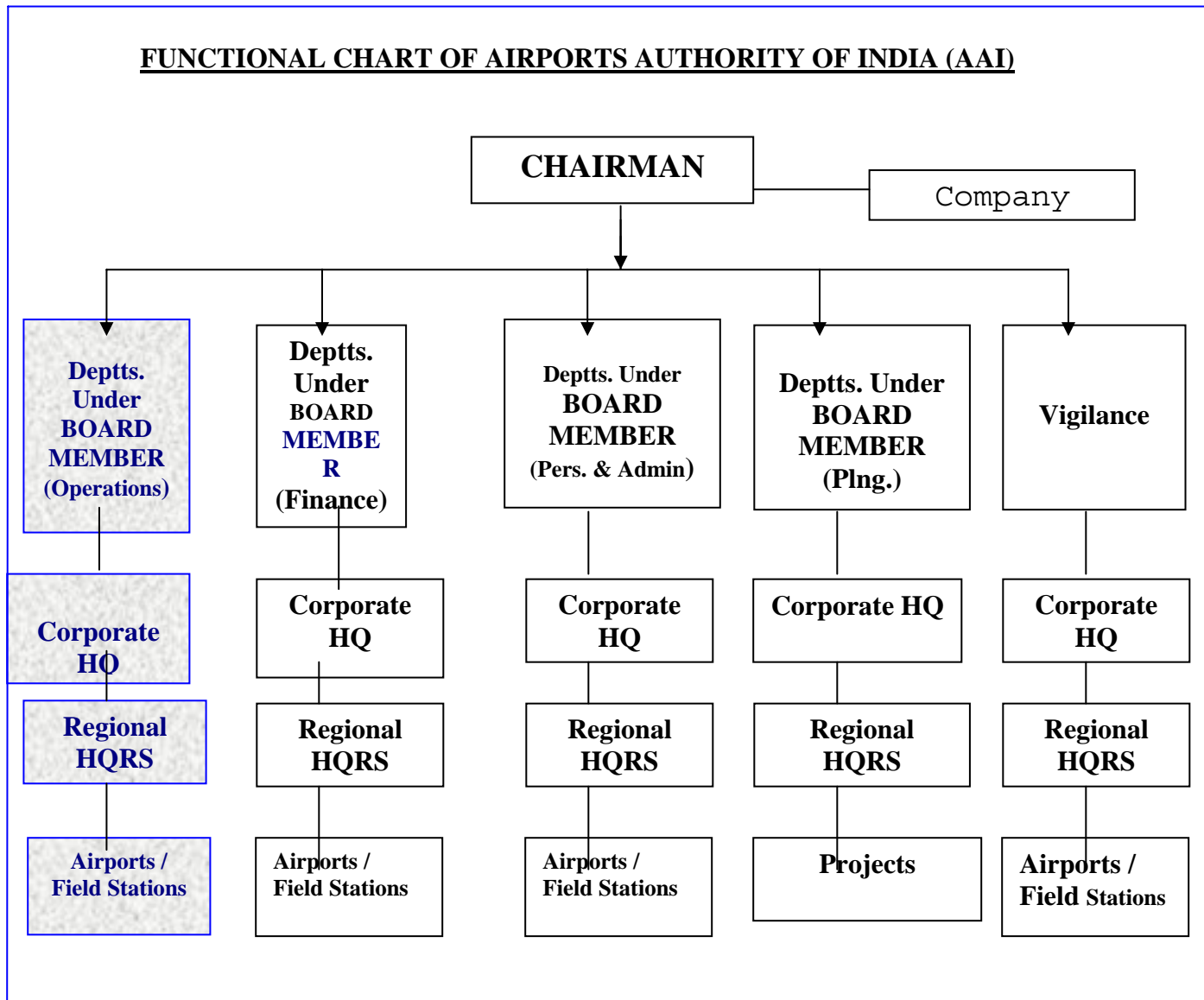
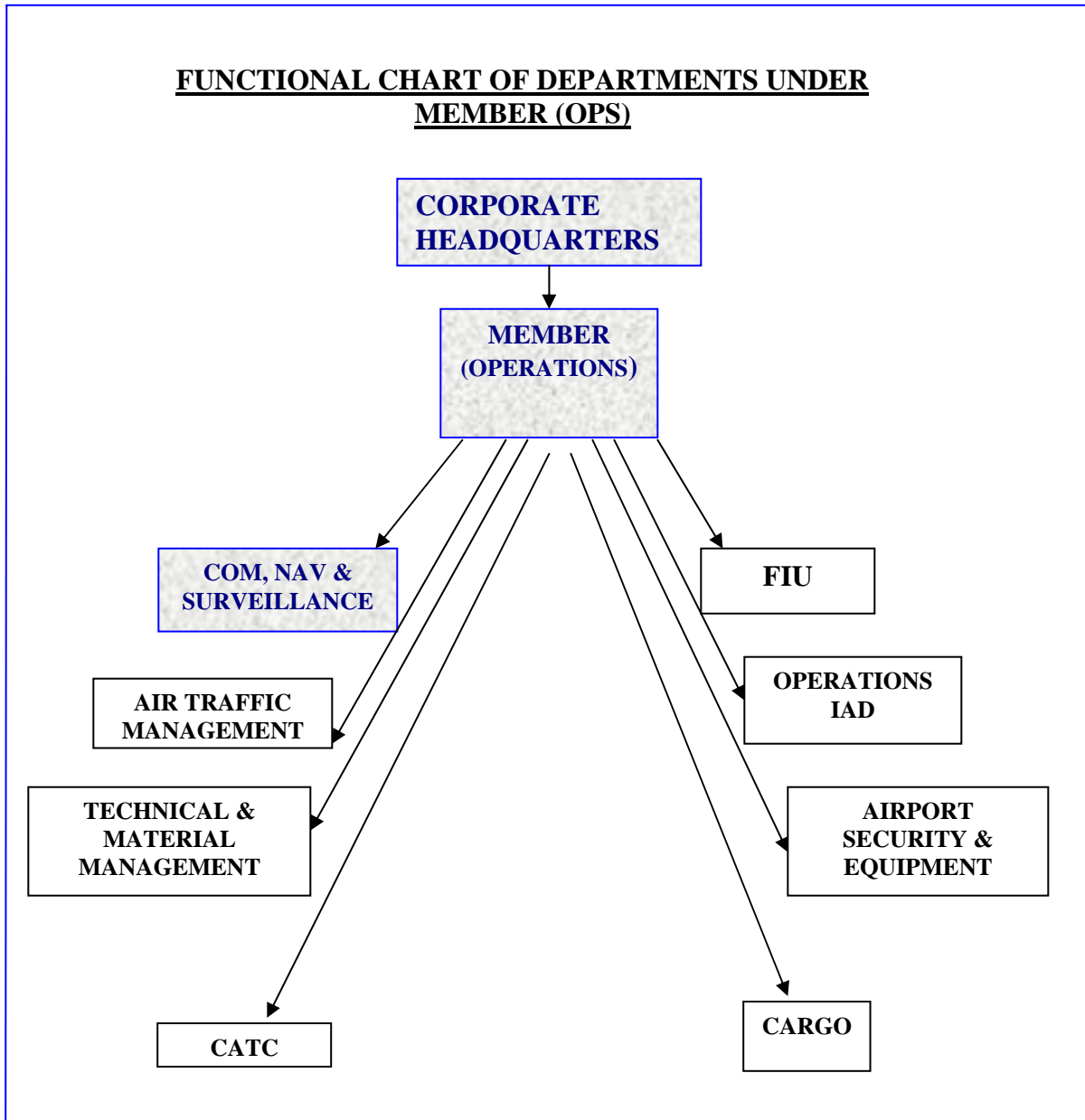


Table B



0-4

Table C

DIRECTORATE OF COMMUNICATION (OPS) IN COMMUNICATION, NAVIGATION & SURVEILLANCE AT CORPORATE HEADQUARTERS

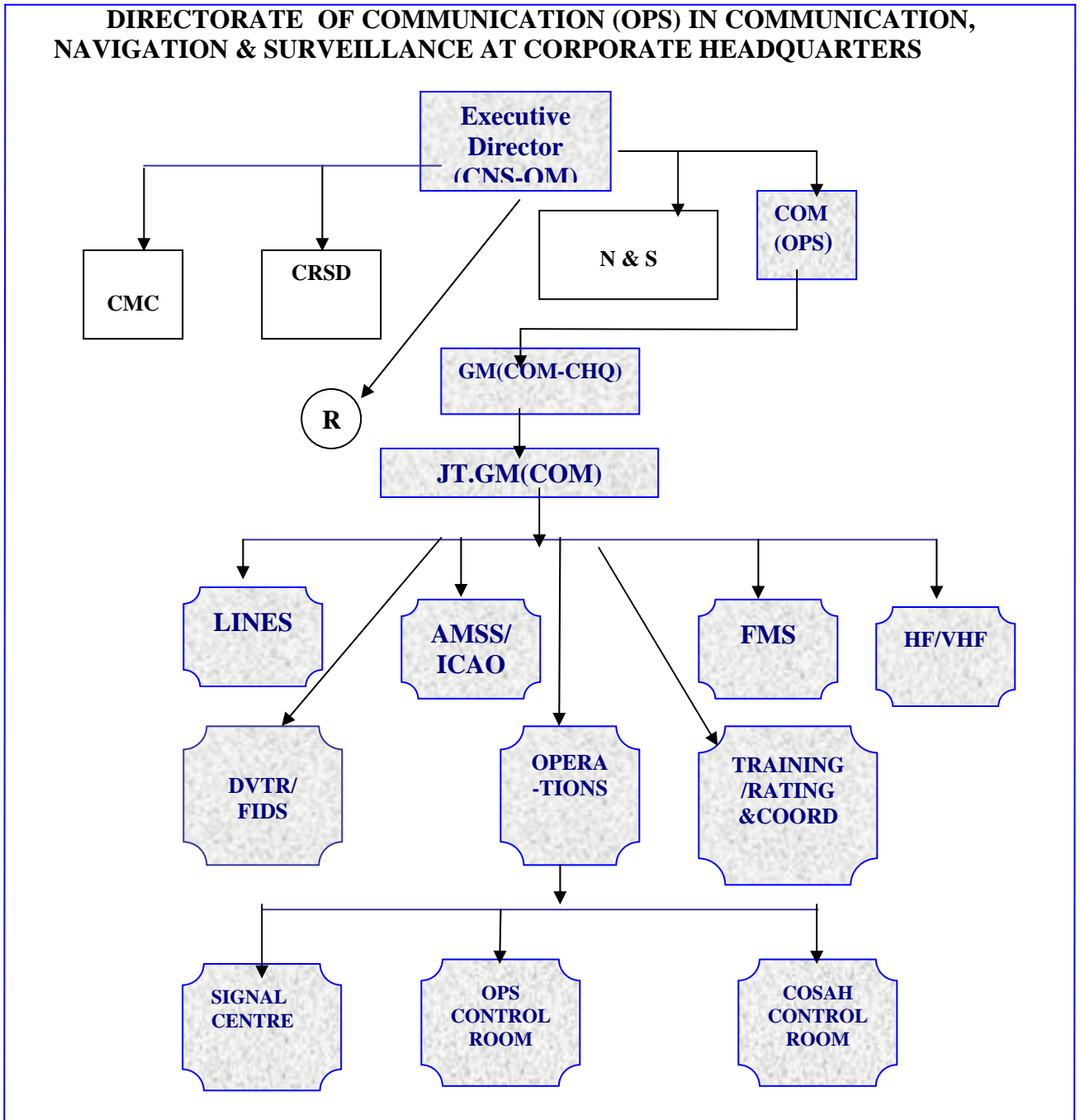


Table D

COMMUNICATION (OPS) IN COMMUNICATION, NAVIGATION & SURVEILLANCE AT REGIONAL HEADQUARTERS

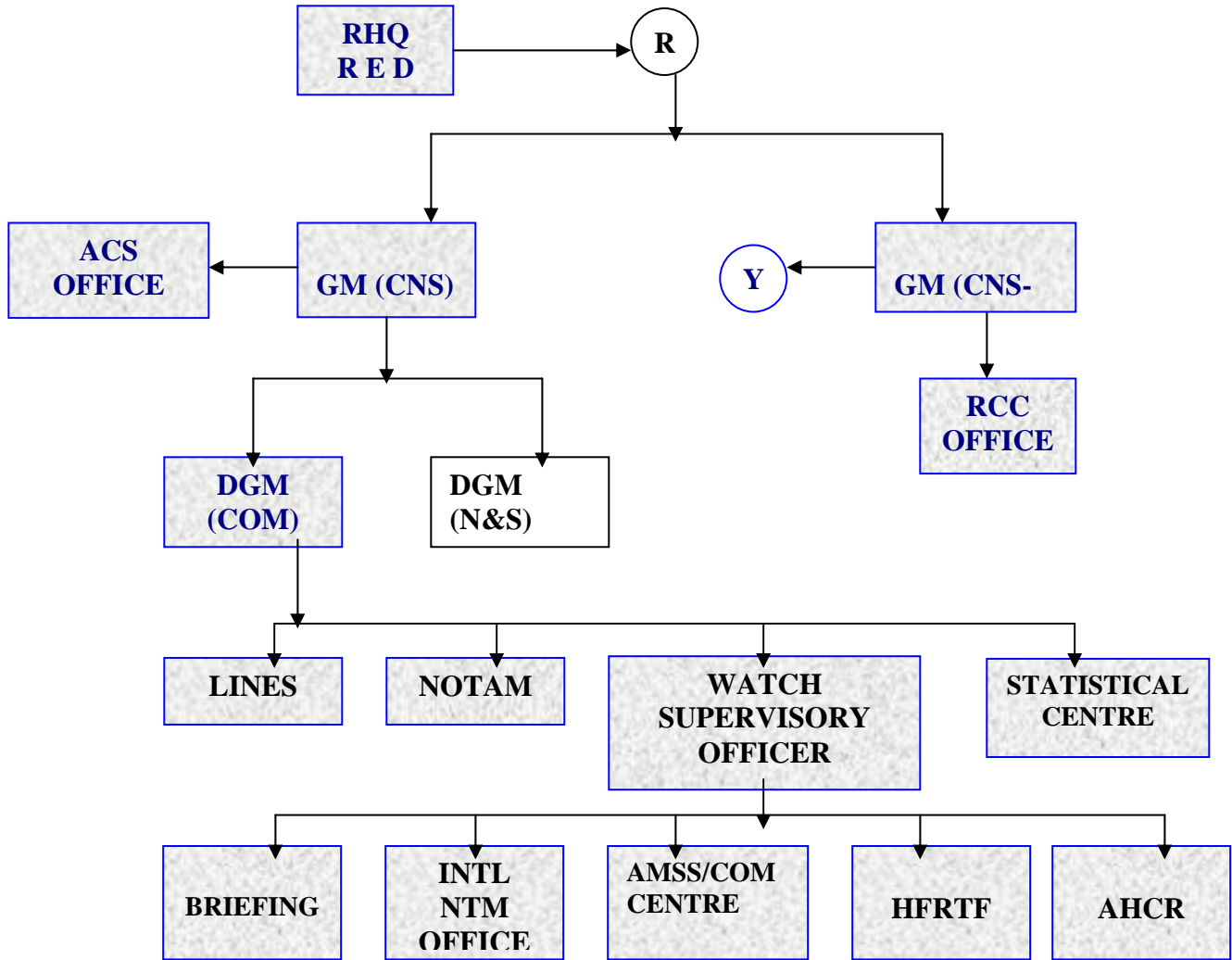
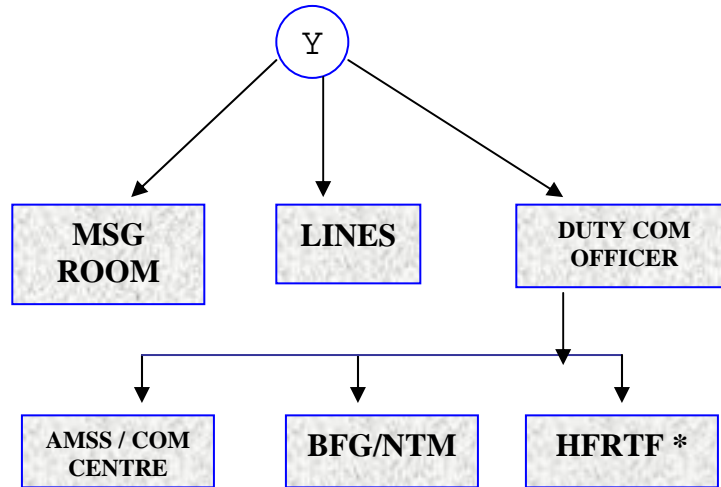


Table E

COMMUNICATION (OPS) UNITS IN FIELD STATIONS



* Facility available only in Kullu Manali Airport.

KEY TO TABLES

R ⇒ CNS at Regional Headquarters

Y ⇒ Stations (OIC)

1. GENERAL

1.1 Title of the document :

This document is identified as Communication, Navigation & Surveillance Manual – Vol II (CNSM-Vol-II)

1.2 Purpose of this document :

1.2.1 The purpose of this document is to establish procedures, provide information and instructions which are essential for the provision of safe and efficient air traffic services at airports where air traffic services are provided by Airports Authority of India. It is published for the use and guidance of its Communication (Ops) personnel.

1.2.2 The Watch Supervisory Officer (CNS) and Duty Communication Officer at Communication Centre will ensure that the provision of Aeronautical Fixed Service (AFS), Aeronautical Mobile Service (AMS-HFRTF), AIS (Briefing/ASBS/NOF), Com facilities at Anti-hijacking Control Rooms (AHCR) under his/her jurisdiction are provided in compliance with the processes, procedures and instructions contained in this manual.

1.3 Responsibility for documentation and publication :

The Executive Director (CNS-OM) is responsible to publish and maintain this manual endorsed by Member (Ops) and finally approved by the Chairman, Airports Authority of India in

conformance with the regulatory provisions contained in Annexes to the Convention on International Civil Aviation, & various ICAO documents relevant to the provisions of Communications (Operations), and also to the National Regulations as applicable in India.

1.4 Holders of hard - copies of CNSM-Vol-II are responsible for ensuring that this Manual is kept up to date.

1.5 Review

The General Manager (Com) will ensure review of this manual / accuracy and updating / issue of amendments of all its contents and reference data time to time after due approval .

1.6 Effective Date

New edition will be indicated by the date at the foot of the page

1.7 Controlling the Manual :

Directorate of Communication (Ops) will control this manual through AAI web site www.airportsinda.org.in and www.aai.aero .

1.8 Distribution of the manual

Directorate of Communication (Ops) may produce hard copies and control the distribution of these copies as they deem appropriate.



1.9 Master Copy

An electronic and hard master copy of each chapter in the manual will be held and maintained by the Com (Ops) Directorate.

Enquiries / clarifications / suggestion, if any, shall be addressed to :

The Executive Director (CNS-OM)
Airports Authority of India
R.G. Bhavan, New Delhi. 110 003

1.10 Enquiries

Tel No- 011 24652075
Fax No- 011 24654142

2. LIST OF SPECIALIZED TERMS AND THEIR DEFINITIONS RELATED TO AERONAUTICAL TELECOMMUNICATIONS PLANNING

On 25 March 1984 the Council at the 11th Meeting of its Fifty-first Session approved the following list of specialized communication terms and their definitions for general use within ICAO. The Council further requested States to use the terms in the approved manner in particular in correspondence with ICAO, in working papers presented by them to ICAO meetings and in any other appropriate texts.

2.1 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.

2.2 Communication methods –

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

Air-to-ground communication. One-way communication from aircraft to stations or locations on the surface of

the earth.

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.

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.

Ground-to-air communication. One-way communication from stations or locations on the surface of the earth to aircraft.

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. Radio telephony communications conducted by a station of the

aeronautical mobile service , other than those conducted as part of a radio telephony network.

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.

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.

Readback. 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:

single channel simplex;
b) double channel simplex;
offset frequency simplex

Single channel simplex. Simplex using the same frequency channel in each direction.

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 exists.

Alternative means of communication. A means of communication provided with equal status, and in addition to the primary means.

Telecommunication. 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.

2.3 Data link communications –

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

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.

Downstream data authority. A designated ground system, different from the current data authority, through which the pilot can contact an appropriate ATC unit for the purposes of receiving a downstream clearance.

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.

“Pilot-controller” system. Air-ground radiotelephony facilities implemented primarily to provide a means of direct communication between pilots and controllers

2.4 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.

2.5 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 radio telephony network.

2.6 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.

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, 1013.2

hectopascals (hPa), and is separated from other such surfaces by specific pressure intervals.

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

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.

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.

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.

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.

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.

2.7 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. 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) service.

An aeronautical mobile service reserved for communications relating to safety and regularity of flight, primarily along national or international civil air routes

Aeronautical mobile-satellite service.

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 .

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 navigational service.

A radio navigation service intended for the benefit and for the safe operation of aircraft.

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.

2.8 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. 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.

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.

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. 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.

General purpose system (GP). Air-ground radiotelephony facilities providing for all categories of traffic listed in 6.8.

Note.— In this system communication is normally indirect, i.e. exchanged through the intermediary of a third person.

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.. Radio determination using the reception of radio waves for the purpose of

determining the direction of a station or object.

Radio direction-finding station. A radio determination station using radio direction finding.

Regular station. A station selected for those forming an en-route air-ground radio telephony 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.

2.9 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.

* **Teletypewriter tape.** A tape on which signals are recorded in the 5-unit Start-Stop code by completely severed perforations (Chad Type) or by partially severed perforations (Chadless Type) for transmission over teletypewriter circuits.

“Torn-tape” relay installation. A teletypewriter installation where messages are received and relayed in

Channel. A single means of direct fixed service communication between two points.

Circuit. A communication system which includes all the direct

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 retransmission 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.

teletypewriter tape form and where all operations of relay are performed as the result of operator intervention.

- **Torn tape installation not used in India anymore due to the introduction of better systems of communication.(AMSS/PC BASED TP /DIAL-UP)**

3 ADMINISTRATIVE PROVISIONS RELATING TO THE SERVICE

3.1 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.

3.2 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.

3.3 Hours of service -

3.3.1 The Executive Director (CNS-OM), Airports Authority of India, Rajiv Gandhi Bhavan, Safdarjung Airport, New Delhi - 110003. 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. The hours of service for stations in Indian jurisdiction can be referred in AIP India Vol II AD-2.3

3.3.2. Whenever necessary and practicable. ED (CNS-OM) 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

Note :- In India the Aeronautical telecommunication agencies designated to receive information regarding change in hours of service are:-The International NOTAM offices, (AFTN address)

- | | |
|------------|----------|
| 1.Chennai | VOMMYNYX |
| 2.Delhi | VIDPYNXX |
| 3.Kolkata | VECCYNYX |
| 4. Mumbai. | VABBYNYX |

3.3.3 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.

3.4 Supervision

3.4.1 In India Airports Authority of India has designated The Executive Director (CNS-OM), AAI ,R.G.Bhavan Safdarjung Airport ,New Delh-110003 for ensuring that International aeronautical telecommunication service is conducted in accordance with the procedures in this manual.

3.4.2 Occasional infringements of the procedures contained herein , when not serious , should be dealt with direct communication between the parties immediately interested either by correspondence or by personal contact with the Station-in-charge (Communication), AAI.

3.4.3 When a station commits serious or repeated infringements , representations relating to them shall be made to the Executive Director (CNS-OM) ,AAI., R.G.Bhavan. Safdarjung Airport , New Delhi - 110 003 .

3.4.4 The Station-in-charge (Communication) ,AAI should exchange information regarding the performance of systems of communication, radio navigation , operation and maintenance , unusual transmission phenomena, etc.

3.5 Superfluous transmissions -

It shall be ensured that there is no willful transmission of unnecessary or anonymous signals, messages or data by any station under the jurisdiction of AAI.

3.6 Interference -

Before authorizing tests and experiments in any station ,the Station-in-charge (Communication), AAI., 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.

4 GENERAL PROCEDURES FOR THE INTERNATIONAL AERONAUTICAL TELECOMMUNICATION SERVICE

4.1 Extensions of service and closing down of stations - Stations of the international aeronautical telecommunication service shall extend their normal hours of service as required to provide for traffic necessary for flight operation.

4.2 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 reopening if other than its normal hours of service through AFTN (AFTN four letter indicator YTYX) , DSC or any available means of communication.

4.3 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 the stations in their network. It shall continue watch for two minutes and may then close down if it has received no call during this period.

4.4 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.

4.5 Acceptance, transmission and delivery of messages - Only those

messages coming within the categories specified in 5.5.1 shall be accepted for transmission by the aeronautical telecommunication service.

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

4.5.2 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 .

4.5.3 The 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 unacceptable.

4.6 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..

4.6.1 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 5.6.2.2.3

4.7 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

4.8 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.

4.9. 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.

4.10. Messages shall be delivered in the form of a written record, or other permanent means as prescribed by Authorities.

4.10.1. In 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.

4.11. 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 5.6 prior to transmission on the AFTN.

4.11.1 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 in prescribed in 5.6 except where, subject to the provisions of 4.9, 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.

4.11.2 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.

4.11.3 Message (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.



4.12 Time system - Universal Coordinated 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. 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. For NOTAM messages TEN DIGIT time is to be shown Example: 0504150250 Explanation :- 05 indicates the year, 04 indicates month of the year, 15 indicates the date of the month and last four digits indicate the hours and minutes in UTC.

Note :- In India IST is ahead of UTC by 0530 hours.

Conversion of Time System with respect to IST/UTC.

**i..2230 IST
= 2230 minus 0530 = 1700 UTC**

**ii..0600 IST
= 0600 minus 0530=0030 UTC**

**iii.0230 IST
= 0230 minus 0530 = 2100 UTC of previous day**

**iv.0501010430 IST
= 0501010430 minus 0530
= 0412312300 UTC of previous year, previous month and previous day also.**

4.13 Record of communications .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. Aeronautical 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. When 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.

4.13.1 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 operator's entries

All entries shall be complete, clear, correct and intelligible. Superfluous marks or notations shall not be made in the log. In written logs, any necessary corrections in the log shall be made only by the person making the initial entry. The corrections 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. Telecommunication logs, written or automatic, shall be retained for a period of at least 30 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.

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.

4.14 Establishment of radio communication - All stations shall answer calls directed to them by other stations in the aeronautical telecommunication service and shall exchange communications on request. All stations shall radiate the minimum power necessary to ensure a satisfactory service.

4.15 Use of abbreviations and codes - 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. 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.

For ICAO approved abbreviations and codes DOC 8400 may be referred

4.16 Cancellation of messages - Messages shall be cancelled by a telecommunication station only when cancellation is authorized by the message originator.

5.AERONAUTICAL FIXED SERVICE (AFS)

5.1 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 tele-communication service:

- a) ATS direct speech circuits and networks;
- b) meteorological operational circuits, networks and broad-cast 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).

5.2 Material permitted in AFS

5.2.1 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)
- :
- ((open bracket)
-) (close bracket)
- . (full stop, period, or decimal point)
- ,
- ' (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.

The examples in **Table 5.1** illustrates the above:-

TABLE 5.1

Character	Example	Should be spelt out as
\$	\$321	DOLLAR 321
@	edcomchqnad@airportsindia.org.in	EDCOMCHQNAD AT THE RATE OF AIRPORTSINDIA.ORG.IN (ALL IN SMALL LETTERS)

5.2.2 For the exchange of messages over the teletypewriter circuits, the following signals of the International Telegraph Alphabet No. 2 (ITA-2) shall be permitted:

signals nos. 1 to 3 — in letter and in figure case;

signal no. 4 — in letter case only;

signal no. 5 — in letter and in figure case;

signals nos. 6 to 8 — in letter case only;

signal no. 9 — in letter and in figure case;

signal no. 10 — in letter case only; and signals nos. 11 to 31 — in letter and figure case.

Note 1.— “Letter case” and “figure case” are to be understood as the shift condition in which the equipment associated with the channel was positioned prior to the reception of the signal.

Note 2. When using any of the above signals, account is to be taken of, amongst others, the provisions of 5.6.4.3

Note 3. The foregoing provisions of 5.2.2 are not intended to prevent the use of:

a) *figure case of signals nos. 6, 7 and 8 after bilateral agreements between States having telecommunication stations directly connected to each other;*

b) *figure case of signal no. 10 as the priority alarm (see 5.6.3.3) and*

c) *figure case of signal no. 4 for operational purposes only and not as part of a message.*

5.2.3 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 5.7.3.5), 0/10, 0/11 — in the ending sequence (see 5.7.5.1), 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.

Note.— The foregoing provisions of 5.2.3 are not intended to prevent the use of the full IA-5 after agreement between the Administrations concerned.

5.2.4 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.

EXAMPLE:

a) **VII chapter** should be written as **ROMAN 7 chapter**

b) **VI Chapter 4.12.11** should be written as **ROMAN 6 chapter 4.12.11**



5.2.5 Messages using the ITA-2 code shall not contain:

1) any uninterrupted sequence of signals nos. 26, 3, 26 and 3 (ZCZC) (letter case and figure case) in this order, other than the one in the heading as prescribed in 5.6.1.1 ; and

2) any uninterrupted sequence of four times signal no. 14 (NNNN) (letter case and figure case) other than the one in the ending as prescribed in 5.6.5.1.

5.2.6 Messages using IA-5 shall not contain:

1) character 0/1 (SOH) other than the one in the heading as prescribed in 5.7.1 a);

(SOH=Start of Heading)

2) character 0/2 (STX) other than the one in the origin line as prescribed in 5.7.3.7;

(STX=Start of Text)

3) character 0/3 (ETX) other than the one in the ending as prescribed in 5.7.5 ;

(ETX=End of Text)

4) any uninterrupted sequence of characters 5/10, 4/3, 5/10, 4/3 in this order (ZCZC) (LETTER CASE);

5) any uninterrupted sequence of characters 2/11, 3/10, 2/11, 3/10 in this order (+:+) (FIGURE CASE);

6) any uninterrupted sequence of four times character 4/14 (NNNN)(LETTER CASE); and

7) any uninterrupted sequence of four times character 2/12 (,,,) (FIGURE CASE).

5.2.7 The text of messages shall be drafted in plain language or in abbreviations and codes, as prescribed in 4.15. 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.

5.2.8 If the originator of a message wishes alignment functions [\ll] to be transmitted at specific places in the text part of such message (see 5.6.4.3 and 5.7.4.5),the sequence [\ll] shall be written on each of those places.

5.3 ATS direct speech circuits

Note.— Provisions relating to ATS direct speech communications are contained in Chapter 6 of Annex 11.

5.4 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) procedures.

5.5 Aeronautical fixed telecommunication network (AFTN)

5.5.1 Categories of messages.

Subject to the provisions of 4.5 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.

5.5.1.1 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.

5.5.1.2 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.

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

a) movement and control messages as defined in PANS-ATM (Doc 4444), Chapter 10;

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.

5.5.1.4 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.

5.5.1.5 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.

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

a) messages concerning NOTAMs;

b) messages concerning SNOWTAMs.

5.5.1.7 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.

5.5.1.8 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.

5.5.1.9 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.

5.5.1.9.1 Service messages shall be prepared in the format prescribed in 5.6 or 5.7. In applying the provisions of 5.6.2.2 or 5.7.2.3. 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. (Refer Doc 8585 for 3 letter designators)

5.5.1.9.2 Service messages shall be assigned the appropriate priority indicator.

5.5.1.9.2.1 When service messages refer to messages previously transmitted, the priority indicator assigned should be that used for the message(s) to which they refer.

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

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

5.5.1.9.5 The text of all service messages should be as concise as possible.

5.5.1.9.6 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.

5.5.1.9.7 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 5.6.1.1 b) and 5.7.1 b) or the filing time and originator indicator groups (see 5.6.3 and 5.7.3) identifying the reference message.

5.5.2 Order of Priority

5.5.2.1 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

5.5.2.2 Messages having the same priority . indicator should be transmitted in the order in which they are received for transmission.

5.5.3 Routing of messages.

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

5.5.3.2 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.

5.5.3.2.1 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) within a 10-minute period after detection of the circuit outage, when the traffic is to be diverted via a non-fully automatic communication centre;

2) in a non-fully automatic communication centre within a 10-minute period after detection of the circuit outage. Service message notification of the diversion requirement should be provided where no bilateral or multilateral prearranged agreements exist.

5.5.3.3 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.

5.5.4. Supervision of message traffic.

5.5.4.1 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.

5.5.4.1.1 When the receiving station detects that one or more channel sequence numbers are missing, it shall send a complete service message (see 5.5.1.9) 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 5.6.1.1.3 and 5.7.1.4) and the end of-text signal (see 5.6.4.6 and 5.7.5).

Example

1) when one channel-sequence number is missing:

SVC→QTA→MIS→ABC↑123↓↓≡

Example

2) when several channel-sequence numbers are missing:

SVC→QTA→MIS→ABC↑123-126↓↓≡

5.5.4.1.2 When the provisions of 5.5.4.1.1 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.

5.5.4.1.3 When 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↓<≡**

5.5.4.1.3.1 When the provisions of 5.5.4.1.3 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.

5.5.4.2 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.

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

- 1) Send a service message (see 5.5.1.9) to the previous station rejecting receipt of the misrouted message; or
- 2) itself assume responsibility for transmission of the message to all addressee indicators.

Note.— The procedure of 1) is preferable at stations using “torn-tape” relay methods or a semi-automatic relay technique with continuous tape. The procedure of 2) may be preferred at stations using fully automatic relay methods or a semi-automatic relay technique without continuous tape.

5.5.4.2.2 When the provisions of 5.5.4.2.1, 1) are applied, the text of the service message shall comprise the abbreviation SVC, the signal QTA, the procedure signal MSR followed by the transmission identification (see 5.6.1.1.3 and 5.7.1.4) of the misrouted message and the end-of-text signal (see 5.6.4.6 and 5.7.5).

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

SVC→QTA→MSR→ABC↑123↓<≡

5.5.4.2.3 When, as a result of the provisions of 5.5.4.2.2, 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.

5.5.4.3 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 5.5.1.9) 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 5.6.4.6 and 5.7.5).

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

SVC→LR→ABC↑123→LS→BAC↑132↓<≡

5.5.5. Failure of communications

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

5.5.5.2 If 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.

5.5.5.2.1 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.

5.5.5.2.2 Where a radio circuit fails due to signal fadeout or adverse propagation conditions, a receiving watch shall be maintained on the regular fixed service frequency normally in use. In order to re-establish contact on this frequency as soon as possible there shall be transmitted:

a) the procedure signal DE;

b) the identification of the transmitting station transmitted three times;

c) the alignment function [\leq];

d) the letters RY repeated without separation for three lines of page copy;

e) the alignment function [\leq]

f) end-of-message signal (NNNN).

The foregoing sequence shall be repeated as required.

(RTT is not in use in India)

5.5.5.2.3 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.

5.5.5.3 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→CK→BG→BI↓<≡

5.5.6. Long-term retention of AFTN traffic records

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

5.5.6.2 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 5.5.6.2 may be obtained by recording the heading, address and origin parts of messages.

5.5.6.3 AFTN 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 5.5.6.3 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 5.5.7

5.5.7 Short-term retention of AFTN traffic records

5.5.7.1 Except as provided in 5.5.7.2, 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.

5.5.7.2 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.

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.

5.6.1.1.2 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.

5.6.1.1.2.1 The use of the 4-digit channel-sequence number, to preclude duplication of the same numbers during the 24-hour period, is permitted subject to agreement between the authorities responsible for the operation of the circuit.

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

- a) SPACE [→]
- b) transmitting-terminal letter;
- c) receiving-terminal letter;
- d) channel-identification letter;
- e) FIGURE SHIFT [↑]
- f) channel-sequence number (3 digits).

Message format of ITA-2 is given in **Table– 5.2**

5.6.1.2 In teletypewriter operation, the spacing signal, consisting of 5 SPACES[→→→→→] followed by 1 LETTER SHIFT[↑] shall be transmitted immediately following the transmission identification prescribed in 5.6.1.3

5.6.1.3 Optional 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 ten characters and shall not contain any alignment functions.

5.6.1.4 To avoid any misinterpretation of the diversion indicator especially when considering the possibility of a partly mutilated heading, the sequence of two consecutive signals no. 22 (in the letter case or in the figure case) should not appear in any other component of the heading.

5.6.2 Address

The address shall comprise:

- a) alignment function [<≡];
- b) priority indicator;
- c) addressee indicator(s);
- d) alignment function [<≡].

5.6.2.1 The priority indicator shall consist of the appropriate two-letter group assigned by the originator in accordance with **Table-5.3**.



TABLE 5.2

Message part	Component of the message part	Element of the component	Teletypewriter signal	
HEADING (see 4.4.2.1)	Start-of-Message Signal	—	ZCZC	
	Transmission Identification	{ <ul style="list-style-type: none"> a) One SPACE b) Transmitting-terminal letter c) Receiving-terminal letter d) Channel-identification letter e) One FIGURE SHIFT f) Channel-sequence number (3 digits) } (Example: NRA082)	→...↑...	
	(if necessary) Additional Service Indication	{ <ul style="list-style-type: none"> a) One SPACE b) No more than 10 characters } (Example: 270830)		
	Spacing Signal	{ <ul style="list-style-type: none"> Five SPACES One LETTER SHIFT }	→→→→→↓	
ADDRESS (see 4.4.3)	T H E	Alignment Function	One CARRIAGE RETURN, one LINE FEED	≡←
		Priority Indicator	The relevant 2-letter group	..
		Addressee Indicator(s)	One SPACE } given in sequence An 8-letter group } for each addressee (Example: → EGLLRZRZK→EDLLYKYX→EGLLACAM)	
		Alignment Function(s)	One CARRIAGE RETURN, one LINE FEED	≡←
ORIGIN (see 4.4.4)	P E R M A N E N T	Filing Time	One FIGURE SHIFT The 8-digit date-time group specifying when the message was filed for transmission One LETTER SHIFT	↑ ↓
		Originator Indicator	One SPACE The 8-letter group identifying the message originator	→
		Priority Alarm (used only in teletypewriter operation for Distress Messages)	One FIGURE SHIFT Five Signal No. 10 of Telegraph Alphabet No. 2 One LETTER SHIFT	↑ Attention ↓ Signal(s)
		Alignment Function	One CARRIAGE RETURN, one LINE FEED	≡←
TEXT (see 4.4.5)	P A R T O F M E S S A G E	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 4.4.5.2.3) Specific identification of Originator (if necessary) The English word STOP followed by one CARRIAGE RETURN, one LINE FEED (if necessary) (see 4.4.5.2.3); 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 4.4.5.3)	
		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	
		End-of-Text Signal	a) One LETTER SHIFT b) One CARRIAGE RETURN, one LINE FEED	↓≡←
ENDING (see 4.4.6)		Page-Feed Sequence	Seven LINE FEEDS	≡≡≡≡≡≡≡
		End-of-Message Signal	Four of the letter case of N (Signal No. 14)	NNNN
		Message-Separation Signal (used only on message traffic transmitted to a "torn-tape" station)	Twelve LETTER SHIFTS	↓↓↓↓↓↓↓↓↓↓↓↓↓↓
Tape Feed (see 4.4.7)		Additional LETTER SHIFTS will appear at this point in instances where prior arrangements have been made for tape-feed transmissions to be employed on an incoming circuit (see 4.4.7).		
Legend: ↑ FIGURE SHIFT (Signal No. 30) ≡ LINE FEED (Signal No. 28) ↓ LETTER SHIFT (Signal No. 29) → SPACE (Signal No. 31) < CARRIAGE RETURN (Signal No. 27)				

TABLE 5.3

Message category indicator	Priority
distress messages (see 5.5.1.1)	SS
urgency messages (see 5.5.1.2)	DD
flight safety messages (see 5.5.1.3).	FF
meteorological messages (see 5.5.1.4)	GG
flight regularity messages (see 5.5.1.5)	GG
aeronautical information services messages (see 5.5.1.6)	GG
aeronautical administrative messages (see 5.5.1.7)	KK
service messages (see 5.5.1.9)	(as appropriate)

5.6.2.2 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; (See Doc. 8585)
- 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.

Note 3 --- Addressee indicators commonly used in India are listed below:



EIGHT LETTERS ADDRESSEE INDICATOR USED IN AFTN

AIRPORTS AUTHORITY OF INDIA

ED(ATM)/ DARA(O)	VIDDYXAA
DARA(P)	VIDDYXAB
CHAIRMAN	VIDDYXAC
GM(ADMIN)	VIDDYXAD
MEMBER(P)	VIDDYXAE
MEMBER(FIN)	VIDDYXAF
GM(LEGAL CELL)	VIDDYXAG
ED/GM(FIN)	VIDDYXAH
ED/GM(IPC)	VIDDYXAI
ED/GM(COMMERCIAL)	VIDDYXAJ
ED/GM-CNS(P)	VIDDYXAL
GM(N AND S)	VIDDYXAM
GM(COM)	VIDDYXAN
MEMBER(OPS)	VIDDYXAO
MEMBER(P AND A)	VIDDYXAP
GM EQPT (GM MATERIAL)	VIDDYXAQ
I/C CONTROL ROOM	VIDDYXAR
ED/GM (P AND A)	VIDDYXAS
GM (T AND C)	VIDDYXAT
ED(VIGILANCE)	VIDDYXAV
ED(ENGG)	VIDDYXAW
AIS SECTION	VIDDYXAX
ED(AVN SAFETY)	VIDDYXAY
SIGNAL CENTRE	VIDDYFYH
ED(IT)	VIDDYFIT
ED(COMMUNICATION)	VIDDYXAK
DIRECTORATE OF CMC	VIDDYXAU

SAFDARJUNG AIRPORT

CHIEF PILOT	VIDDYQYC
GM(RCDU)	VIDDYQYX
GM(CRSD)	VIDDYKYX
GM(E AND M WORKSHOP)	VIDDYUYE
SIGNAL CENTRE	VIDDYFYS



LAST FOUR LETTERS COMMON FOR ALL AIRPORTS

PRINCIPAL CATC ALLAHABAD	YVYX
ED(REGION)	YUYU
GM(COM)	YTYX
GM(COM) REGION	YUYC
GM(ENGG) REGION	YUYW
TOWER	ZTZX
AREA CONTROL CENTRE	ZRZX
AIRPORT DIRECTOR (IAD)	ATYX
AIRPORT DIRECTOR (NAD)	YHYX
GM(ATM) REGION	YDYX
AGM/DGM (ATM) REGION	YUYA
SM/AM(ENGG) FIELD STATION	YDYW
APPROACH CONTROL	ZPZX
FIC	ZIZX

DIRECTOR GENERAL CIVIL AVIATION DGCA (BUILDING)

DIR RESEARCH AND DEVE.	VIDDYAYD
DIR AIR WORTHINESS(EXAM)	VIDDYAYE
DIR FINANCE AND ACCOUNT	VIDDYAYF
DIR GEN. CIVIL AVN	VIDDYAYG
DIR AIR WORTHINESS	VIDDYAYI
DIR TRAINING AND LICENCE	VIDDYAYL
DIR ADMINISTRATION	VIDDYAYM
DIR FLIGHT OPN	VIDDYAYO
DIR REGULATION AND INFO	VIDDYAYR
DIR AIR SAFETY	VIDDYAYS
DIR AIR TRANSPORT	VIDDYAYT
CIVIL AVIATION AUTHORITY	VIDDYAYX
DIR CIVIL AVIATION SECURITY	VIDDZYZS
CONTROLLER AIR SAFETY REGN	VIDDYLYX
AIR WORTHINESS FIELD OFFICE	VIDDYIYX
SUP SIGNAL CENTRE DGCA	VIDDYFYD

OTHER THAN AAI / DGCA

AIR HEAD QUARTER	VIDDYXYX
MLC	VIDDYXYL
MCC / LUT ISRO COMPLEX	VIDDYCYS



5.6.2..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 5.6.2.2, 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.

5.6.2.2.2 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 5.6.2.2.1 and 5.6.2.2.2:

1) addressee indicators (possible types):

VIDPZTZX - aerodrome control tower (ZTZ) at Delhi (VIDP)

VIDDYXAN - Directorate of (COM-OPS) CHQ.,AAI and

VIDDYXAM - Directorate of (COM-N & S) of CHQ.,AAI.

2) YYY ICAO three-letter designator:

Example of a message addressed to (say) "Air India" at VIDP by the VOBG 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 VIDPYXX
(Origin) 11521 VOBGYXX
(Text) AIR INDIA 804 CANCELLED

3) ZZZ ICAO three-letter designator:

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

(Address) FF VIDPZZZX
(Origin) 031451 VOBGZQZX
(Text) VTBCD CLR DES 5000FT BG NDB

5.6.2..2.3 The complete address shall be restricted to three lines of page-printing copy and, except as provided in 5.6.11 a separate addressee indicator shall be used for each addressee whether at the same or at different locations.

5.6.2.2.3.1 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 5.6.2.2.3. 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.

5.6.2.2.3.2 On teletypewriter circuits, the completion of each line of addressee indicator groups in the address of a message shall be immediately followed by the alignment function [\leq].

5.6.3 Origin

The origin shall comprise:

- a) filing time;
- b) originator indicator;
- c) priority alarm (when necessary);
- d) optional heading field;
- e) alignment function [\leq].

5.6.3.1 The filing time shall comprise the 6-digit date time group indicating the date and time of filing the message for transmission (see 4.12); in teletypewriter operation, the filing time shall be followed by one LETTER SHIFT [\downarrow].

5.6.3.2 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.

5.6.3.2.1 Where a message is originated by an organization that has not been allocated an ICAO three-letter designator of the type prescribed in 5.6.3.2 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.

5.6.3.2.2 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.

5.6.3.2.3 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.

5.6.3.3 The priority alarm shall be used only for distress messages. When used, it shall consist of the following, in the order stated:

- a) FIGURE SHIFT [↑];
- b) FIVE transmissions of signal no. 10 (figure case);
- c) LETTER SHIFT [↓].

Note 1.— The figure case of signal no. 10 of the International Telegraph Alphabet No. 2 generally corresponds to the figure case of J of teletypewriter equipment in use on aeronautical fixed service circuits.

Note 2.— Use of the priority alarm will actuate a bell (attention) signal at the receiving teletypewriter station, other than at those fully automatic stations which may provide a similar 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.

5.6.3.4 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.

5.6.3.4.1 The presence of the optional data field should be indicated by one occurrence of the space character and terminated by the alignment function.

5.6.3.4.2 When 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.

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

5.6.3.5 The origin line shall be concluded by an alignment function [<=].

5.6.4 Text

5.6.4.1 The text of messages shall be drafted in accordance with 5.2

5.6.4.2 When an originator's reference is used, it shall appear at the beginning of the text, except as provided in 5.6.4.2.1 and 5.6.4.2.2.

5.6.4.2.1 When the ICAO three-letter designators YXY, YYY or ZZZ comprise the second element of the addressee indicator (see 5.6.2.2.1 and 5.6.2.2.2.) 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.

5.6.4.2.2. When the ICAO three-letter designators YXY, YYY or ZZZ comprise the second element of the originator indicator (see 5.6.3.2.1 and 5.6.3.2.2) 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.

5.6.4.2.3 When applying the provisions of 5.6.4.2.1 and 5.6.4.2.2 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.

5.6.4.3 An alignment function [\lll] shall be transmitted at the end of each printed line of the text except for the last (see 5.6.4.6).

5.6.4.4 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 [\lll], and shall be indicated by the abbreviation CFM followed by the portion being confirmed.

5.6.4.5 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 [\lll] in the case of teletypewriter circuits. This shall be followed by the abbreviation COR and the correction.

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

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

1 LETTER SHIFT [↓], alignment function [\lll].

5.6.4.7 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 1800 characters be transmitted over the aeronautical fixed telecommunication network, 5.6.4.7 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 1800 characters. Guidance material for forming separate messages from a single long message is given in Chapter 10.

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.

5.6.5 Ending

5.6.5.1 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.

And in addition , on message traffic transmitted to “Torn-tape” relay stations only:

c) The message – separation signal consisting of a LETTER SHIFT [↓] transmitted 12 times in uninterrupted sequence .

Note 1.— Nothing but letter shifts are to be transmitted in message traffic between the end-of-message signal of one message and the start-of-message signal of the next.

Note 2.— The following illustrates the procedures specified in 5.6.2 to 5.6.5.1 inclusive for a message in page-copy form:

(Heading)	ZCZC HNA135
(Address)	GG VIDPYNXX
(Origin)	211015 VIDDYFYH
(Text)	As required.
(Ending)	(Page feed) NNNN

5.6.5.2 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-of message signal (NNNN).

5.6.6 Stripped address



When applying the provisions of 5.6.2 or 5.7.2 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..

5.6.7 Teletypewriter operating procedure — general

5.6.7.1 End-of-line functions

A single line of page-copy shall not contain more than a total of 69 characters and/or spaces.

5.6.7.1.1 One CARRIAGE RETURN [\llcorner] and one LINE FEED IMPULSES [\equiv] shall be transmitted between each printed page-line of the text of a message.

5.6.7.2 Duration of transmissions. For simplex circuits, the transmission of a series of messages in a single transmission shall not continue for longer than approximately five minutes. Action shall be taken to deliver or relay each message correctly received without waiting for the end of the series.

5.6.7.3 Channel-check transmissions.

Except as provided in 5.6.7.3.3 the following periodic transmissions shall be sent on teletypewriter circuits:

- 1) heading (see 5.6.1.1);
- 2) alignment function [$\llcorner\equiv$];
- 3) the procedure signal CH;
- 4) alignment function [$\llcorner\equiv$];
- 5) end-of-message signal [NNNN];
- 6) message-separation signal [$\downarrow\downarrow\downarrow\downarrow\downarrow\downarrow\downarrow\downarrow\downarrow\downarrow$] (if required). The receiving station shall then check the transmission identification of this incoming transmission to ensure its correct sequence in respect of all messages received over that incoming channel.

Note.— Application of this procedure provides some measure of assurance that channel continuity is maintained.

5.6.7.3.1 Where a circuit is unoccupied, the transmission specified in 5.6.7.3 should be sent at H + 00, H + 20, H + 40.

5.6.7.3.2 If a periodic channel check transmission is not received within a tolerance agreed for that channel, a station shall send a service message to the station from which the transmission was expected. The text of this service message shall comprise:

- 1) the abbreviation SVC;
- 2) the procedure signal MIS;



- 3) the procedure signal CH;
- 4) (optionally) the time at which the transmission was expected;
- 5) the procedure signal LR;
- 6) the transmission identification of the last message received;
- 7) the end-of-text signal.

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

SVC→MIS→CH↑[1220↓→]LR→ABC↑123↓<≡

5.6.7.3.3 When a teletypewriter channel is equipped with a system of controlled circuit protocol, and following agreement between the Administrations responsible, the transmission specified in 5.6.7.3 shall not be made.

5.6.7.3.4 Channel-check transmissions and station radio identifications. In order to satisfy the requirements of ITU regarding periodic transmission of the station radio identification, those AFTN stations using radio teletypewriter channels may combine the station radio identification transmission with the channel-check transmission specified in 5.6.7.3. In this case the combined transmission shall be sent as follows:

- 1) heading (see 5.6.1.1);
- 2) alignment function [<≡];

- 3) the procedure signal CH;
- 4) alignment function [<≡];
- 5) the procedure signal DE followed by one SPACE [→] and the assigned ITU radio call sign;
- 6) alignment function [<≡];
- 7) end-of-message signal [NNNN];
- 8) message-separation signal [↓↓↓↓↓↓↓↓↓↓↓↓↓] (if required).

(RTT is not in use in India)

Note.— Application of this format will permit this special transmission to be handled by fully automatic switching centres without the intervention of supervisory personnel.

5.6.7.3.4.1 When multichannel radio teletypewriter circuits are used (e.g. MET and AFTN) the station radio call sign transmission should be sent on only one channel of the circuit. The channel chosen should be the one which is the most convenient for this purpose with the identification transmission being sent in conformance with the format used on that channel. When an AFTN channel is chosen the identification transmission should be combined with the channel-check transmission.

5.6.8 Normal teletypewriter transmission procedures

5.6.8.1 Messages shall be transmitted in accordance with predetermined responsibility for onward relay as

agreed between the Administrations responsible for the operation of directly connected stations (see also 5.5.3.1 and 5.5.5.2.3).

5.6.8.1.1 Arising from the responsibility agreements established under the provisions of 5.6.8.1. each station of the AFTN shall employ and, subject to the provisions of 5.6.8.1.1.1, adhere to a Routing Directory which consists of the Routing List.

5.6.8.1.1.1 When an incoming message contains only identical location indicators in the lines-following-the-heading the receiving station shall accept responsibility for further relay. If possible such relay shall be effected on the normal outgoing circuit to the place of destination of the message; if it is not possible to use the normal circuit, an appropriate alternative outgoing circuit shall be used. When neither of these facilities is in operation, the message shall not be retransmitted over the circuit from which it was received, without prior service message (see 5.5.1.9) notification of this action being given to the station that had made the previous transmission.

5.6.8.1.1.2 An AFTN message originator not capable of handling service messages should agree with the AFTN centre it is connected to on a method of exchanging service messages.

Note.— A method of specifying service address in the optional data field is shown in 5.6.3.4.2 and 5.6.3.4.2.1.

5.6.8.1.2 Starting pulse.

When the receiving station uses equipment fitted with a time-switch to stop the teletypewriter machine motor when the channel is idle, a 20-30 millisecond SPACING IMPULSE shall be transmitted when the channel has been at rest for 30 seconds or more and at least 1.5 seconds shall be permitted to elapse before the transmission of the heading.

Note 1.— This is equivalent to the transmission of a LETTER SHIFT [↓], followed by a pause (i.e. a continuous MARKING IMPULSE) of at least 1.37 seconds.

Note 2.— Application of this procedure will allow the receiving equipment to reach synchronization before transmission of the heading is commenced.

5.6.8.1.3 Message format.

All messages shall be prepared in accordance with the provisions of 5.6. (ITA-2 format) or 5.7 (IA-5 format).

The Heading Line, with the exception of the SOH character, should be omitted on circuits employing one of the data link control procedures contained in 8.6.3 and 8.6.4 of Annex 10 Vol III.

5.6.8.1.4 Reprocessing procedures

A message requiring retransmission shall have its previous heading deleted by the station which received such message for relay. The retransmission



shall commence with the new heading using the transmission identification for the outgoing channel.

5.6.8.1.4.1 When applying the provisions of 5.6.8.1.4 transmission of the address part of the message shall commence at some point during the 5 SPACES, 1 LETTER SHIFT [→→→→→↓] immediately preceding the first alignment function [≡].

5.6.8.1.5 Acknowledgement of receipt of messages. In teletypewriter operation and except as provided in 5.6.8.1.5.1, a receiving station shall not transmit acknowledgement of receipt of incoming messages. In lieu thereof the provisions of 5.5.4.1 shall be applied.

5.6.8.1.5.1 The receipt of distress messages (priority SS — see 5.5.1.1) shall be individually acknowledged by the AFTN destination station sending a service message (see 5.5.1.9) 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 5.6.3.3) and shall have a text comprising:

1. the procedure signal R;
2. the origin (see 5.6.3), without priority alarm, or optional heading information of the message being acknowledged;
3. the end-of-text signal [↓≡].

Form of transmission —
teletypewriter operation (see

5.6.10.1.2) STARTING PULSE (if necessary)

HEADING ADDRESS ORIGIN TEXT ENDING

Note.— The following example illustrates the application of 5.6.8.1.5 procedure:

Heading

≡SS→VIDPZRZX≡

↑121322↓→VABBYFYX(Priority Alarm) ≡

R→↑121319↓→VIDPZRZX.↓≡

Ending

5.6.8.1.6 In cases where an addressee of a multi-address message requests a repetition of the message from the origin station, the origin station shall address the repeat of the message only to the addressee requesting the repeat. Under these conditions the procedure signal DUPE shall not be included.

5.6.9 Action on mutilated or improperly formatted messages detected in teletypewriter relay stations

5.6.9.1 If, before retransmission is commenced, a relay station detects that a message has been mutilated or improperly formatted at some point ahead of the end-of-message signal, and it has reason to believe that this mutilation had occurred before the message had been received by the previous station, it shall send a service message (see 5.5.1.9) to the originator as identified by the originator indicator in the origin of the mutilated or



improperly formatted 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 VIDDYFYH”:

SVC→QTA→RPT→↑141335↓→VIDDYFYH↓
 <≡

5.6.9.2 When the provisions of 5.6.9.1 are applied, the originator as identified by the originator indicator in the origin of the mutilated message shall reassume responsibility for the mutilated message, and shall comply with the provisions of 5.6.9.3

5.6.9.3 Following application of the provisions of 5.6.9.2, the following reprocessing shall be accomplished before the un mutilated version of the message is transmitted for the second time towards the same addressee or addressees:

1. insert a new heading;
2. remove the ending of the message (see 5.6.5.1);
3. insert in lieu thereof the procedure signal DUPE, preceded by at least 1 LETTER SHIFT [↓] and followed by 1 CARRIAGE RETURN, 8 LINE FEEDS, end-of-message signal and, if necessary (see 5.6.5), the LETTER SHIFTS [↓] of the message-separation signal and tape feed.

Example :-

Text↓<≡

↓DUPE

<===== (8 line feeds)

NNNN

↓↓↓↓↓↓↓↓↓↓ (if necessary)

5.6.9.4 If, before retransmission is commenced, a relay station detects that one or more messages have been mutilated at some point ahead of the end-of-message signal, and it has reason to believe that this mutilation had occurred during or subsequent to its transmission from the previous station, it shall send a service message (see 5.5.1.9) to the previous station rejecting the mutilated transmission and requesting a repetition of the incorrectly received message (or messages).

Note 1.— 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) in respect of a single mutilated message:

SVC→QTA→RPT→ABC↑123↓<≡

2) in respect of several mutilated messages:

SVC→QTA→RPT→ABC↑123-126↓<≡

5.6.9.5 When the provisions of 5.6.9.4 are applied, the station receiving the service message shall reassume responsibility for the referenced message. It shall then retransmit the un mutilated copy of the referenced message with a new (i.e. correct in sequence) transmission identification



(see 5.6.1.1 b)). If that station is not in possession of an unmutated copy of the original message, it shall take the action prescribed in 5.6.9.1.

5.6.9.6 If, before retransmission is commenced, a relay station detects that a received message has a recognizable but mutilated end-of-message signal, it shall, where necessary, repair this mutilation before retransmission.

5.6.9.7 If, during retransmission of a message, a relay station detects that the message has been mutilated at some point ahead of the end-of-message signal and is able to take action before a correct end-of-message signal has been transmitted, it shall:

- 1) cancel the transmission by inserting into the channel the sequence $\downarrow\leftarrow\equiv\text{QTA}\rightarrow\text{QTA}\downarrow\leftarrow\equiv$ followed by a complete ending
- 2) reassume responsibility for the message;
- 3) comply with the provisions of 5.6.9.1 or 5.6.9.4 as appropriate.

5.6.9.8 If, after a message has been transmitted in to, 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 unmutated copy of the message is available in the station:

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

5.6.9.9 If, after transmission of the text of a message, a relay station detects that the message has an obviously mutilated end-of-message signal, it shall insert a proper end of-message signal into the channel.

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

- 1) $\downarrow\leftarrow\equiv\text{CHECK}\equiv\text{TEXT}\equiv$
 $\text{NEW}\rightarrow\text{ENDING}\rightarrow\text{ADDED}\rightarrow$
- 2) its own station identification;
- 4) $\downarrow\leftarrow\equiv$
- 5) a proper ending as prescribed in 5.6.5

Note 1— On page copy, this insertion will appear as follows:

$\downarrow\leftarrow\equiv\text{CHECK}\equiv\text{TEXT}\equiv$
 $\text{NEW}\rightarrow\text{ENDING}\rightarrow\text{ADDED}\rightarrow\text{VIDDYFYH}$
 $\downarrow\leftarrow\equiv$
 $\equiv\equiv\equiv\text{NNNN}\downarrow\downarrow\downarrow\dots$

Note 2.— The staggered presentation on copy is prescribed to ensure that the attention of the addressee is drawn immediately to the insertion.

Example :-

CHECK
TEXT
NEW ENDING ADDED VIDDYFYH
NNNN



Note 3.— The FIGURE SHIFT [↑] is included to ensure proper functioning where First Line Monitoring Equipment is used, where the presence of the FIGURE SHIFT in the origin is used to cause disconnection of this equipment and where the missing part of the message includes this FIGURE SHIFT.

Note 4.— This circumstance of detection of a mutilation may only be relevant to fully automatic stations or stations using semi-automatic methods without continuous-tape.

5.6.9.11 Relay stations applying the procedural provisions of 5.6.9.9 or 5.6.9.10 should, if practicable, ensure that the appropriate material therein prescribed is inserted prior to the transmission of a complete start-of-message signal associated with any following message.

5.6.9.12 If a relay station detects that a message was received with a completely mutilated address line, it shall send a service message to the previous station rejecting the mutilated transmission.

5.6.9.12.1 The text of this service message shall comprise:

- 1) the abbreviation SVC;
- 2) the procedure signal QTA;
- 3) the procedure signal ADS;
- 4) the transmission identification of the message rejected;
- 5) the indication CORRUPT;
- 6) the end-of-text signal.

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

SVC→QTA→ADS→ABC↑123↓→CORRUPT↓
 <≡

5.6.9.12.2 The station receiving such a service message shall reassume responsibility for the referenced message, and shall retransmit the message with a corrected address line, and a new transmission identification.

5.6.9.13 If a relay station detects a received message with an invalid (i.e. length other than 8 letters) or unknown addressee indicator, it shall relay the message to those valid addresses for which it has relay responsibility using the stripped address procedure (see 5.6.6).

5.6.9.13.1 In addition, except as in 5.6.9.13.3, the station shall send a service message to the previous station requesting correction of the error. The text of this service message shall comprise:

- 1) the abbreviation SVC;
- 2) the procedure signal ADS;
- 3) the transmission identification of the message in error;
- 4) an alignment function;
- 5) the first address line of the message as received;
- 6) an alignment function;
- 7) either:

- a) for an invalid addressee indicator: the indication CHECK;
- b) for an unknown addressee indicator: the indication UNKNOWN;



- 8) the invalid or unknown addressee indicator(s);
- 9) the end-of-text signal.

Note.— The following examples illustrate the application of the procedure of 5.6.9.13.1:

- a) for an invalid addressee indicator:

SVC→ADS→ABC↑123↓<≡
GG→VIDPYNIX→VECCYNY<≡
CHECK→VECCYNY↓<≡

- b) for an unknown addressee indicator:

SVC→ADS→ABC↑123↓<≡
GG→VIDPYNIX→VICCYNYX<≡
UNKNOWN→VICCYNYX↓<≡

5.6.9.13.2 A station receiving a service message as prescribed in 5.6.9.13.1 shall, if a correct addressee indicator is available, repeat the message to that addressee only using the stripped address procedure (see 5.6.6) or, if a correct addressee indicator is not available, act as prescribed in 5.6.9.13.1.

5.6.9.13.3 Where the procedure of 5.6.9.13 is applied in the case of an unknown addressee indicator, and if the origin of the message is without fault, the station shall send a service message to the originator. The text of this service message shall comprise:

- 1) The abbreviation SVC;
- 2) the procedure signal ADS;
- 3) the origin of the message in error;
- 4) an alignment function;
- 5) the first address line of the

- message as received;
- 6) an alignment function;
- 7) the indication UNKNOWN;
- 8) the unknown addressee indicator(s);
- 9) the end-of-text signal.

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

SVC→ADS→↑141335↓→VIDPYFYX<≡
GG→VEBBYNYX Y→VECCYNYX<≡
UNKNOWN→VEBBYNYX↓<≡

5.6.9.13.4 A station receiving such a service message shall obtain a correct addressee indicator and shall repeat the message to the addressee using the stripped address procedure (see 5.6.6).

5.6.9.14 When the first relay station detects that a message was received with a mutilated origin line or without any origin, it shall:

- a) stop processing the message;
- b) send a service message to the
- c) station from which the message was received.

5.6.9.14.1 The text of this service message shall comprise:

- 1) the abbreviation SVC;
- 2) the procedure signal QTA;
- 3) the procedure signal OGN;
- 4) the transmission identification of the message rejected;
- 5) the indication CORRUPT;
- 6) the end-of-text signal.



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

SVC→QTA→ORG→ABC↑123↓→CORRUPT↓
 <≡

5.6.9.14.2 The station receiving a service message as prescribed in 5.6.9.14.1 shall reassume responsibility for the referenced message and shall retransmit the message with a correct origin line and a new transmission identification.

Note.— When applying the provisions of 5.6.9.14, the minimum requirements for processing the origin of AFTN messages are:

- 1) the date-time group consisting of six numeric characters;
- 2) the originator indicator consisting of eight alpha characters.

5.6.9.15 When the first relay station detects that a message was received with an incorrect originator indicator, it shall:

- a) stop processing the message; and
- b) send a service message to the station from which the message was received.

5.6.9.15.1 The text of the service message shall comprise:

- 1) the abbreviation SVC;
- 2) the procedure signal QTA;
- 3) the procedure signal OGN;
- 4) the transmission identification of the message rejected
- 5) the indicator INCORRECT; and

6) the end-of-text signal.

Note.— The following ITA-2 example illustrates application of the above-mentioned procedure:

SVC→QTA→ORG→.ABC↑123↓→INC
 ORRECT↓<≡

5.6.9.15.2 The station receiving a service message as prescribed in 5.6.9.15.1 shall resume responsibility for the referenced message and shall retransmit the message with a correct originator indicator and, if applicable, a new transmission identification.

Note.— When applying the provisions of 5.6.9.15 the relay centre requirement is as a minimum the first character of the originator indicator verified as the first character of the location indicator of the place at which the message is originated.

5.6.10 Correction of errors during message origination in cases where the message is flowing into the AFTN during preparation

5.6.10.1 Messages flowing into the AFTN during preparation shall not be terminated with an end-of-message signal if they contain known uncorrected errors.

5.6.10.2 Where an error is made, in this circumstance, in any part of the message which precedes the text, the unfinished message shall be cancelled by sending the sequence

↓<≡QTA→QTA↓<≡ followed by a complete ending (see 5.6.5).

5.6.10.3 Errors made in the text and noticed immediately shall be corrected by making the error sign (.E.E.E.), transmitting the last correct word or group and then continuing with the message.

5.6.10.4 In cases where errors are made in the text and not noticed until later in the origination process, the station shall comply with the provisions of 5.6.4.5.

5.6.10.5 In cases where it becomes obvious, during the origination of the text, that the message should be cancelled, the station shall take the action described in 5.6.10.2.

5.6.11 Predetermined distribution system for AFTN messages

5.6.11.1 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.

5.6.11.2 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 communications centre of the State 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 (see Appendix 5 to Annex 15);

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.

5.6.11.3 Predetermined 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.

5.6.11.4 AFTN messages carrying Predetermined Distribution Addressee Indicators allocated by the State receiving the message shall be routed

the addressees listed on the associated list of Addressee Indicators described in 5.6.11.5.

5.6.11.5 States 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.

5.6.11.5.1 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).

5.7 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 5.7 through 5.7.3 shall be used. It shall be the responsibility of Administrations using IA-5 to Accommodate adjacent AFTN stations employing ITA-2 code in the format described in 5.6

All messages, other than those prescribed in 5.5.8 and 5.6.7.3 shall comprise the components specified in 5.7.1 to 5.7.6 inclusive.

*Note 1.— An illustration of the IA-5 message format is given in **Table 5.4***

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.

Symbol & Signification

< CARRIAGE RETURN
(character position 0/13)

≡ LINE FEED (character position 0/10)

→ SPACE (character position 2/0).

5.7.1 Heading

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;
- 3) no more than 10 characters.

5.7.1.1 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.

5.7.1.2 Except as provided in 5.7.1.3 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.

5.7.1.3 The 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.

5.7.1.4 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.

5.7.1.5 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 5.7.1.4 shall be followed immediately by that of 5.7.2

5.7.2 Address

The address shall comprise:

- a) alignment function [\llcorner];
- b) priority indicator;
- c) addressee indicator(s);
- d) alignment function [\llcorner].

5.7.2.1 The priority indicator shall consist of the appropriate two-letter group assigned by the originator in accordance with **Table 5.5**

TABLE 5.4

Message part		Component of the message part	Elements of the component	Teletypewriter character
T H E A D I N G	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 c) Channel-identification letter d) Channel-sequence number (Example: NRA062)
		(if necessary) Additional Service Indication	a) One SPACE b) No more than the remainder of the line (Example: 270630)	→
	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 (Example: →EGLLRZX→EGLLYKYX→EGLLACAD) given in sequence for each addressee	
		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 (07)(BEL)	
		Optional Heading Information	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 (0/1)	VT	
	End-of-Text character	One character (0/3)	ETX	

TABLE 5.5

Message indicator	Priority
distress messages (see 5.5.1.1)	SS
urgency messages (see 5.5.1.2)	DD
flight safety messages (see 5.5.1.3).	FF
meteorological messages (see 5.5.1.4)	GG
flight regularity messages (see 5.5.1.5)	GG
aeronautical information services messages see 5.5.1.6)	GG
aeronautical administrative messages (see 5.5.1.7)	KK
service messages (see 5.5.1.9)	(as appropriate)

5.7.2.2 The order of priority shall be the same as specified in 5.5.2

5.7.2.3 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.

5.7.2.3.1 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 5.7.2.3 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.

5.7.2.3.2 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.

5.7.2.3.3 The complete address shall be restricted to three lines of page-printing copy, and, except as provided in 5.7.9 a separate addressee indicator shall be used for each addressee whether at the same or different locations.

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

5.7.2.3.5 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 5.7.2.3.4 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.

5.7.3 Origin

The origin shall comprise:

- a) filing time;
- b) originator indicator;
- c) priority alarm (when necessary);
- d) optional heading information;
- e) alignment function [\leq];
- f) start-of-text character, character 0/2 (STX).

5.7.3.1 The filing time shall comprise the 6-digit date-time group indicating the date and time of filing the message for transmission (see 4.12).

5.7.3.2 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. (See 5.6.2.2)

5.7.3.3 Where a message is originated by an organization that has not been allocated an ICAO three-letter designator of the type prescribed in 5.7.3.2 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.

5.7.3.3.1 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.

5.7.3.4 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.

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

Note.— Use of the priority alarm will actuate a bell (attention) signal at the receiving teletypewriter station, other than at those fully automatic stations which may provide a similar 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.

5.7.3.6 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.

5.7.3.6.1 The presence of the optional data field should be indicated by one occurrence of the space character and terminated by the alignment function.

5.7.3.6.2 When 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.

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

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

5.7.4 Text

The text of messages shall be drafted in accordance with 5.2 and shall consist of all data between STX and ETX.

Note.— When message texts do not require conversion to the ITA-2 code and format and do not conflict with ICAO message types or formats in PANS-ATM (Doc 4444), Administrations may make full use of the characters available in International Alphabet No. 5 (IA-5).

5.7.4.1 When an originator's reference is used, it shall appear at the beginning of the text, except as provided in 5.7.4.2 and 5.7.4.3.

5.7.4.2 When the ICAO three-letter designators YXY, YYY or ZZZ comprise the second element of the addressee indicator (see 5.7.2.3.1 and 5.7.2.3.2) 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.

5.7.4.3 When the ICAO three-letter designators YXY, YYY or ZZZ comprise the second element of the originator indicator (see 5.7.3.3 and 5.7.3.4) 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.

5.7.4.4 When applying the provisions of 5.7.4.2 and 5.7.4.3 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.

5.7.4.5 An alignment function shall be transmitted at the end of each printed line of the text. 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 [\leq], and shall be indicated by the abbreviation CFM followed by the portion being confirmed.

5.7.4.6 Where messages are prepared off-line, e.g. by preparation of a paper tape, errors in the text shall be corrected by backspacing and replacing the character in error by character DEL (7/15).

5.7.4.7 Corrections to textual errors made in on-line operations shall be corrected by inserting .E.E.E. following the error, then retyping the last correct word (or group).

5.7.4.8 When it is not discovered until later in the origination process 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 [\leq]. This shall be followed by the abbreviation COR and the correction.

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

5.7.4.10 The text of messages entered by the AFTN origin station shall not exceed 1800 characters in length. AFTN messages exceeding 1800 characters shall be entered by the AFTN origin station in the form of separate messages.

Guidance material for forming separate messages from a single long message is given in Chapter 10. When messages or data are transmitted only on medium or high speed circuits the text may be increased to a length that exceeds 1 800 characters as long as performance characteristics of the network or link are not diminished and subject to agreement between the Administrations concerned.

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

5.7.5 Ending

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

- a) an alignment \leq] function following the last line of text;
- b) page-feed character, character 0/11 (VT);
- c) end-of-text character 0/3 (ETX).

5.7.5.1 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).

5.7.5.2 When the message does not transit ITA-2 portions of the AFTN, or where Administrations have made

provisions to add automatically the second carriage return before transmission to an ITA-2 circuit, one carriage return in the alignment function and end of-line function should be permitted subject to agreement between the Administrations concerned.

5.7.5.3 Messages entered by the AFTN origin station shall not exceed 2 100 characters in length.

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

5.7.6 Except as provided in 5.7.7 to 5.7.8, the procedures of 5.6.6 and 5.6.7 to 5.6.10 shall be used for messages using IA-5 code.

5.7.7 Channel-check transmissions.

In the case where continuous control of channel condition is not provided the following periodic transmissions shall be sent on teletypewriter circuits:

1) heading line (see 5.7.1);

2) alignment function T;
S
X

3) the procedure signal CH;

4) alignment function T.
E
X

The receiving station shall then check the transmission identification of this incoming transmission to ensure its correct sequence in respect of all messages received over that incoming channel.

Note.— Application of this procedure provides some measure of assurance that channel continuity is maintained; however, a continuously controlled channel is much more preferable in that data integrity can also be improved.

5.7.7.1 Where a circuit is unoccupied and uncontrolled, the transmission identified in 5.7.7 should be sent at H + 00, H + 20, H + 40.

5.7.8 The receipt of distress messages (priority indicator SS, see 5.5.1.1) shall be individually acknowledged by the AFTN destination station by sending a service message (see 5.5.1.9) 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 5.7.3.5), and shall have a text comprising:

1) the procedure signal R;

2) the origin line (see 5.7.3) without priority alarm, or optional heading information of the message being acknowledged;

3) the ending (see 5.7.5).



Note.— The following example illustrates the application of the 5.7.8 procedures:

Heading (see 5.7.1)

<≡ SS VIDPZRZX<≡

121322 VABBYFTX (Priority Alarm)<≡

S

T R 21319 VIDPZRZX <≡

X

Ending (see 5.7.5).

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

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.

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

5.7.9.1.1 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→ABC123 (ending — see 5.7.5)

5.7.9.1.2 When the provisions of 5.7.9.1.1 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 5.7.2). 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 VIDDYXAN":

SVC→QTA→RPT→141335→VIDDYXAN (ending — see 5.7.5)

5.7.9.2 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 5.7.5).

5.7.10 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.

5.7.10.1 Except as provided in 5.7.10.3 the heading line of the message shall be omitted. The message shall start with an alignment function followed by the address.

5.7.10.2 The message shall end with a complete ending.

5.7.10.3 For 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.

5.7.10.3.1 When the provisions of 5.7.10.3 are applied, the data added shall not include either carriage return or line feed characters or any of the combinations listed in 5.2.4.

5.8 Common ICAO Data Interchange Network (CIDIN)

Note 1.— The common ICAO data interchange network (CIDIN), which

comprises application entities and communication services for ground-ground message exchange, makes use of protocols based on the International Telegraph and Telephone Consultative Committee (CCITT) X.25 Recommendation to provide code and byte-independent communication facilities.

Note 2.— The principal goals of the CIDIN are to improve the AFTN and to support large message transmission and more demanding applications, such as operational meteorological information (OPMET), between two or multiple ground systems.

Note 3.— Details of CIDIN communication procedures, as implemented in Europe, are shown in the EUR CIDIN Manual.

5.9 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 of Technical Provisions for the Aeronautical Telecommunication Network (ATN) (Doc 9705), Sub-volume III.

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 of Technical Provisions for the Aeronautical Telecommunication Network (ATN) (Doc 9705). 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 of Technical Provisions for the Aeronautical Telecommunication Network (ATN) (Doc 9705), Sub-volume III:

- 1) an ATS message server;*
- 2) an ATS message user agent;*
- 3) an AFTN/AMHS gateway (aeronautical fixed telecommunication network/ATS message handling system); and*
- 4) a CIDIN/AMHS gateway (common ICAO data interchange 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 5.6**)*

5.10 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 interfacility 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.

TABLE 5.6.

**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	CIDIN/AMHS Gateway
ATS Message Server	ATS Message User Agent
AFTN/AMHS Gateway	AFTN/AMHS Gateway
CIDIN/AMHS Gateway	CIDIN/AMHS Gateway
CIDIN/AMHS Gateway	AFTN/AMHS Gateway

Note 4.— The detailed specification of the AIDC application is included in the Manual of Technical Provisions for the Aeronautical Telecommunication Network (ATN) (Doc 9705), Sub-volume III.

Note 5.— The AIDC application is strictly an ATC application for exchanging tactical control information between ATS units. It does not support the exchange of information with other offices or facilities.

Note 6.— The AIDC application supports the following operational services:

- a) flight notification;
- b) flight coordination;
- c) transfer of executive control;
- d) transfer of communications; and
- e) transfer of general information (flight-related data or free text messages, i.e. unstructured).

6.AERONAUTICAL MOBILE SERVICE — VOICE COMMUNICATIONS

6.1 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.

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

6.1.2 The transmission of messages, other than those specified in 6.8, on aeronautical mobile frequencies when the aeronautical fixed services are able to serve the intended purpose, shall be avoided.

6.1.3 In 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).

6.2 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.

6.3 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.

6.4 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 6.22

6.5 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.

6.6 When an aeronautical station is called simultaneously by several aircraft stations, the aeronautical

station shall decide the order in which aircraft shall communicate.

6.7 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

6.8 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 Table 6.1

TABLE 6.1

Message category and order of priority	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.

6.8.1 Distress messages and distress traffic shall be handled in accordance with the provisions of 6.23

6.8.2 Urgency messages and urgency traffic, including messages preceded by the medical transports signal, shall

be handled in accordance with the provisions of 6.23

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”.

6.8.3 Communications relating to direction finding shall be handled in accordance with Chapter 7 CNSM-Vol-II.

6.8.4 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.

6.8.5 Meteorological messages shall comprise meteorological information to or from aircraft, other than those in 6.8.4, 3).

6.8.6 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.

6.8.6.1 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 6.8.4, 2) and 6.8.6, 1) to 6) typify some of the operational control communications defined in Chapter 2 of CNSM-Vol-II.

6.8.7 Messages having the same priority should, in general, be

transmitted in the order in which they are received for transmission.

6.8.8 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 6.8

6.9 Cancellation of messages

6.9.1 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.

6.9.2 Complete transmissions

When 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.

6.9.3 The station cancelling a transmission shall be responsible for any further action required

6.10 Radiotelephony procedures

Table-6.2

The Radiotelephony Spelling Alphabet

Note.— When Selective Calling (SELCAL) equipment is used certain of the following procedures are superseded by those contained in 6.22

6.10.1 When a controller or pilot communicates via voice, the response should be via voice. Except as provided by 9.2.12.1., when a controller or pilot communicates via CPDLC, the response should be via CPDLC.

6.10.2 Language to be used

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

Note 1.— The level of language proficiency required for aeronautical radiotelephony communications is specified in Appendix to Annex 1.

6.10.2.2 The English language shall be available, at all stations on the ground serving designated airports and routes used by national / international air services.

6.10.2.3 The Aeronautical Information Publications and other published aeronautical information concerning such facilities shall be in English language.

6.10.3 Word spelling in radiotelephony. When proper names, service abbreviations and words of which the spelling is doubtful are spelled out in radiotelephony the alphabet as in **Table 6.2** shall be used.



Letter	Word	Approximate Pronunciation
Latin Alphabet Representation		
A	Alfa	<u>AL</u> FAH
B	Bravo	<u>BRAH</u> VOH
C	Charlie	<u>CHAR</u> LEE or <u>SHAR</u> LEE
D	Delta	<u>DELL</u> TAH
E	Echo	<u>ECK</u> OH
F	Foxtrot	<u>FOKS</u> TROT
G	Golf	<u>GOLF</u>
H	Hotel	HOH <u>TELL</u>
I	India	<u>IN</u> DEE AH
J	Juliatt	<u>JEW</u> LEE <u>ETT</u>
K	Kilo	<u>KEY</u> LOH
L	Lima	<u>LEE</u> MAH
M	Mike	<u>MIKE</u>
N	November	NO <u>VEM</u> BER
O	Oscar	<u>OSS</u> CAH
P	Papa	<u>PAH</u> PAH
Q	Quebec	KEH <u>BECK</u>
R	Romeo	<u>ROW</u> ME OH
S	Sierra	<u>SEE</u> AIR RAH
T	Tango	<u>TANG</u> GO
U	Uniform	<u>YOU</u> NEE FORM or <u>OO</u> NEE FORM
V	Victor	<u>VIK</u> TAH
W	Whiskey	<u>WISS</u> KEY
X	X-ray	<u>ECKS</u> RAY
Y	Yankee	<u>YANG</u> KEY
Z	Zulu	<u>ZOO</u> 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 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 6.10.3 is also prescribed for use in the Maritime Mobile Service (ITU Radio Regulations, Appendix S14).*

6.10.4 Transmission of numbers in radiotelephony

6.10.4.1 Transmission of numbers



All numbers, except as prescribed in 6.10.4.2 shall be transmitted by pronouncing each digit separately.

Note.— Table 6.3 illustrates the application of this procedure (see 6.10.6 for pronunciation).

TABLE-6.3

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

Flight Levels	Transmitted as
FL 180	flight level one eight zero
FL 200	flight level two zero zero

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 gusting 30 knots	wind one six zero degrees one eight knots gusting three zero knots

Transponder Codes	Transmitted as
2 400	squawk two four zero zero
4 203	squawk four two zero three

Runway	Transmitted as
27	runway two seven
30	runway three zero

Altimeter Setting	Transmitted as
1 010	QNH one zero one zero
1 000	QNH one zero zero zero

6.10.4.2 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.— Table-6.4 illustrates the application of this procedure (see 6.10.6 . for pronunciation).

TABLE-6.4

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

6.10.4.3 Numbers containing a decimal point shall be transmitted as prescribed in 6.10.4.1 with the decimal point in appropriate sequence being indicated by the word DECIMAL.

Note 1.— Table-6.5 illustrates the application of this procedure:

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 (6.11.3.9.2 refers to frequencies separated by 25 kHz,) 6.11.3.9.3 refers to frequencies separated by 8.33 kHz).

TABLE-6.5

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

6.10.4.4 When 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.— Table-6.6 illustrates the application of this procedure.

TABLE-6.6

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

6.10.5 Verification of numbers

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.

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.

6.10.6 Pronunciation of numbers

Numbers shall be transmitted using the following pronunciation in **Table-6.7**.

TABLE-6.7

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	Decimal DAY-SEE-MAL
Hundred	Hundred HUN-dred
Thousand	Thousand TOU-SAND

6.10.7 Transmitting technique

6.10.7.1 Each written message should be read prior to commencement of transmission in order to eliminate unnecessary delays in communications.

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

6.10.7.3 Speech 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.

6.10.7.4 Speech transmitting technique should be adapted to the prevailing communications conditions.

6.10.7.5 Messages 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 6.10.7.5 are specifically identified in the abbreviation encode sections of the PANS-ABC (Doc 8400).

6.10.7.6 To 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.

6.10.7.7 The 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.

6.10.7.8 The following words and phrases shall be used in

radiotelephony communications as appropriate and shall have the

meaning described in **Table-6.8:**

TABLE-6.8

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 use 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."
GO AHEAD	"Proceed with your message."
HOW DO YOU READ	"What is the readability of my transmission?"
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 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 all of your last transmission."
SAY AGAIN	"Repeat all, or the following part, of your last transmission."
SPEAK SLOWER	"Reduce your rate of speech."
STANDBY	"Wait and I will call you."
UNABLE	"I cannot comply with your request, instruction, and clearance."
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."



6.10.8 Composition of messages

6.10.8.1 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 6.11.3);

b) text (see 6.10.8.2.1.1).

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

(call) MUMBAI RADIO SWISSAIR
ONE ONE ZERO
(text) REQUEST SELCAL CHECK

or

(call) SWISSAIR ONE ONE ZERO
MUMBAI RADIO
(text) CONTACT DELHI ON SIX FIVE

6.10.8.2 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 4.11.1) shall be composed as follows:

6.10.8.2.1 When originated in an aircraft:

- 1) call (see 6.11.3);
- 2) the word FOR;
- 3) the name of the organization addressed;

4) the name of the station of destination;

5) the text.

6.10.8.2.1.1 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) DELHI RADIO SWISSAIR ONE
TWO EIGHT

(address) FOR SWISSAIR DELHI

(text) NUMBER ONE ENGINE
CHANGE REQUIRED

6.10.8.2.2 When addressed to an aircraft. When a message, prepared in accordance with 5.6, 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.

6.10.8.2.2.1 When the provisions of 6.10.8.2.2 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).

6.10.8.2.2.2 When 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 6.10.8.2.2.2 are specifically identified in the abbreviations encode sections of the PANS-ABC (Doc 8400).

6.11 Calling

TABLE-6.9

Unit/service available	Call sign suffix
Call sign suffix	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

6.11.1 Radiotelephony call signs for aeronautical stations

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

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

- a) the name of the location; and
- b) the unit or service available.

6.11.2 The unit or service shall be identified in accordance with the **table 6.9** except that the name of the location or the unit/service may be omitted provided satisfactory communication has been established.

6.11.2.1 Radiotelephony call signs for aircraft

6.11.2.1.1 Full call signs

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 6.10).

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 PANS-ATM, Doc 4444.

6.11.2.2 Abbreviated call signs

The aircraft radiotelephony call signs shown in 6.11.2.1.1, with the exception of Type c), may be abbreviated in the circumstances prescribed in 6.11.3.8.

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-6.10

Examples of full call signs and abbreviated call signs

			Type a)		Type b)	Type c)
Full sign	call	N 57826	*CESSNA VTDMC	*CITATION VTDMC	AIRINDIA TDMC	INDAIR123
	Or					

	VTDMC				
Abbreviated call sign	N26 Or VMC	CESSNA MC	CITATION MC	AIRINDIA MC	(no abbreviated form)
	Or N826 Or VDMC	or CESSNA DMC	or CITATION DMC	or AIRINDIA DMC	

6

6.11.3 Radiotelephony procedures

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.

6.11.3.1 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.

6.11.3.2 Establishment of radiotelephony communications

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-6.11** :-

TABLE-6.11
Radio Telephony calling procedure

	Type a)	Type b)	Type c)
Designation of the station called	DELHI RADIO	DELHI RADIO	DELHI RADIO
Designation of the station calling	VTDMC	AIRINDIA TDMC	INDAIR123

**

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 6.10.3 shall be used. Numbers are to be spoken in accordance with 6.10.4.

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

6.11.3.4 The reply to the above calls shall be in accordance with the **table-6.12**.

TABLE-6.12
Radiotelephony reply procedure

	Type a)	Type b)	Type c)
Designation of the station called	VTDMC	AIR INDIA TDMC	INDAIR123
Designation of the answering station	DELHI RADIO	DELHI RADIO	DELHI RADIO
Invitation to proceed with transmission	GO AHEAD	GO AHEAD	GO AHEAD

**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 6.10.3 shall be used. Numbers are to be spoken in accordance with 6.10.4

6.11.3.5 When a station is called but is uncertain of the identification of the calling station, it should reply by transmitting the following:

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.

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

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

(DELHI station replying) STATION CALLING DELHI (pause) SAY AGAIN YOUR CALL SIGN

6.11.3.6 Communications shall commence with a call and a reply

6.11.3.7 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 6.14.1.4

6.11.3.7.1.As 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

6.11.3.8 Subsequent radiotelephony communications

Abbreviated radiotelephony call signs, as prescribed in 6.11.2.2, 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.

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

6.11.3.8.2 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.

6.11.3.9 Indication of transmitting frequency

As 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.

6.11.3.9.1 When 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:

(IAC123 calling Delhi on 8948 kHz)
DELHI INDAIR ONE TWO THREE -
ON EIGHT NINER

6.11.3.9.2 Wherever VHF communications channels are separated by 25 kHz, only the first 5 digits should be used to identify the transmitting carrier frequency in radiotelephony communications. Not more than two significant digits after the decimal point are used. In the case of these being two zeros, a single zero is considered significant.

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

CHANNEL	TRANSMITTED AS
118.000	ONE ONE EIGHT DECIMAL ZERO
118.025	ONE ONE EIGHT DECIMAL ZERO TWO

6.11.3.9.3 Wherever VHF communications channels are separated by 8.33 kHz, all 6 digits of the numerical designator should be used to identify the transmitting channel in radiotelephony communications. Three digits after the decimal point are to be used for all channels.

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

CHANNEL	TRANSMITTED AS
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

6.12 Test Procedures

The form of test transmissions should be as follows:

- the identification of the station being called;
- the aircraft identification
- the words "RADIO CHECK";
- the frequency being used.

6.12.1 The reply to a test transmission should be as follows:

- the identification of the aircraft;
- the identification of the aeronautical station replying;

- information regarding the readability of the aircraft transmission.

6.12.2 The test transmission and reply thereto should be recorded at the aeronautical station.

6.12.3 When the tests are made, the following readability scale should be used:

Readability Scale

- Unreadable
- Readable now and then
- Readable but with difficulty
- Readable
- Perfectly readable

6.13 Exchange of communications

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

6.13.1 Abbreviated procedures should only be used after initial contact has been established and where no confusion is likely to arise.

6.13.2 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.



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

6.13.2.2 An aircraft station should acknowledge receipt of important air traffic control messages or parts thereof by reading them back and terminating the readback by its radio call sign.

Note 1.— Air traffic control clearances, instructions and information requiring readback 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:
INDAIR FOUR ZERO FOUR DELHI

Aircraft:
DELHI INDAIR FOUR ZERO FOUR
— GO AHEAD

Station:
INDAIR FOUR ZERO FOUR DELHI
ATC CLEARs INDAIR FOUR ZERO
FOUR TO DESCEND TO NINE
THOUSAND FEET

Aircraft (acknowledging):
CLEARED TO DESCEND TO NINE
THOUSAND FEET — INDAIR FOUR
ZERO FOUR

Station (denoting accuracy of readback):

DELHI

6.13.2.3 Acknowledgement of receipt is transmitted by an aeronautical station:

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

6.13.2.3.1 Aeronautical station should acknowledge position reports and other flight progress reports by reading back the report and terminating the readback by its call sign, except that the readback procedure may be suspended temporarily whenever it will alleviate congestion on the communication channel.

6.13.2.4 It 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 readback by transmitting its call sign.

6.13.2.5 If 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.

6.13.3 End of conversation.

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

6.13.4 Corrections and repetitions

6.13.4.1 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.

6.13.4.2 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.

6.13.4.3 When an operator transmitting a message considers that reception is likely to be difficult, he should transmit the important elements of the message twice.

6.13.4.4 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.

6.13.4.5 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)".

6.13.4.6 Specific items should be requested, as appropriate, such as "SAY AGAIN ALTIMETER", "SAY AGAIN WIND".

6.13.4.7 If, in checking the correctness of a readback, 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.

6.13.5 "Operations normal" reports

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

6.14 Establishment and assurance of communications

6.14.1 Communications watch/ Hours of service

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

6.14.1.1 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.

6.14.1.2 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 appropriate authority.

6.14.1.3 Aircraft on flights other than those specified in 6.14.1.1 and 6.14.1.2 should guard the emergency frequency 121.5 MHz to the extent possible.

6.14.1.4 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.

6.14.2 Aeronautical stations shall maintain watch as required by the appropriate Authority.

6.14.3 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.

6.14.4 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.

6.14.4.1 When operation is resumed, other stations concerned shall be so informed.

6.14.4.1 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.

6.14.5 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.

6.15 Principles of network operation (HF communications)

6.15.1 The 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.

6.15.2 When 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.

6.15.3In 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.

6.15.4During 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 6.20.2).

6.15.5The 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.

6.16 Frequencies to be used

Aircraft stations shall operate on the appropriate radio frequencies.

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

6.16.2 In 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.

6.16.3 An aeronautical station, when designating frequencies in accordance with 6.16.1 or 6.16.2, should take into account the appropriate propagation data and distance over which communications are required.

6.16.4 If a frequency designated by an aeronautical station proves to be unsuitable, the aircraft station should suggest an alternative frequency.

6.16.5 When, notwithstanding the provisions of 6.1.1, 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.

6.17. Establishment of communications

6.17.1 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.

6.17.2 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 this Manual.

6.17.3 When, 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.

6.17.3.1 Other stations of the network should render assistance by taking similar action only if attempts to establish communications by the regular stations have proved unsuccessful.

6.17.4 The provisions of 6.17.3 and 6.17.3.1 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.

6.18 Transfer of HF communications

6.18.1 An 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.

6.18.2 In 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.

6.18.3 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.

6.18.4 When 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.

6.18.5 When 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.

6.18.6 Before 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)

6.19 Transfer of VHF communications

6.19.1 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.

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

6.20 Communications failure

6.20.1 Air-ground

6.20.1.1 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.

6.20.1.2 If the attempts specified under 6.20.1.1 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.

6.20.1.2.1 In 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.

6.20.1.3 Receiver failure

6.20.1.3.1 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.

6.20.1.3.2 An aircraft which is provided with air traffic control or advisory service shall, in addition to complying with 6.20.1.3.1, transmit information regarding the intention of the pilot-in-command with respect to the continuation of the flight of the aircraft.

6.20.1.3.3 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.

6.20.2 Ground-to-air

6.20.2.1 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.

6.20.2.2 The provisions of 6.20.2.1 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 ATS Authority.

6.20.2.3If the attempts specified in 6.20.2.1 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.

6.20.2.4Blind transmission of air traffic control clearances shall not be made to aircraft, except at the specific request of the originator.

6.20.3 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

6.21_HF message handling

6.21.1When 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 ATS Authority, and provided it does not cause undue interference with the operation of other aeronautical stations.

6.21.2Messages 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.

6.21.2.1Acknowledgement of intercept should be made immediately after the acknowledgement of receipt by the

station to which the message was passed.

6.21.2.2 Acknowledgement 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.

6.21.2.3 In 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.

6.21.2.3.1 If, in abnormal circumstances, forwarding is necessary using the air-ground channels, the provisions of 6.16.5 should be observed.

6.21.2.4 When such forwarding is done over the aeronautical fixed telecommunication network, the messages should be addressed to the network station(s) concerned.

6.21.2.5 The 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.

6.21.2.6 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.

6.21.3 The provisions of 6.21.2 should also be applied, if practicable, in non-network operation.

6.21.4 When 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.

6.21.4.1 If the aeronautical station to which the message is addressed is unable to dispose of the message in accordance with 6.21.4, the station of origin should be advised.

6.21.4.2 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.

6.21.5 Transmission of ATS messages to aircraft

6.21.5.1 If 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.

6.21.5.2 If 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.

6.21.5.3 The 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.

6.21.6 Recording of air-ground communications on teletypewriter

6.21.6.1 When 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);

e) correction of typing errors should be made by keyboard manipulation (space E space E space E space E), 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.

6.22 SELCAL procedures

Note.— The procedures contained in 6.22 are applicable when SELCAL is used and replace certain of the procedures related to calling contained in 6.10

6.22.1 With 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.

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

6.22.3 On aircraft equipped with SELCAL, the pilot is still able to keep a conventional listening watch if required.

6.22.4 Notification to aeronautical stations of aircraft SELCAL codes

6.22.4.1 It 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.

6.22.4.2 When 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.

6.22.4.3 The 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).

6.22.5 Pre-flight check

6.22.5.1 The aircraft station should contact the appropriate aeronautical station and request a pre-flight SELCAL check and, if necessary, give its SELCAL code.

6.22.5.2 When 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.

6.22.5.3 Should 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.

6.22.6 Establishment of communications

6.22.6.1 When an aeronautical station initiates a call by SELCAL, the aircraft replies with its radio call sign, followed by the phrase “GO AHEAD”.

6.22.7 En-route procedures

6.22.7.1 Aircraft stations should ensure that the appropriate aeronautical station(s) are aware that SELCAL watch is being established or maintained

6.22.7.2 When 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.

6.22.7.3 Once SELCAL watch has been established by a particular aircraft station, aeronautical stations should employ SELCAL whenever they require to call aircraft.

6.22.7.4 In 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.

6.22.7.5 Stations 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.

6.22.7.6 All stations should be advised when the SELCAL installation is again functioning normally

6.22.8 SELCAL code assignment to aircraft

6.22.8.1 In 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.

6.23. Distress and urgency radiotelephony communication procedures

6.23.1The distress and urgency procedures contained in 6.23 relate to the use of radiotelephony.

6.23.1.1Distress 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.

6.23.1.2The 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.

6.23.1.2.1.At the commencement of any subsequent communication in distress and urgency traffic, it shall be permissible to use the radiotelephony distress and urgency signals.

6.23.1.3The 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.

6.23.1.4If 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 6.23.2.2 and 6.23.3.2 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.

6.23.1.5Distress 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.

6.23.1.6 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.

6.23.2 Radiotelephony distress communications

6.23.2.1 Action by the aircraft in distress

6.23.1.1 In addition to being preceded by the radiotelephony distress signal MAYDAY (see 6.23.1.2), preferably spoken three times, 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 6.23.2.1.1 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.

6.23.2.2 Action by the station addressed or first (station acknowledging the distress message)

6.23.2.2.1 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.

6.23.2.3 Imposition of silence

6.23.2.3.1 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.

6.23.2.3.2 The use of the signals specified in 6.23.2.3.1 shall be reserved for the aircraft station in distress and for the station controlling the distress traffic.

6.23.2.4 Action by all other stations

6.23.2.4.1 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) station controlling communications gives permission;

d) it has itself to render assistance.

6.23.2.4.2 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.

6.23.2.5 Termination of distress communications and of silence

6.23.2.5.1 When an aircraft is no longer in distress, it shall transmit a message cancelling the distress condition.

6.23.2.5.2 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.

6.23.2.5.3 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 6.23.2.5.1, it is authorized to do so by the appropriate authority.

6.23.3 Radiotelephony urgency communications

6.23.3.1 Action by the aircraft reporting an urgency condition except as indicated in 6.23.3.4

6.23.3.1.1 In addition to being preceded by the radiotelephony urgency signal PAN PAN (see 6.23.1.2), 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 6.23.3.1.1 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.



6.23.3.2 Action by the station addressed or first station acknowledging the urgency message

6.23.3.2.1 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.

6.23.3.3 Action by all other stations

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;

6.23.3.3.1 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.

6.23.3.4 Action by an aircraft used for medical transports

6.23.3.4.1 The use of the signal described in 6.23.3.4.2 shall indicate that the message which follows concerns a protected medical transport pursuant to the 1949 Geneva Conventions and Additional Protocols.

6.23.3.4.2 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

- 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.

6.23.3.5 Action by the station addressed or by other stations



receiving a medical transports message

6.23.3.5.1The provisions of 6.23.3.2 and 6.23.3.3 shall apply as appropriate to stations receiving a medical transports message.

6.24 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.

7.AERONAUTICAL RADIO NAVIGATION SERVICE

7.1 General

7.1.1 The aeronautical radio navigation service shall comprise all types and systems of radio navigation aids in the international aeronautical service.

7.1.2 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.

7.1.2.1 Requests from aircraft should be made to the aeronautical station concerned on the air-ground frequency normally in use.

7.1.3 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 Annex 15.

7.2 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.

7.2.1 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.

7.2.2 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.

7.2.2.1 The 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.

7.2.3 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.

7.2.4 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.

7.2.5 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.

7.2.5.1 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.

7.2.6 When a direction-finding station is not satisfied with its observation, it shall request the aircraft station to repeat the transmission.

7.2.7 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.

7.2.8 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.

7.2.9 As soon as the aircraft station has received the bearing, heading or position, it shall repeat back the message for confirmation or correction.

7.2.10 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.

7.2.11 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.

7.2.12 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.

7.2.13 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.

Note - Direction Finding stations are not in use in Civil Aviation of India/AAI. Military Stations with Civil Air Terminals are using VDF/DRDF/CADF .

8. AERONAUTICAL BROADCASTING SERVICE

8.1 Broadcast-material

The text of broadcast material shall be prepared by the originator in the form desired for transmission.

8.2 Frequencies and schedules

8.2.1 Broadcasts shall be made on specified frequencies and at specified times.

8.2.2 Schedules and frequencies of all broadcasts shall be publicized in AIP (India)/ AERADIO. 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.*

8.2.3 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.

8.2.3.1 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.

8.2.4 Where broadcasts are conducted on a time allotment basis, each station promptly at the end of the allotted time period shall terminate transmission whether or not transmission of all material has been completed.

8.2.4.1 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.

8.3 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.

8.4 Radiotelephone broadcast procedures

8.4.1 Broadcast technique

8.4.1.1 Transmissions by radiotelephone shall be as natural, short and concise as practicable consistent with clarity.

8.4.1.2 Rate of speech on radiotelephone broadcasts shall not exceed 100 words per minute.

8.4.2 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) KOLKATA RADIO

(time of broadcast) TIME, ZERO ZERO FOUR FIVE

8.5 Automatic Terminal Information Service (ATIS)

Automatic Terminal Information Service (ATIS) is being provided at major airports in India . The Broadcast relates to the terminal aerodrome and is continuous and repetitive. The ATIS broadcast messages contain information for arriving and departing aircraft in the order indicated below:-.

- (i) Name of aerodrome
- (ii) Message designator ie. The word “INFORMATION” and identification letter from ICAO alphabet;
- (iii) Time of observation
- (iv) Type of approach(es) to be expected;
- (v) The runway (s) in use;
- (vi) Transition level;
- (vii) Other essential operational information
- (viii) Surface wind direction and speed, including significant variations;
- (ix) *Visibility and, when applicable RVR;
- (x) *present weather;
- (xi) *Cloud below 5000ft or below the highest minimum sector altitude, whichever is greater; cumulonimbus.
- (xii) Air temperature
- (xiii) Dew point temperature
- (xiv) Altimeter setting (s)
- (xv) Any available information on significant Meteorological phenomena in the approach and climb out areas including wind shear , and information on recent weather of operational significance contained in MET report;
- (xvi) Trend forecast when applicable;
- (xvii) The word “INFORMATION” followed by “designator” and the word “OUT”

* These elements are replaced by term “CAVOK” whenever applicable.

Language used for these broadcasts is English. Aircraft shall acknowledge

receipt of information upon establishing communication with the ATS unit. Providing approach control service or the Aerodrome control tower, as appropriate.

When rapidly changing Meteorological conditions make it impracticable to transmit an up-to-date weather report, the ATIS message will indicate that weather information will be supplied on initial contact with appropriate ATS unit.

Note1 – See AIP India AD-2.18 / AERADIO for details of availability of ATIS at the individual aerodromes and the hours of operation.

Note2 – See Table 8.1 for details of scheduled sequential collective meteorological broadcast by AAI and Table 8.2 for details of scheduled broadcast by AAI when ATIS is unserviceable

TABLE-8.1

METEOROLOGICAL BROADCAST**Table (A) VOLMET RADIO TELEPHONY BROADCAST**

Name	Call Sign	Time (UTC)	Frequency	EM	From	Contents	HRS	Remarks
1	2	3	4	5	6	7	8	9
Mumbai	Mumbai Radio	H + 25- H + 30 & H + 55- H + 60	11387 6676 2965	J3E	METAR QNH Trend FCST AD FCST	Mumbai Ahmedabad* Chennai Colombo Karachi Male Mumbai Colombo	H24	11387KHz 0300-1300 6676KHz H24 2965KHz 1300-0300
Kolkata	Kolkata Radio	H + 05- H + 10 & H + 35- H + 40	11387 6676 2965	J3E	METAR QNH Trend FCST AD FCST	Kolkata Delhi Dhaka Yangon Kathmandu Kolkata Mumbai Delhi	H24	11387KHz 0300-1300 6676KHz H24 2965KHz 1300-0300

* Trend FCST during 0110-1610 only

All timings in UTC

TABLE-8.2

METEOROLOGICAL BROADCAST

Table (B) METEOROLOGICAL BROADCAST OVER RADIO NAVIGATIONAL AIDS

Name	Call Sign	Time (UTC)	Frequency	EM	From	Contents	HRS	Remarks
1	2	3	4	5	6	7	8	9
Mumbai	Mumbai Area	H + 45- H + 50 & H + 15- H + 20	116.6 Mhz	A3E	METAR	Mumbai	#	VOR
Kolkata	Kolkata Area	H + 25- H + 30 & H + 55 H + 00	112.5 Mhz	A3E	METAR	Kolkata		VOR
		H + 25 H + 30 & H + 55 H + 00	323 KHz	A3E	METAR	Kolkata		NDB
Delhi	Delhi Area	H + 05/ 10 H + 35/ 40	275 KHz	A3E	METAR	Delhi		NDB
			116.1 Mhz	A3E	METAR	Delhi		VOR

Available only when ATIS is unserviceable.

9. AERONAUTICAL MOBILE SERVICE — DATA LINK COMMUNICATIONS

9.1 General

While the provisions of Chapter 9 are based primarily on the use of controller-pilot data link communications (CPDLC), the provisions of 9.1 would apply to other data link applications, where applicable, including Data link—flight information services (e.g. D-ATIS, DVOLMET)

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.

9.1.1 Composition of data link messages

9.1.1.1 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 4.15. Plain language shall be avoided when the length of the text can be reduced by using appropriate abbreviations and codes. Nonessential words and phrases, such as expressions of politeness, shall not be used.

9.1.1.2 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.

9.1.1.3 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.

9.1.2 Display of data link messages

9.1.2.1 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.

9.1.2.2 Whenever textual presentation is required, the English language shall be displayed as a minimum.

9.2 CPDLC procedures

Note.— The CPDLC message set referred to in this section can be found in the PANS-ATM, Appendix 5.

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

9.2.1.1 Consequences 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).

9.2.2 Ground and airborne systems shall provide controllers and pilots with the capability to review and validate any operational messages they send.

9.2.3 Ground and airborne systems shall provide controllers and pilots with the capability to review, validate and when applicable, acknowledge any operational messages they receive.

9.2.4 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.

9.2.5 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.

9.2.6 The pilot and the controller shall be provided with the capability to exchange messages which do not conform to defined formats (i.e. free text messages).

9.2.7 Unless specified by the appropriate ATS authority, voice read-back of CPDLC messages shall not be required.

9.2.8 Establishment of CPDLC

9.2.8.1 The controller and the pilot shall be informed when CPDLC has been successfully established.

9.2.8.2 CPDLC shall be established in sufficient time to ensure that the aircraft is communicating with the appropriate ATC unit.

9.2.8.3 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.

9.2.8.4 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.

9.2.8.5 When the airborne system detects that CPDLC is available for operational use, it shall send the CPDLC downlink message element CURRENT DATA AUTHORITY.

9.2.8.6 Airborne-initiated CPDLC

9.2.8.6.1 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.

9.2.8.6.2 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.

9.2.8.7 ATC unit-initiated CPDLC

9.2.8.7.1 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.

9.2.8.7.2 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.

9.2.9 Exchange of operational CPDLC messages

9.2.9.1 Controllers and pilots shall construct CPDLC messages using the defined message set, a free text message or a combination of both.

9.2.9.1.1 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 message shall be used.

9.2.9.1.2 Except as provided by 9.2.12.1, 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.

9.2.9.1.3 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.

9.2.9.2 The composition of a CPDLC message shall not exceed five message elements, only two of which may contain the route clearance variable.

9.2.9.2.1 The use of long messages or messages with multiple clearance 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).

9.2.9.3 CPDLC ground systems and airborne systems shall be capable of using the CPDLC message urgency and alert attributes to alter presentations 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 three attributes: urgency, 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.

9.2.9.3.1 The urgency attribute shall delineate the queuing requirements for received messages that are displayed to the end-user. Urgency types are presented in **Table-9.1**.

9.2.9.3.2 The alert attribute shall delineate the type of alerting required upon message receipt. Alert types are presented in **Table-9.2**.

9.2.9.3.3 The response attribute shall delineate valid responses for a given message element. Response types are presented in a) for uplink messages and b) for downlink messages in **Table 9.3 and 9.4** respectively.

TABLE-9.1
Urgency Attribute (Uplink and Downlink)

Type	Description	Precedence
D	Distress	1
<u>U</u>	Urgent	2
N	Normal	3
L	Low	4

TABLE-9.2
Alert Attribute (Uplink and Downlink)

Type	Description	Precedence
H	High	1
M	Medium	2
L	Low	3
N	No alerting required	4

TABLE-9.3
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-9.4
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), SERVICE UNAVAILABLE, FLIGHT PLAN NOT HELD, ERROR	2

9.2.9.3.3.1 When a multi-element message requires a response, and the response is in the form of a single message element, 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.

9.2.9.3.3.2 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.

9.2.9.3.3.3 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.

9.2.9.3.3.4 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.

9.2.9.3.3.5 When a controller can only partially accommodate multi-element clearance requests, the requests shall

be responded to with clearances corresponding to the parts that can be accommodated, and for the parts that cannot be accommodated, the current clearance shall be restated or an alternative clearance shall be given.

Note – For example , a multi – element downlink message containing the indicated message elements: (Table 9.5)

9.2.9.3.3.6 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 : (Table 9.6)

TABLE – 9.5

Multi element-downlink message	Could be responded to with
MAINTAINING FL310 REQUEST CLEARANCE YQM YYG YYT YQX TRACK X EINN FPL EDDF	CLEARED YQM YYG YYT YQX TRACK X EINN FPL EDDF
REQUEST CLIMB FL350	CLIMB TO FL350 REPORT REACHING
WE CAN ACCEPT FL390 AT 1139Z	CROSS 52N 30W AT OR AFTER 1150Z
REQUEST MACH .84	NO SPEED RESTRICTION

TABLE-9.6

multi-element uplink message	could be responded to with
CONFIRM SQUAWK	SQUAWKING 5525
WHEN CAN YOU ACCEPT FL410	WE CAN ACCEPT FL410 AT 1636Z

9.2.9.4 When a ground or airborne system generates the CPDLC

message ERROR, the reason for the error shall be included in the message

9.2.9.5 The appropriate ATS authority shall select those message elements contained in 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 SERVICE UNAVAILABLE.

Note.— Further processing of the received message is not required.

9.2.9.5.1 Only the uplink messages appropriate to a particular control sector's operations should be provided to the controller.

Note.— The CPDLC message set contained in PANS-ATM, Appendix 5 was developed to encompass different air traffic management environments.

9.2.9.5.2 When considered necessary by the appropriate ATS authority, additional pre-formatted free text messages shall be made available to the controller for those occasions where the CPDLC message set contained in the PANS-ATM does not provide for specific requirements. In such cases, a list of pre-formatted free text messages shall be established by the appropriate ATS authority, in consultation with operators and other ATS authorities that may be concerned.

9.2.9.5.3 Information concerning CPDLC message element subsets utilized and, if applicable, any additional preformatted free text

messages, shall be published in aeronautical information publications.

9.2.9.6 Transfer of CPDLC

Details on CPDLC transfer can be found in the Manual of Air Traffic Services Data Link Applications (Doc 9694).

9.2.9.6.1 When CPDLC is transferred, the transfer of voice communications and CPDLC shall commence concurrently.

9.2.9.6.2 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.

9.2.9.6.3 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.

9.2.9.6.3.1 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.

9.2.9.6.3.2 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.

9.2.9.6.3.2.1 The controller should revert to voice communications to clarify any ambiguity associated with the message(s) outstanding.

9.2.9.6.4 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.

9.2.10 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.

9.2.11 Free text messages

The use of free text messages by controllers or pilots, other than pre-formatted free text messages referred to in paragraph 9.2.9.5.2, 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.

9.2.12 Emergencies, hazards and equipment failure procedures

9.2.12.1 When a CPDLC emergency message is received, the controller shall acknowledge receipt of the message by the most efficient means available.

9.2.12.2 When responding via CPDLC to a report indicating unlawful interference, uplink message ROGER 7500 shall be used.

9.2.12.3 When responding via CPDLC to all other emergency or urgency messages, uplink message ROGER shall be used.

9.2.12.4 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.

9.2.12.5 Failure of CPDLC

9.2.12.5.1 A CPDLC failure should be detected in a timely manner.

9.2.12.5.2 The controller and pilot shall be alerted to a failure of CPDLC as soon as a failure has been detected.

9.2.12.5.3 When 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.**

9.2.12.5.4 Controllers 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.

9.2.12.5.5 When 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.

9.2.12.5.6 When 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.

9.2.12.6 Intentional shutdown of CPDLC

9.2.12.6.1 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.

9.2.12.6.2 Aircraft currently in communication with the ATC unit shall be informed by voice or CPDLC of any imminent loss of CPDLC service.

9.2.12.6.3 The controller and pilot shall be provided with the capability to abort CPDLC.

9.2.13 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.

9.2.14 Downstream clearance delivery service

9.2.14.1 The appropriate ATS authority shall determine whether an ATC unit supports downstream clearance delivery service.

9.2.14.2 Establishment of downstream clearance delivery service

9.2.14.2.1 Downstream clearance delivery service shall only be initiated by the airborne system. The initiation shall indicate that this communication is only to receive a downstream clearance.

9.2.14.2.2 When an ATC unit rejects a request for downstream clearance delivery service, it shall provide the pilot with the reason for the rejection using the CPDLC message SERVICE UNAVAILABLE.

9.2.14.3 Operation of downstream clearance delivery service

9.2.14.3.1 The controller and pilot shall be informed when downstream clearance delivery service is available for operational communication.

9.2.14.3.2 The controller and pilot shall be informed of the failure of downstream clearance delivery service.

9.2.14.3.3 The CPDLC message elements that are permitted for downstream clearance delivery service shall be established by regional air navigation agreement.

9.2.14.3.4 A clearance request issued as a downstream clearance request shall be clearly identifiable as such to the controller.

9.2.14.3.5 A clearance issued as a downstream clearance shall be clearly identifiable as such to the pilot.

9.2.14.4 Termination of downstream clearance delivery service

9.2.14.4.1 Termination of downstream clearance delivery service shall only be initiated by the airborne system.

9.2.14.4.2 Downstream clearance delivery service with an ATC unit shall be terminated whenever the downstream data authority becomes the current data authority.

Note :CPDLC at present is being used in Chennai , Kolkata and Delhi airports only.



10. GUIDANCE MATERIAL FOR THE TRANSMISSION OF LONG MESSAGES ON THE AFTN

10.1 Introduction

The requirement for the transmission of separate messages over the AFTN when a text exceeding 1 800 characters is encountered is detailed in 5.6.4.7 and 5.7.4.10. When messages have to be divided into two or more parts, the following procedure should be applied.

10.2 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 VIDPANYX
(Origin) 101130 VIDDYXAX
(Text) text
// END PART 01 //
(Ending) NNNN**

b) Second message:

**(Address) GG VIDPANYX
(Origin) 101130 VIDDYXAX
(Text) text continued
// END PART 02 //
(Ending) NNNN**

c) Third and last message:

**(Address) GG VIDPANYX
(Origin) 101130 VIDDYXAX
(Text) remainder of text
// END PART 03/03 //
(Ending) NNNN**

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