

## CHAPTER 5. AERONAUTICAL MOBILE SERVICE — VOICE COMMUNICATIONS

### 5.1 General

*Note.— 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.*

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

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

*Note.— Detailed language proficiency requirements appear in the Appendix to Annex 1.*

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

5.1.1.3 **Recommendation.**— *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).*

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

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

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

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

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

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

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

### 5.1.8 Categories of messages

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

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

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

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

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

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

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

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

5.1.8.4 *Flight safety messages* shall comprise the following:

- 1) movement and control messages [see PANS-ATM (Doc 4444)];
- 2) messages originated by an aircraft operating agency or by an aircraft, of immediate concern to an aircraft in flight;
- 3) meteorological advice of immediate concern to an aircraft in flight or about to depart (individually communicated or for broadcast);
- 4) other messages concerning aircraft in flight or about to depart.

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

5.1.8.6 *Flight regularity messages* shall comprise the following:

- 1) messages regarding the operation or maintenance of facilities essential for the safety or regularity of aircraft operation;
- 2) messages concerning the servicing of aircraft;
- 3) instructions to aircraft operating agency representatives concerning changes in requirements for passengers and crew caused by unavoidable deviations from normal operating schedules. Individual requirements of passengers or crew shall not be admissible in this type of message;

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

5) messages concerning aircraft parts and materials urgently required;

6) messages concerning changes in aircraft operating schedules.

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

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

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

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

#### 5.1.9 Cancellation of messages

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

#### 5.1.9.2 Complete transmissions

**Recommendation.**— *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.*

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

## 5.2 Radiotelephony procedures

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

## 5.2.1 General

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

5.2.1.2 *Language to be used*

5.2.1.2.1 The air-ground radiotelephony communications shall be conducted in the language normally used by the station on the ground or in the English language.

*Note 1.*— *The language normally used by the station on the ground may not necessarily be the language of the State in which it is located. A common language may be agreed upon regionally as a requirement for stations on the ground in that region.*

*Note 2.*— *The level of language proficiency required for aeronautical radiotelephony communications is specified in the Appendix to Annex 1.*

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

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

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

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

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

5.2.1.4 *Transmission of numbers in radiotelephony*5.2.1.4.1 *Transmission of numbers*

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

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

*aircraft call signs**transmitted as*CCA 238 Air China **two three eight**OAL 242 Olympic **two four two***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** knots160 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**

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

Letter	Word	Approximate pronunciation	
		International Phonetic Convention	Latin alphabet representation
A	Alfa	'ælfɑ	<u>AL</u> FAH
B	Bravo	'brɑ:'vɔ	<u>BRAH</u> VOH
C	Charlie	'tʃɑ:li or 'ʃɑ:li	<u>CHAR</u> LEE or <u>SHAR</u> LEE
D	Delta	'delta	<u>DELL</u> TAH
E	Echo	'eko	<u>ECK</u> OH
F	Foxtrot	'fɔkstrɔt	<u>FOKS</u> TROT
G	Golf	gʌlf	GOLF
H	Hotel	ho:'tel	HO <u>TELL</u>
I	India	'indi-ɑ	<u>IN</u> DEE AH
J	Juliett	'dʒu:li:'et	<u>JEW</u> LEE <u>ETT</u>
K	Kilo	'ki:lo	<u>KEY</u> LOH
L	Lima	'li:mɑ	<u>LEE</u> MAH
M	Mike	maik	MIKE
N	November	no'vembə	NO <u>VEM</u> BER
O	Oscar	'ɔskɑ	<u>OSS</u> CAH
P	Papa	pə'pɑ	PAH <u>PAH</u>
Q	Quebec	ke'bek	KEH <u>BECK</u>
R	Romeo	'ro:mi-o	<u>ROW</u> ME OH
S	Sierra	si'era	SEE <u>AIR</u> RAH
T	Tango	'tæŋgo	<u>TANG</u> GO
U	Uniform	'ju:nifɔ:m or 'u:nifɔ:m	<u>YOU</u> NEE FORM or <u>OO</u> NEE FORM
V	Victor	'vikta	<u>VIK</u> TAH
W	Whiskey	'wiski	<u>WISS</u> KEY
X	X-ray	'eks'rei	<u>ECKS</u> RAY
Y	Yankee	'jæŋki	<u>YANG</u> KEY
Z	Zulu	'zu:lu:	<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 may vary according to the language habits of the speakers. In order to eliminate wide variations in pronunciation, posters illustrating the desired pronunciation are available from ICAO.

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

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

<i>altitude</i>	<i>transmitted as</i>
800	<b>eight hundred</b>
3 400	<b>three thousand four hundred</b>
12 000	<b>one two thousand</b>

<i>Time</i>	<i>Statement</i>
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

<i>cloud height</i>	<i>transmitted as</i>
2 200	<b>two thousand two hundred</b>
4 300	<b>four thousand three hundred</b>

5.2.1.4.2 *Verification of numbers*

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

<i>visibility</i>	<i>transmitted as</i>
1 000	visibility <b>one thousand</b>
700	visibility <b>seven hundred</b>

5.2.1.4.3 *Pronunciation of numbers*

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

<i>runway visual range</i>	<i>transmitted as</i>
600	<b>RVR six hundred</b>
1 700	<b>RVR one thousand seven hundred</b>

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

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

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

<i>Number</i>	<i>Transmitted as</i>
100.3	ONE ZERO ZERO DECIMAL THREE
38 143.9	THREE EIGHT ONE FOUR THREE DECIMAL NINE

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

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

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

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

5.2.1.5 *Transmitting technique*

5.2.1.5.1 **PANS.**— Each written message should be read prior to commencement of transmission in order to eliminate unnecessary delays in communications.

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

Note.— See the language proficiency requirements in the Appendix to Annex 1.

5.2.1.5.3 **PANS.**— 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.

5.2.1.5.4 **Recommendation.**— *Speech transmitting technique should be adapted to the prevailing communications conditions.*

5.2.1.5.5 **PANS.**— *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 5.2.1.5.5 are specifically identified in the abbreviation encode sections of the PANS-ABC (Doc 8400).*

5.2.1.5.6 **PANS.**— *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.*

5.2.1.5.7 **PANS.**— *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.*

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

Phrase	Meaning
ACKNOWLEDGE	“Let me know that you have received and understood this message.”
AFFIRM	“Yes.”

APPROVED	“Permission for proposed action granted.”
BREAK	“I hereby indicate the separation between portions of the message.” <i>(To be used where there is no clear distinction between the text and other portions of the message.)</i>
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.” <i>(Not to be used in any other context. No answer is normally expected.)</i>
CLEARED	“Authorized to proceed under the conditions specified.”
CONFIRM	“I request verification of: <i>(clearance, instruction, action, information)</i> .”
CONTACT	“Establish communications with...”
CORRECT	“True” or “Accurate”.
CORRECTION	“An error has been made in this transmission <i>(or message indicated)</i> . The correct version is...”
DISREGARD	“Ignore.”
HOW DO YOU READ	“What is the readability of my transmission?” <i>(see 5.2.1.8.4)</i>
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.”
OUT	“This exchange of transmissions is ended and no response is expected.”

*Note.*— *Not normally used in VHF communications.*

*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.”

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

SAY AGAIN “Repeat all, or the following part, of your last transmission.”

SPEAK SLOWER “Reduce your rate of speech.”

*Note.— For normal rate of speech, see 5.2.1.5.3 b).*

STANDBY “Wait and I will call you.”

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

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

*Note.— UNABLE is normally followed by a reason.*

WILCO (*Abbreviation for “will comply”.*)  
“I understand your message and will comply with it.”

WORDS TWICE a) *As a request:* “Communication is difficult. Please send every word, or group of words, twice.”

b) *As information:* “Since communication is difficult, every word, or group of words, in this message will be sent twice.”

### 5.2.1.6 Composition of messages

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

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

b) text (*see* 5.2.1.6.2.1.1).

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

(call) NEW YORK RADIO SWISSAIR ONE ONE ZERO

(text) REQUEST SELCAL CHECK

*or*

(call) SWISSAIR ONE ONE ZERO NEW YORK RADIO

(text) CONTACT SAN JUAN ON FIVE SIX

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

#### 5.2.1.6.2.1 When originated in an aircraft:

1) call (*see* 5.2.1.7.3);

2) the word FOR;

3) the name of the organization addressed;

4) the name of the station of destination;

5) the text.

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

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

(call) BOSTON RADIO SWISSAIR ONE TWO EIGHT

(address) FOR SWISSAIR BOSTON

(text) NUMBER ONE ENGINE CHANGE REQUIRED

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

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

- a) the text [incorporating any corrections (COR) contained in the AFTN message];
- b) the word FROM;
- c) the name of the originating organization and its location (taken from the origin section of the AFTN message).

5.2.1.6.2.2.2 **PANS.**— *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 5.2.1.6.2.2.2 are specifically identified in the abbreviations encode sections of the PANS-ABC (Doc 8400).*

5.2.1.7 *Calling*

5.2.1.7.1 *Radiotelephony call signs for aeronautical stations*

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

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

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

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

<i>Unit/service available</i>	<i>Call sign suffix</i>
area control centre	CONTROL
approach control	APPROACH
approach control radar arrivals	ARRIVAL
approach control radar departures	DEPARTURE

aerodrome control	TOWER
surface movement control	GROUND
radar (in general)	RADAR
precision approach radar	PRECISION
direction-finding station	HOMER
flight information service	INFORMATION
clearance delivery	DELIVERY
apron control	APRON
company dispatch	DISPATCH
aeronautical station	RADIO

5.2.1.7.2 *Radiotelephony call signs for aircraft*

5.2.1.7.2.1 *Full call signs*

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

- Type a) — the characters corresponding to the registration marking of the aircraft; or
- Type b) — the telephony designator of the aircraft operating agency, followed by the last four characters of the registration marking of the aircraft;
- Type c) — the telephony designator of the aircraft operating agency, followed by the flight identification.

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

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

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

5.2.1.7.2.2 *Abbreviated call signs*

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

- Type a) — the first character of the registration and at least the last two characters of the call sign;
- Type b) — the telephony designator of the aircraft operating agency, followed by at least the last two characters of the call sign;



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

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

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

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).

### 5.2.1.7.3 Radiotelephony procedures

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

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

#### 5.2.1.7.3.2 Establishment of radiotelephony communications

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

5.2.1.7.3.2.2 **PANS.**— 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.

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

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

5.2.1.7.3.2.4 **PANS.**— When a station is called but is uncertain of the identification of the calling station, it should reply by transmitting the following:

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

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

*(CAIRO station replying)*

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

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

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

*Note.*— For conditions on use of air-to-air channels see Annex 10, Volume V, 4.1.3.2.1, also Volume II, 5.2.2.1.1.4.

5.2.1.7.3.2.6.1 **PANS.**— 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*

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

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

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

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

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

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

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

### 5.2.1.7.3.3 Subsequent radiotelephony communications

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

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

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

### 5.2.1.7.3.4 Indication of transmitting channel

5.2.1.7.3.4.1 **PANS.**— 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.

5.2.1.7.3.4.2 **PANS.**— 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:

(PAA 325 calling Kingston on 8 871 kHz)

KINGSTON CLIPPER THREE TWO FIVE — ON EIGHT EIGHT

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

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

Channel	Transmitted as
118.000	ONE ONE EIGHT DECIMAL ZERO
118.005	ONE ONE EIGHT DECIMAL ZERO ZERO FIVE

- 118.010 ONE ONE EIGHT DECIMAL ZERO ONE ZERO
- 118.025 ONE ONE EIGHT DECIMAL ZERO TWO FIVE
- 118.050 ONE ONE EIGHT DECIMAL ZERO FIVE ZERO
- 118.100 ONE ONE EIGHT DECIMAL ONE

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

Note 3.— The numerical designator corresponds to the channel identification in Annex 10, Volume V, Table 4-1 (bis).

5.2.1.7.3.4.4 **PANS.**— In airspace where all VHF voice communications channels are separated by 25 kHz or more and the use of six digits as in 5.2.1.7.3.4.3 is not substantiated by the operational requirement determined by the appropriate authorities, the first five digits of the numerical designator should be used, except in the case of both the fifth and sixth digits being zeros, in which case only the first four digits should be used.

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

Channel	Transmitted as	Radio management panel setting for communication equipment with	
		25 kHz (5 digits)	8.33/25 kHz (6 digits)
118.000	ONE ONE EIGHT DECIMAL ZERO	118.00	118.000
118.025	ONE ONE EIGHT DECIMAL ZERO TWO	118.02	118.025
118.050	ONE ONE EIGHT DECIMAL ZERO FIVE	118.05	118.050
118.075	ONE ONE EIGHT DECIMAL ZERO SEVEN	118.07	118.075
118.100	ONE ONE EIGHT DECIMAL ONE	118.10	118.100

Note 2.— Caution must be exercised with respect to the indication of transmitting channels in VHF radiotelephony communications when five digits of the numerical designator

are used in airspace where aircraft are also operated with channel separation capabilities of 8.33/25 kHz. On aircraft installations with a channel separation capability of 8.33 kHz and more, it is possible to select six digits on the radio management panel. It should therefore be ensured that the fifth and sixth digits are set to 25 kHz channels (see Note 1).

Note 3.—The numerical designator corresponds to the channel identification in Annex 10, Volume V, Table 4-1 (bis).

5.2.1.8 Test procedures

5.2.1.8.1 **PANS.**— The form of test transmissions should be as follows:

- a) the identification of the station being called;
- b) the aircraft identification;
- c) the words “RADIO CHECK”;
- d) the frequency being used.

5.2.1.8.2 **PANS.**— The reply to a test transmission should be as follows:

- a) the identification of the aircraft;
- b) the identification of the aeronautical station replying;
- c) information regarding the readability of the aircraft transmission.

5.2.1.8.3 **PANS.**— The test transmission and reply thereto should be recorded at the aeronautical station.

5.2.1.8.4 **PANS.**— When the tests are made, the following readability scale should be used:

Readability Scale

- 1 Unreadable
- 2 Readable now and then
- 3 Readable but with difficulty
- 4 Readable
- 5 Perfectly readable

5.2.1.9 Exchange of communications

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

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

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

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

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

5.2.1.9.2.2 **PANS.**— 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:

TWA NINE SIX THREE MADRID

Aircraft:

MADRID TWA NINE SIX THREE

Station:

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

Aircraft (acknowledging):

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

Station (denoting accuracy of readback):

MADRID

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

- 1) *to an aircraft station:* it shall comprise the call sign of the aircraft, followed if considered necessary by the call sign of the aeronautical station;
- 2) *to another aeronautical station:* it shall comprise the call sign of the aeronautical station that is acknowledging receipt.

5.2.1.9.2.3.1 **PANS.**— An 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.

5.2.1.9.2.4 **PANS.**— 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.

5.2.1.9.2.5 **PANS.**— 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.

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

#### 5.2.1.9.4 Corrections and repetitions

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

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

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

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

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

5.2.1.9.4.6 **Recommendation.**— Specific items should be requested, as appropriate, such as “SAY AGAIN ALTIMETER”, “SAY AGAIN WIND”.

5.2.1.9.4.7 If, in checking the correctness of a 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.

#### 5.2.1.9.5 “Operations normal” reports

**PANS.**— *When “operations normal” reports are transmitted by aircraft, they should consist of the prescribed call followed by the words “OPERATIONS NORMAL”.*

### 5.2.2 Establishment and assurance of communications

#### 5.2.2.1 Communications watch/ Hours of service

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

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

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

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

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

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

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

*Note.*— See Annex 10, Volume V, 4.1.3.1.1 for provisions related to the utilization of 121.5 MHz at aeronautical stations.

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

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

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

#### 5.2.2.2 Principles of network operation (HF communications)

5.2.2.2.1 **PANS.**— *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.*

5.2.2.2.2 **PANS.**— *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.*

5.2.2.2.3 **PANS.**— *In areas or on routes where radio conditions, length of flights or distance between aeronautical stations require additional measures to ensure continuity of air-ground communication throughout the route segment, the regular stations should share between them a responsibility of*

primary guard whereby each station will provide the primary guard for that portion of the flight during which the messages from the aircraft can be handled most effectively by that station.

5.2.2.2.4 **PANS.**— During its tenure of primary guard, each regular station should, among other things:

- a) be responsible for designating suitable primary and secondary frequencies for its communications with the aircraft;
- b) receive all position reports and handle other messages from and to the aircraft essential to the safe conduct of the flight;
- c) be responsible for the action required in case of failure of communications (see 5.2.2.7.2).

5.2.2.2.5 **PANS.**— The transfer of primary guard from one station to the next will normally take place at the time of the traversing of flight information region or control area boundaries, this guard being provided at any time, as far as possible, by the station serving the flight information centre or area control centre in whose area the aircraft is flying. However, where communication conditions so demand, a station may be required to retain primary guard beyond such geographical boundaries or release its guard before the aircraft reaches the boundary, if appreciable improvement in air-ground communication can be effected thereby.

### 5.2.2.3 Frequencies to be used

5.2.2.3.1 Aircraft stations shall operate on the appropriate radio frequencies.

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

5.2.2.3.1.2 **PANS.**— 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.

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

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

5.2.2.3.4 **PANS.**— When, notwithstanding the provisions of 5.1.1, air-ground frequencies are used for the exchange

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

### 5.2.2.4 Establishment of communications

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

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

5.2.2.4.3 **PANS.**— 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.

5.2.2.4.3.1 **PANS.**— 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.

5.2.2.4.4 **PANS.**— The provisions of 5.2.2.4.3 and 5.2.2.4.3.1 should also be applied:

- a) on request of the air traffic services unit concerned;
- b) when an expected communication from an aircraft has not been received within a time period such that the occurrence of a communication failure is suspected.

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

### 5.2.2.5 Transfer of HF communications

5.2.2.5.1 **PANS.**— 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.

5.2.2.5.2 **PANS.**— *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.*

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

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

5.2.2.5.5 **PANS.**— *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.*

5.2.2.5.6 **PANS.**— *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)*

#### 5.2.2.6 *Transfer of VHF communications*

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

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

#### 5.2.2.7 *Voice communications failure*

##### 5.2.2.7.1 *Air-ground*

5.2.2.7.1.1 When an aircraft station fails to establish contact with the appropriate aeronautical station on the designated channel, it shall attempt to establish contact on the

previous channel used and, if not successful, on another channel appropriate to the route. If these attempts fail, the aircraft station shall attempt to establish communication with the appropriate aeronautical station, other aeronautical stations or other aircraft using all available means and advise the aeronautical station that contact on the assigned channel could not be established. In addition, an aircraft operating within a network shall monitor the appropriate VHF channel for calls from nearby aircraft.

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

5.2.2.7.1.2.1 **PANS.**— *In network operation, a message which is transmitted blind should be transmitted twice on both primary and secondary channels. Before changing channel, the aircraft station should announce the channel to which it is changing.*

##### 5.2.2.7.1.3 *Receiver failure*

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

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

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

*Note.— General rules which are applicable in the event of communications failure are contained in Annex 2 to the Convention.*

##### 5.2.2.7.2 *Ground-to-air*

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

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

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

5.2.2.7.2.2 The provisions of 5.2.2.7.2.1 shall also be applied:

- a) on request of the air traffic services unit concerned;
- b) when an expected communication from an aircraft has not been received within a time period such that the occurrence of a communication failure is suspected.

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

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

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

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

## 5.2.3 HF message handling

### 5.2.3.1 General

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

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

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

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

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

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

5.2.3.1.2.2 **PANS.**— *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.*

5.2.3.1.2.3 **PANS.**— *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.*

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

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

5.2.3.1.2.5 **PANS.**— *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.*

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

- 1) to the air traffic services unit and meteorological offices associated with the station;
- 2) to the aircraft operating agency concerned or its representative when that agency has made a specific request to receive such messages.

5.2.3.1.3 **PANS.**— *The provisions of 5.2.3.1.2 should also be applied, if practicable, in non-network operation.*



5.2.3.1.4 **Recommendation.**— *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.*

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

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

#### 5.2.3.2 Transmission of ATS messages to aircraft

5.2.3.2.1 **PANS.**— *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.*

5.2.3.2.2 **PANS.**— *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.*

5.2.3.2.3 **PANS.**— *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.*

#### 5.2.3.3 Recording of air-ground communications on teletypewriter

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

#### 5.2.4 SELCAL procedures

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

##### 5.2.4.1 General

5.2.4.1.1 **PANS.**— *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.

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

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

#### 5.2.4.2 Notification to aeronautical stations of aircraft SELCAL codes

5.2.4.2.1 **PANS.**— 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.

5.2.4.2.2 **PANS.**— 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.

5.2.4.2.3 **PANS.**— 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).

#### 5.2.4.3 Pre-flight check

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

5.2.4.3.2 **PANS.**— 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.

5.2.4.3.3 **PANS.**— 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.

#### 5.2.4.4 Establishment of communications

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

#### 5.2.4.5 En-route procedures

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

5.2.4.5.2 **PANS.**— 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.

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

5.2.4.5.4 **PANS.**— 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.

5.2.4.5.5 **PANS.**— 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.

5.2.4.5.6 **PANS.**— All stations should be advised when the SELCAL installation is again functioning normally.

#### 5.2.4.6 SELCAL code assignment to aircraft

5.2.4.6.1 **PANS.**— 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.

### 5.3 Distress and urgency radiotelephony communication procedures

#### 5.3.1 General

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

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

- a) *Distress*: a condition of being threatened by serious and/or imminent danger and of requiring immediate assistance.
- b) *Urgency*: a condition concerning the safety of an aircraft or other vehicle, or of some person on board or within sight, but which does not require immediate assistance.

5.3.1.2 The radiotelephony distress signal MAYDAY and the radiotelephony urgency signal PAN PAN shall be used at the commencement of the first distress and urgency communication respectively.

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

5.3.1.3 The originator of messages addressed to an aircraft in distress or urgency condition shall restrict to the minimum the number and volume and content of such messages as required by the condition.

5.3.1.4 If no acknowledgement of the distress or urgency message is made by the station addressed by the aircraft, other stations shall render assistance, as prescribed in 5.3.2.2 and 5.3.3.2 respectively.

*Note.— “Other stations” is intended to refer to any other station which has received the distress or urgency message*

and has become aware that it has not been acknowledged by the station addressed.

5.3.1.5 Distress and urgency traffic shall normally be maintained on the frequency on which such traffic was initiated until it is considered that better assistance can be provided by transferring that traffic to another frequency.

*Note.— 121.5 MHz or alternative available VHF or HF frequencies may be used as appropriate.*

5.3.1.6 In cases of distress and urgency communications, in general, the transmissions by radiotelephony shall be made slowly and distinctly, each word being clearly pronounced to facilitate transcription.

#### 5.3.2 Radiotelephony distress communications

##### 5.3.2.1 Action by the aircraft in distress

5.3.2.1.1 In addition to being preceded by the radiotelephony distress signal MAYDAY (*see* 5.3.1.2), preferably spoken three times, the distress message to be sent by an aircraft in distress shall:

- a) be on the air-ground frequency in use at the time;
- b) consist of as many as possible of the following elements spoken distinctly and, if possible, in the following order:
  - 1) name of the station addressed (time and circumstances permitting);
  - 2) the identification of the aircraft;
  - 3) the nature of the distress condition;
  - 4) intention of the person in command;
  - 5) present position, level (i.e. flight level, altitude, etc., as appropriate) and heading.

*Note 1.— The foregoing provisions may be supplemented by the following measures:*

- a) *the distress message of an aircraft in distress being made on the emergency frequency 121.5 MHz or another aeronautical mobile frequency, if considered necessary or desirable. Not all aeronautical stations maintain a continuous guard on the emergency frequency;*
- b) *the distress message of an aircraft in distress being broadcast, if time and circumstances make this course preferable;*

- c) the aircraft transmitting on the maritime mobile service radiotelephony calling frequencies;
- d) the aircraft using any means at its disposal to attract attention and make known its conditions (including the activation of the appropriate SSR mode and code);
- e) any station taking any means at its disposal to assist an aircraft in distress;
- f) any variation on the elements listed under 5.3.2.1.1 b), when the transmitting station is not itself in distress, provided that such circumstance is clearly stated in the distress message.

*Note 2.— The station addressed will normally be that station communicating with the aircraft or in whose area of responsibility the aircraft is operating.*

#### 5.3.2.2 Action by the station addressed or first station acknowledging the distress message

5.3.2.2.1 The station addressed by aircraft in distress, or first station acknowledging the distress message, shall:

- a) immediately acknowledge the distress message;
- b) take control of the communications or specifically and clearly transfer that responsibility, advising the aircraft if a transfer is made;
- c) take immediate action to ensure that all necessary information is made available, as soon as possible, to:
  - 1) the ATS unit concerned;
  - 2) the aircraft operating agency concerned, or its representative, in accordance with pre-established arrangements;

*Note.— The requirement to inform the aircraft operating agency concerned does not have priority over any other action which involves the safety of the flight in distress, or of any other flight in the area, or which might affect the progress of expected flights in the area.*

- d) warn other stations, as appropriate, in order to prevent the transfer of traffic to the frequency of the distress communication.

#### 5.3.2.3 Imposition of silence

5.3.2.3.1 The station in distress, or the station in control of distress traffic, shall be permitted to impose silence, either on all stations of the mobile service in the area or on any station which interferes with the distress traffic. It shall

address these instructions “to all stations”, or to one station only, according to circumstances. In either case, it shall use:

- STOP TRANSMITTING;
- the radiotelephony distress signal MAYDAY.

5.3.2.3.2 The use of the signals specified in 5.3.2.3.1 shall be reserved for the aircraft station in distress and for the station controlling the distress traffic.

#### 5.3.2.4 Action by all other stations

5.3.2.4.1 The distress communications have absolute priority over all other communications, and a station aware of them shall not transmit on the frequency concerned, unless:

- a) the distress is cancelled or the distress traffic is terminated;
- b) all distress traffic has been transferred to other frequencies;
- c) the station controlling communications gives permission;
- d) it has itself to render assistance.

5.3.2.4.2 Any station which has knowledge of distress traffic, and which cannot itself assist the station in distress, shall nevertheless continue listening to such traffic until it is evident that assistance is being provided.

#### 5.3.2.5 Termination of distress communications and of silence

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

5.3.2.5.2 When the station which has controlled the distress communication traffic becomes aware that the distress condition is ended, it shall take immediate action to ensure that this information is made available, as soon as possible, to:

- 1) the ATS unit concerned;
- 2) the aircraft operating agency concerned, or its representative, in accordance with pre-established arrangements.

5.3.2.5.3 The distress communication and silence conditions shall be terminated by transmitting a message, including the words “DISTRESS TRAFFIC ENDED”, on the frequency or frequencies being used for the distress traffic. This message shall be originated only by the station controlling the communications when, after the reception of the message prescribed in 5.3.2.5.1, it is authorized to do so by the appropriate authority.

### 5.3.3 Radiotelephony urgency communications

#### 5.3.3.1 Action by the aircraft reporting an urgency condition except as indicated in 5.3.3.4

5.3.3.1.1 In addition to being preceded by the radiotelephony urgency signal PAN PAN (see 5.3.1.2), preferably spoken three times and each word of the group pronounced as the French word “panne”, the urgency message to be sent by an aircraft reporting an urgency condition shall:

- a) be on the air-ground frequency in use at the time;
- b) consist of as many as required of the following elements spoken distinctly and, if possible, in the following order:
  - 1) the name of the station addressed;
  - 2) the identification of the aircraft;
  - 3) the nature of the urgency condition;
  - 4) the intention of the person in command;
  - 5) present position, level (i.e. flight level, altitude, etc., as appropriate) and heading;
  - 6) any other useful information.

*Note 1.— The foregoing provisions of 5.3.3.1.1 are not intended to prevent an aircraft broadcasting an urgency message, if time and circumstances make this course preferable.*

*Note 2.— The station addressed will normally be that station communicating with the aircraft or in whose area of responsibility the aircraft is operating.*

#### 5.3.3.2 Action by the station addressed or first station acknowledging the urgency message

5.3.3.2.1 The station addressed by an aircraft reporting an urgency condition, or first station acknowledging the urgency message, shall:

- a) acknowledge the urgency message;
- b) take immediate action to ensure that all necessary information is made available, as soon as possible, to:
  - 1) the ATS unit concerned;
  - 2) the aircraft operating agency concerned, or its representative, in accordance with pre-established arrangements;

*Note.— The requirement to inform the aircraft operating agency concerned does not have priority*

*over any other action which involves the safety of the flight in distress, or of any other flight in the area, or which might affect the progress of expected flights in the area.*

- c) if necessary, exercise control of communications.

#### 5.3.3.3 Action by all other stations

5.3.3.3.1 The urgency communications have priority over all other communications, except distress, and all stations shall take care not to interfere with the transmission of urgency traffic.

#### 5.3.3.4 Action by an aircraft used for medical transports

5.3.3.4.1 The use of the signal described in 5.3.3.4.2 shall indicate that the message which follows concerns a protected medical transport pursuant to the 1949 Geneva Conventions and Additional Protocols.

5.3.3.4.2 For the purpose of announcing and identifying aircraft used for medical transports, a transmission of the radiotelephony urgency signal PAN PAN, preferably spoken three times, and each word of the group pronounced as the French word “panne”, shall be followed by the radiotelephony signal for medical transports MAY-DEE-CAL, pronounced as in the French “médical”. The use of the signals described above indicates that the message which follows concerns a protected medical transport. The message shall convey the following data:

- a) the call sign or other recognized means of identification of the medical transports;
- b) position of the medical transports;
- c) number and type of medical transports;
- d) intended route;
- e) estimated time en route and of departure and arrival, as appropriate; and
- f) any other information such as flight altitude, radio frequencies guarded, languages used, and secondary surveillance radar modes and codes.

#### 5.3.3.5 Action by the station addressed or by other stations receiving a medical transports message

5.3.3.5.1 The provisions of 5.3.3.2 and 5.3.3.3 shall apply as appropriate to stations receiving a medical transports message.

**5.4 Communications related to acts of  
unlawful interference**

The station addressed by an aircraft being subjected to an act of unlawful interference, or first station acknowledging a call from such aircraft, shall render all possible assistance, including notification of appropriate ATS units as well as any other station, agency or person in a position to facilitate the flight.

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