

**International Standards  
and Recommended Practices**



**Annex 12**  
to the Convention on  
International Civil Aviation

# **Search and Rescue**

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This edition incorporates all amendments adopted by the Council prior to 13 March 2001 and supersedes, on 1 November 2001, all previous editions of Annex 12.

For information regarding the applicability of the Standards and Recommended Practices, see Foreword .

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**International Civil Aviation Organization**



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# FOREWORD

## Historical background

In December 1946, the Search and Rescue Division, at its second session, made recommendations for Standards and Recommended Practices for Search and Rescue. These were developed by the Secretariat and the then existent Air Navigation Committee, and were duly submitted to the Council. The proposals were not accepted by the Council in the form in which they were presented and, on 20 April 1948, were referred back to the Air Navigation Committee for further consideration.

A further draft Annex was then developed in the light of experience gained at Regional Air Navigation Meetings and eventually was approved in principle by the Air Navigation Commission and circulated to States for comment. Further development was made by the Air Navigation Commission as a result of States' comments and the resulting proposals were adopted by the Council on 25 May 1950 and designated as Annex 12 to the Convention on International Civil Aviation. The Annex became effective on 1 December 1950 and came into force on 1 March 1951.

Table A shows the origin of subsequent amendments together with a list of the principal subjects involved and the dates on which the Annex and the amendments were adopted by the Council, when they became effective and when they became applicable.

## Applicability

The Standards and Recommended Practices in this document govern the application of the *Regional Supplementary Procedures* — Search and Rescue, contained in Doc 7030, in which document will be found subsidiary procedures of regional application.

Annex 12 is applicable to the establishment, maintenance and operation of search and rescue services in the territories of Contracting States and over the high seas, and to the coordination of such services between States.

## Action by Contracting States

*Notification of differences.* The attention of Contracting States is drawn to the obligation imposed by Article 38 of the Convention by which Contracting States are required to notify the Organization of any differences between their national regulations and practices and the International Standards

contained in this Annex and any amendments thereto. Contracting States are invited to extend such notification to any differences from the Recommended Practices contained in this Annex, and any amendments thereto, when the notification of such differences is important for the safety of air navigation. Further, Contracting States are invited to keep the Organization currently informed of any differences which may subsequently occur, or of the withdrawal of any differences previously notified. A specific request for notification of differences will be sent to Contracting States immediately after the adoption of each Amendment to this Annex.

Attention of States is also drawn to the provisions of Annex 15 related to the publication of differences between their national regulations and practices and the related ICAO Standards and Recommended Practices through the Aeronautical Information Service, in addition to the obligation of States under Article 38 of the Convention.

*Promulgation of information.* Information relating to the establishment and withdrawal of and changes to facilities, services and procedures affecting aircraft operations provided according to the Standards and Recommended Practices specified in this Annex should be notified and take effect in accordance with Annex 15.

*Use of the text of the Annex in national regulations.* The Council, on 13 April 1948, adopted a resolution inviting the attention of Contracting States to the desirability of using in their own national regulations, as far as practicable, the precise language of those ICAO Standards that are of a regulatory character and also of indicating departures from the Standards, including any additional national regulations that were important for the safety or regularity of air navigation. Wherever possible, the provisions of this Annex have been written in such a way as would facilitate incorporation, without major textual changes, into national legislation.

## Status of Annex components

An Annex is made up of the following component parts, not all of which, however, are necessarily found in every Annex; they have the status indicated:

- 1.— *Material comprising the Annex proper:*
  - a) *Standards and Recommended Practices* adopted by the Council under the provisions of the Convention. They are defined as follows:

*Standard.* Any specification for physical characteristics, configuration, matériel, performance, personnel or procedure, the uniform application of which is recognized as necessary for the safety or regularity of international air navigation and to which Contracting States will conform in accordance with the Convention; in the event of impossibility of compliance, notification to the Council is compulsory under Article 38.

*Recommended Practice.* Any specification for physical characteristics, configuration, matériel, performance, personnel or procedure, the uniform application of which is recognized as desirable in the interests of safety, regularity or efficiency of international air navigation, and to which Contracting States will endeavour to conform in accordance with the Convention.

- b) *Appendices* comprising material grouped separately for convenience but forming part of the Standards and Recommended Practices adopted by the Council.
- c) *Definitions* of terms used in the Standards and Recommended Practices which are not self-explanatory in that they do not have accepted dictionary meanings. A definition does not have an independent status but is an essential part of each Standard and Recommended Practice in which the term is used, since a change in the meaning of the term would affect the specification.

2.— *Material approved by the Council for publication in association with the Standards and Recommended Practices:*

- a) *Forewords* comprising historical and explanatory material based on the action of the Council and including an explanation of the obligation of States with regard to the application of the Standards and Recommended Practices ensuing from the Convention and the Resolution of Adoption.
- b) *Introductions* comprising explanatory material introduced at the beginning of parts, chapters or sections of the Annex to assist in the understanding of the application of the text.
- c) *Notes* included in the text, where appropriate, to give factual information or references bearing on the

Standards or Recommended Practices in question, but not constituting part of the Standards or Recommended Practices.

- d) *Attachments* comprising material supplementary to the Standards and Recommended Practices, or included as a guide to their application.

### Selection of language

This Annex has been adopted in five languages — English, Arabic, French, Russian and Spanish. Each Contracting State is requested to select one of those texts for the purpose of national implementation and for other effects provided for in the Convention, either through direct use or through translation into its own national language, and to notify the Organization accordingly.

### Editorial practices

The following practice has been adhered to in order to indicate at a glance the status of each statement: *Standards* have been printed in light face roman; *Recommended Practices* have been printed in light face italics, the status being indicated by the prefix **Recommendation**; *Notes* have been printed in light face italics, the status being indicated by the prefix *Note*.

The following editorial practice has been followed in the writing of specifications: for Standards the operative verb “shall” is used, and for Recommended Practices the operative verb “should” is used.

Throughout this document:

- a) measurements are given in the metric system followed in parentheses by corresponding measurements in the foot-pound system; and
- b) the use of the male gender should be understood to include male and female persons.

Any reference to a portion of this document, which is identified by a number and/or title, includes all subdivisions of that portion.

Table A. Amendments to Annex 12

| <i>Amendment</i>   | <i>Source(s)</i>  | <i>Subject(s)</i>  | <i>Adopted/approved<br/>Effective<br/>Applicable</i> |
|--------------------|---|--|--|
| 1st Edition        | Search and Rescue Division, Second Session (1946)<br>Air Navigation Commission      | International Standards and Recommended Practices — Search and Rescue Services.  | 25 May 1950<br>1 December 1950<br>1 March 1951       |
| 1<br>(2nd Edition) | Search and Rescue Division, Third Session (1951)                                    | Search and rescue organization; communications; appraisals of search and rescue operations; procedures for search and rescue; air-to-ground signals.   | 31 March 1952<br>1 September 1952<br>1 January 1953  |
| 2<br>(3rd Edition) | Second Air Navigation Conference (1955)   | Rescue sub-centres; servicing and refuelling rescue units of other Contracting States.   | 8 May 1956<br>1 September 1956<br>1 December 1956    |
| 3                  | Third Air Navigation Conference (1956).<br>Amendment 140 to Annex 6, Chapter 6      | Marking of areas of the fuselage suitable for break-in.  | 13 June 1957<br>1 October 1957<br>1 December 1957    |
| 4<br>(4th Edition) | Rules of the Air, Air Traffic Services and Search and Rescue Divisions (1958)       | Cooperation between States; information concerning emergencies; procedures for rescue coordination centres.  | 8 December 1959<br>1 May 1960<br>1 August 1960       |
| 5                  | Amendment 13 to Annex 11  | Notification of rescue coordination centres by air traffic services units.   | 13 April 1962<br>—<br>1 November 1962                |
| 6                  | Amendment 4 to Annex 9  | Temporary entry of rescue units from other Contracting States.   | —<br>—<br>1 July 1964                                |
| 7                  | Amendment 14 to Annex 11, Chapter 5   | Alerting of surface vessels and en-route aircraft to assist an aircraft in distress.   | 19 June 1964<br>1 November 1964<br>1 February 1965   |
| 8                  | International Convention for the Safety of Life at Sea.<br>Amendment 15 to Annex 11 | Updating of reference; alerting service.   | 10 December 1965<br>—<br>25 August 1966              |
| 9<br>(5th Edition) | Air Navigation Commission review of the Regional Supplementary Procedures           | Cooperation between Contracting States; servicing and refuelling of rescue units of other Contracting States; testing search and rescue communications facilities; assistance in search and rescue operations by additional units or services. | 25 May 1970<br>25 September 1970<br>4 February 1971  |
| 10                 | Air Navigation Commission   | Carriage of the International Code of Signals by search and rescue aircraft; equipment of search and rescue aircraft with frequency 2182 kHz; information on position of merchant ships.   | 11 December 1972<br>11 April 1973<br>16 August 1973  |

| <i>Amendment</i>    | <i>Source(s)</i>   | <i>Subject(s)</i>   | <i>Adopted/approved<br/>Effective<br/>Applicable</i>  |
|---------------------|--|---|---|
| 11<br>(6th Edition) | Complete review of the Annex by the Air Navigation Commission                                    | New signal to surface craft; provision of search and rescue services on a 24-hour basis; dissemination of information on position of merchant ships; appraisals of search and rescue operations; improvement of cooperation between neighbouring States; equipment of rescue units; availability of information on air traffic services; location of droppable survival equipment; methods for assisting aircraft in distress and being compelled to ditch to rendezvous with surface craft; methods for assisting search and rescue or other aircraft to rendezvous with aircraft in distress. | 25 November 1974<br>25 March 1975<br>9 October 1975   |
| 12                  | Amendment 60 to Annex 3  | Supplementary communication facilities between meteorological offices and search and rescue units.  | 8 December 1975<br>8 April 1976<br>12 August 1976     |
| 13                  | Air Navigation Commission  | Ground-air visual signal code for use by survivors.   | 15 December 1980<br>15 April 1981<br>26 November 1981 |
| 14                  | Air Navigation Commission  | Rescue coordination centre (RCC) responsibilities regarding preparatory measures in the event an aircraft is subject to unlawful interference.  | 12 March 1990<br>30 July 1990<br>15 November 1990     |
| 15                  | Air Navigation Commission  | Definition for search and rescue aircraft; communications requirements for rescue coordination centres (RCCs) and equipment of search and rescue (SAR) aircraft; SAR point of contact (SPOC).   | 12 March 1993<br>26 July 1993<br>11 November 1993     |
| 16<br>(7th Edition) | Amendments 25, 20 and 7 to Annex 6, Parts I, II and III, respectively; Air Navigation Commission | Revised definition of “pilot-in-command”; editorial amendments.   | 12 March 2001<br>16 July 2001<br>1 November 2001      |

# INTERNATIONAL STANDARDS AND RECOMMENDED PRACTICES

*Note.— Although the Convention on International Civil Aviation allocates to the State of Registry certain functions which that State is entitled to discharge, or obliged to discharge, as the case may be, the Assembly recognized, in Resolution A23-13, that the State of Registry may be unable to fulfil its responsibilities adequately in instances where aircraft are leased, chartered or interchanged — in particular without crew — by an operator of another State and that the Convention may not adequately specify the rights and obligations of the State of an operator in such instances. Accordingly, the Council, without prejudice to the question of whether the Convention may require amendment with respect to the allocation of functions to States, urged that if, in the above-mentioned instances, the State of Registry finds itself unable to discharge adequately the functions allocated to it by the Convention, it delegate to the State of the operator, subject to acceptance by the latter State, those functions of the State of Registry that can more adequately be discharged by the State of the operator. It is understood that the foregoing action will only be a matter of practical convenience and will not affect either the provisions of the Chicago Convention prescribing the duties of the State of Registry or any third State.*

## CHAPTER 1. DEFINITIONS

When the following terms are used in the Standards and Recommended Practices for Search and Rescue, they have the following meanings:

*Note.— The designation (RR) in these definitions indicates a definition which has been extracted from the Radio Regulations of the International Telecommunication Union (ITU) (see Handbook on Radio Frequency Spectrum Requirements for Civil Aviation including statement of approved ICAO policies (Doc 9718)).*

**Alerting post.** A unit designated to receive information from the general public regarding aircraft in emergency and to forward the information to the associated rescue coordination centre.

**Alert phase.** A situation wherein apprehension exists as to the safety of an aircraft and its occupants.

**Distress phase.** A situation wherein there is a reasonable certainty that an aircraft and its occupants are threatened by grave and imminent danger or require immediate assistance.

**Ditching.** The forced landing of an aircraft on water.

**Emergency phase.** A generic term meaning, as the case may be, uncertainty phase, alert phase or distress phase.

**Operator.** A person, organization or enterprise engaged in or offering to engage in an aircraft operation.

**Pilot-in-command.** The pilot designated by the operator, or in the case of general aviation, the owner, as being in command and charged with the safe conduct of a flight.

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

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

**Rescue coordination centre.** A unit responsible for promoting efficient organization of search and rescue services and for coordinating the conduct of search and rescue operations within a search and rescue region.

**Rescue subcentre.** A unit subordinate to a rescue coordination centre, established to complement the latter within a specified portion of a search and rescue region.

**Rescue unit.** A unit composed of trained personnel and provided with equipment suitable for the expeditious conduct of search and rescue.

**Search and rescue aircraft.** An aircraft provided with specialized equipment suitable for the efficient conduct of search and rescue missions.

**Search and rescue region.** An area of defined dimensions within which search and rescue services are provided.

**Search and rescue services unit.** A generic term meaning, as the case may be, rescue coordination centre, rescue subcentre or alerting post.

**State of Registry.** The State on whose register the aircraft is entered.

**Uncertainty phase.** A situation wherein uncertainty exists as to the safety of an aircraft and its occupants.

## CHAPTER 2. ORGANIZATION

### 2.1 Establishment and provision of search and rescue services

2.1.1 Contracting States shall arrange for the establishment and provision of search and rescue services within their territories. Such services shall be provided on a 24-hour basis.

2.1.1.1 Those portions of the high seas or areas of undetermined sovereignty for which search and rescue services will be established shall be determined on the basis of regional air navigation agreements. A Contracting State having accepted the responsibility to provide search and rescue services in such areas shall thereafter arrange for the services to be established and provided in accordance with the provisions of this Annex.

*Note.— The phrase “regional air navigation agreements” refers to the agreements approved by the Council of ICAO normally on the advice of Regional Air Navigation Meetings.*

2.1.2 In providing assistance to aircraft in distress and to survivors of aircraft accidents, Contracting States shall do so regardless of the nationality of such aircraft or survivors.

### 2.2 Establishment of search and rescue regions

2.2.1 Contracting States shall delineate the search and rescue regions within which they will provide search and rescue services. Such regions shall not overlap.

2.2.1.1 **Recommendation.**— *Boundaries of search and rescue regions should, in so far as practicable, be coincident with the boundaries of corresponding flight information regions.*

### 2.3 Establishment and designation of search and rescue services units

2.3.1 Contracting States shall establish a rescue coordination centre in each search and rescue region.

2.3.2 **Recommendation.**— *Contracting States should establish rescue subcentres whenever this would improve the efficiency of search and rescue services.*

2.3.3 **Recommendation.**— *In areas where public telecommunications facilities would not permit persons observing an aircraft in emergency to notify the rescue coordination centre concerned directly and promptly, Contracting States should designate suitable units of public or private services as alerting posts.*

### 2.4 Communication for search and rescue services units

2.4.1 Each rescue coordination centre shall have means of immediate communication with:

- a) the associated air traffic services unit;
- b) associated rescue subcentres;
- c) appropriate direction-finding and position-fixing stations in the region;
- d) where appropriate, coastal radio stations capable of alerting and communicating with surface vessels in the region.

*Note.— “Means of immediate communication” are considered to be direct-line telephone or teletype, direct radiotelephone circuit, or, when these cannot be made available, telephone or teletype via a switchboard.*

2.4.2 Each rescue coordination centre shall have means of rapid and reliable communication with:

- a) the headquarters of rescue units in the region;
- b) rescue coordination centres in adjacent regions;
- c) a designated meteorological office or meteorological watch office;
- d) rescue units when employed in search and rescue;
- e) alerting posts;
- f) the COSPAS-SARSAT\* Mission Control Centre servicing the search and rescue (SAR) region when the

\* COSPAS — space system for search of vessels in distress  
SARSAT — search and rescue satellite-aided tracking

rescue coordination centre (RCC) has been designated SAR point of contact (SPOC).

*Note.*— “Means of rapid and reliable communication” include digital data interchange, telephone, facsimile and radiotelephone.

2.4.3 In addition to the requirement in 2.4.1 b), each rescue subcentre shall have means of rapid and reliable communication with:

- a) adjacent rescue subcentres;
- b) a meteorological office or meteorological watch office;
- c) rescue units when employed in search and rescue;
- d) alerting posts.

*Note.*— See Note following 2.4.2.

2.4.4 **Recommendation.**— *The means of communication provided in accordance with 2.4.2 c) and 2.4.3 b) should be supplemented, as and where necessary, by other means of visual or audio communication, for example, closed-circuit television.*

## 2.5 Designation of rescue units

2.5.1 Contracting States shall designate as rescue units elements of public or private services suitably located and equipped for search and rescue in each search and rescue region, and shall define the relative functions of these elements and the respective rescue coordination centre.

2.5.1.1 Contracting States shall establish additional rescue units wherever the units designated in accordance with 2.5.1 are insufficient.

*Note.*— *The minimum units and facilities necessary for provision of search and rescue within a search and rescue region are determined by regional air navigation agreements and are specified in the appropriate Air Navigation Plan publications.*

2.5.2 **Recommendation.**— *Contracting States should designate as parts of the search and rescue plan of operation, elements of public or private services that do not qualify as rescue units but are nevertheless able to participate in search and rescue operations, and should define the relative functions of these elements and the respective rescue coordination centres.*

## 2.6 Equipment of rescue units

2.6.1 Rescue units shall be provided with facilities and equipment for locating promptly, and for providing adequate assistance at, the scene of an accident.

*Note.*— *In selecting equipment for rescue units it is important that due regard be given to the size and passenger capacity of modern aircraft.*

2.6.2 **Recommendation.**— *In addition to the communications required by the Standards in 2.4.2 d) and 2.4.3 c), each rescue unit should have means of rapid and reliable communication with other units or elements engaged in the same operation.*

*Note.*— See Note following 2.4.2.

2.6.3 Each search and rescue aircraft shall be equipped to be able to communicate on the aeronautical distress and scene of action frequencies and on such other frequencies as may be prescribed.

2.6.4 Each search and rescue aircraft shall be equipped with a device for homing on emergency locator transmitters transmitting on 121.5 MHz required to be carried by aircraft in accordance with the provisions of Annex 6, Parts I, II and III.

*Note.*— *Specifications for emergency locator transmitters (ELTs) are given in Annex 10, Volume III.*

2.6.5 Each search and rescue aircraft, when used for search and rescue over maritime areas and required to communicate with merchant ships, shall be equipped to be able to communicate with such ships on 2182 kHz.

2.6.6 Each search and rescue aircraft, when used for search and rescue over maritime areas and required to communicate with merchant ships, shall carry a copy of the International Code of Signals to enable it to overcome language difficulties that may be experienced in communicating with such ships.

2.6.7 **Recommendation.**— *Unless it is known that there is no need to provide supplies to survivors by air, at least one of the aircraft participating in a search and rescue operation should carry droppable survival equipment.*

2.6.8 **Recommendation.**— *States should provide, at appropriate aerodromes where search and rescue aircraft are not readily available, survival equipment suitably packed for dropping by aircraft not normally participating in search and rescue operations.*

2.6.9 **Recommendation.**— *Containers or packages containing survival equipment for dropping to survivors should have the general nature of their contents indicated by a colour code, by printed indication, and by self-explanatory symbols, to the extent that such symbols exist.*

2.6.9.1 **Recommendation.**— *The colour identification of the contents of droppable containers and packages containing survival equipment should take the form of coloured streamers according to the following code:*

- Red* — *medical supplies and first-aid equipment.*
- Blue* — *food and water.*
- Yellow* — *blankets and protective clothing.*
- Black* — *miscellaneous equipment such as stoves, axes, compasses, cooking utensils, etc.*

2.6.9.2 **Recommendation.**— *Where supplies of a mixed nature are dropped in one container or package, the colour code should be used in combination.*

2.6.10 **Recommendation.**— *Instructions on the use of the survival equipment should be enclosed in each of the droppable containers or packages. They should be printed in at least three languages of which at least one should be one of the working languages of ICAO.*

## CHAPTER 3. COOPERATION

### 3.1 Cooperation between States

3.1.1 Contracting States shall coordinate their search and rescue organizations with those of neighbouring Contracting States.

3.1.2 **Recommendation.**— *Contracting States should, whenever necessary, coordinate their search and rescue operations with those of neighbouring States.*

3.1.2.1 **Recommendation.**— *Contracting States should, in so far as practicable, develop common search and rescue procedures to facilitate coordination of search and rescue operations with those of neighbouring States.*

3.1.3 Subject to such conditions as may be prescribed by its own authorities, a Contracting State shall permit immediate entry into its territory of rescue units of other States for the purpose of searching for the site of aircraft accidents and rescuing survivors of such accidents.

3.1.4 The authorities of a Contracting State which wish its rescue units to enter the territory of another Contracting State for search and rescue purposes shall transmit a request, giving full details of the projected mission and the need for it, to the rescue coordination centre of the State concerned or to such other authority as has been designated by that State.

3.1.4.1 The authorities of Contracting States shall:

— immediately acknowledge the receipt of such a request, and

— as soon as possible indicate the conditions, if any, under which the projected mission may be undertaken.

3.1.5 **Recommendation.**— *Contracting States should enter into agreements with neighbouring States setting forth the conditions for entry of each other's rescue units into their respective territories. These agreements should also provide for expediting entry of such units with the least possible formalities.*

3.1.6 **Recommendation.**— *Each Contracting State should authorize its rescue coordination centres to:*

a) *request from other rescue coordination centres such assistance, including aircraft, vessels, personnel or equipment, as may be needed;*

b) *grant any necessary permission for the entry of such aircraft, vessels, personnel or equipment into its territory; and*

c) *make the necessary arrangements with the appropriate customs, immigration or other authorities with a view to expediting such entry.*

3.1.7 **Recommendation.**— *Each Contracting State should authorize its rescue coordination centres to provide, when requested, assistance to other rescue coordination centres, including assistance in the form of aircraft, vessels, personnel or equipment.*

3.1.8 **Recommendation.**— *Contracting States should make arrangements for joint training exercises involving their search and rescue units, those of other States and operators, in order to promote search and rescue efficiency.*

3.1.9 **Recommendation.**— *Contracting States should make arrangements for periodic liaison visits by personnel of their rescue coordination centres and subcentres to the centres of neighbouring States.*

### 3.2 Cooperation with other services

3.2.1 Contracting States shall arrange for all aircraft, vessels and local services and facilities which do not form part of the search and rescue organization to cooperate fully with the latter in search and rescue and to extend any possible assistance to the survivors of aircraft accidents.

3.2.2 Contracting States shall ensure that their search and rescue services cooperate with those responsible for investigating accidents and with those responsible for the care of those who suffered from the accident.

3.2.3 **Recommendation.**— *To facilitate accident investigation, rescue units should, when practicable, be accompanied by persons qualified in the conduct of aircraft accident investigations.*

3.2.4 States shall designate a search and rescue point of contact (SPOC) for the receipt of COSPAS-SARSAT distress data.

**3.3 Dissemination of information**

3.3.1 Each Contracting State shall publish and disseminate all information necessary for the entry of rescue units of other States into its territory.

*Note.— See 3.1.3.*

3.3.2 **Recommendation.**— *When requested, Contracting States should make available, through the rescue coordination centres or other agencies, information regarding their search and rescue plans of operation.*

3.3.3 **Recommendation.**— *Each Contracting State recording information on the position of ships at sea should disseminate, on a regular basis, in so far as practicable, such information to other Contracting States concerned requesting it.*

3.3.4 **Recommendation.**— *Contracting States should, to the extent desirable and practicable, disseminate to the general public directives on actions to be taken when there is reason to believe that an aircraft is in an emergency and in the event of an aircraft accident.*

## CHAPTER 4. PREPARATORY MEASURES

### 4.1 Requirements for information

4.1.1 Each rescue coordination centre shall have available at all times up-to-date information concerning the following in respect of its search and rescue region:

- a) rescue units, rescue subcentres and alerting posts;
- b) air traffic services units;
- c) means of communication that may be used in search and rescue operations;
- d) cable addresses and telephone numbers of all operators or their designated representatives, engaged in operations in the region;
- e) any other public and private resources including medical and transportation facilities that are likely to be useful in search and rescue.

4.1.2 **Recommendation.**— *Each rescue coordination centre should have available all other information of interest to search and rescue, including information regarding:*

- a) *the locations, call signs, hours of watch, and frequencies of all radio stations likely to be employed in search and rescue;*
- b) *the locations and hours of watch of services keeping radio watch, and the frequencies guarded;*
- c) *objects which it is known might be mistaken for unlocated or unreported wreckage, particularly if viewed from the air;*
- d) *locations where supplies of droppable emergency and survival equipment are stored.*

4.1.3 **Recommendation.**— *Each rescue coordination centre whose search and rescue region includes maritime areas should have ready access to information regarding the position, true track, speed and call sign of ships within such areas, which may be able to provide assistance to aircraft in distress.*

*Note.*— *This information may either be kept in the rescue coordination centres or be readily obtainable if and when necessary.*

4.1.4 A large-scale map of the search and rescue region shall be available at each rescue coordination centre for the purpose of displaying and plotting information of interest to search and rescue.

### 4.2 Plan of operation

4.2.1 Each rescue coordination centre shall prepare a detailed plan for the conduct of search and rescue operations within its search and rescue region.

4.2.2 The plan of operation shall specify arrangements for the servicing and refuelling, to the extent possible, of aircraft, vessels and vehicles employed in search and rescue, including those made available by other States.

4.2.3 **Recommendation.**— *The plan of operation should contain details regarding all actions to be taken by those engaged in search and rescue, including:*

- a) *the manner in which search and rescue is to be conducted in the search and rescue region;*
- b) *the use of available communication systems and facilities;*
- c) *the actions to be taken jointly with adjacent rescue coordination centres;*
- d) *the methods of alerting en-route aircraft and ships at sea;*
- e) *the duties and prerogatives of personnel assigned to search and rescue;*
- f) *the possible redeployment of equipment that may be necessitated by meteorological or other conditions;*
- g) *the methods for obtaining essential information relevant to search and rescue operations, such as weather reports and forecasts, appropriate NOTAM, etc.;*

- h) the methods for obtaining, from other rescue coordination centres, such assistance, including aircraft, vessels, personnel or equipment, as may be needed;*
- i) the methods for assisting distressed aircraft being compelled to ditch to rendezvous with surface craft;*
- j) the methods for assisting search and rescue or other aircraft to rendezvous with aircraft in distress;*
- k) the initial actions for assistance to an aircraft known or believed to be subject to unlawful interference.*

### 4.3 Preparatory procedures for rescue units

4.3.1 Each rescue unit shall:

- a) be cognizant of all parts of the plan of operation prescribed in 4.2 that are necessary for the effective conduct of its duties;
- b) maintain in readiness the required number of rescue craft and vehicles;
- c) maintain supplies of rations, medical stores, signalling devices and other survival and rescue equipment;
- d) keep the rescue coordination centre currently informed of the quantity and preparedness of its equipment.

4.3.2 **Recommendation.**— *Each rescue unit should make arrangements for the supply of additional craft or vehicles in case replacement of those already engaged in search and rescue is required.*

### 4.4 Training

**Recommendation.**— *To achieve and maintain maximum efficiency in search and rescue, Contracting States should provide for regular training of their search and rescue personnel and arrange appropriate search and rescue exercises.*

### 4.5 Removal of wreckage

4.5.1 Each Contracting State shall ensure that wreckage resulting from aircraft accidents within its territory or, in the case of accidents on the high seas or in areas of undetermined sovereignty, within the search and rescue regions for which it is responsible, is removed or obliterated following completion of the accident investigation, or charted, so as to prevent subsequent confusion.

4.5.2 **Recommendation.**— *To facilitate compliance with 4.5.1, each Contracting State should require any person finding wreckage of aircraft to notify the appropriate authority as soon as possible.*

## CHAPTER 5. OPERATING PROCEDURES

### 5.1 Information concerning emergencies

5.1.1 **Recommendation.**— *Contracting States should encourage any person observing an accident or having reason to believe that an aircraft is in an emergency to give immediately all available information to the appropriate alerting post or to the rescue coordination centre concerned.*

5.1.2 Any authority or any element of the search and rescue organization having reason to believe that an aircraft is in an emergency shall give immediately all available information to the rescue coordination centre concerned.

5.1.3 Rescue coordination centres shall, immediately upon receipt of information concerning aircraft in emergency, evaluate such information and determine the extent of the operation required.

5.1.4 When information concerning aircraft in emergency is received from other sources than air traffic services units, the rescue coordination centre shall determine to which emergency phase the situation corresponds and shall apply the procedures applicable to that phase.

### 5.2 Procedures for rescue coordination centres during emergency phases

#### 5.2.1 Uncertainty phase

During the uncertainty phase, the rescue coordination centre shall cooperate to the utmost with air traffic services units and other appropriate agencies and services in order that incoming reports may be speedily evaluated.

#### 5.2.2 Alert phase

Upon the occurrence of an alert phase the rescue coordination centre shall immediately alert appropriate search and rescue services units and rescue units and initiate any necessary action.

#### 5.2.3 Distress phase

When an aircraft is believed to be in distress, or when a distress phase exists, the rescue coordination centre shall:

- a) initiate action by appropriate search and rescue services units and rescue units in accordance with the detailed plan of operation;
- b) ascertain the position of the aircraft, estimate the degree of uncertainty of this position, and, on the basis of this information and the circumstances, determine the extent of the area to be searched;
- c) notify the operator, where possible, and keep him informed of developments;
- d) notify adjacent rescue coordination centres, the help of which seems likely to be required, or which may be concerned in the operation;
- e) notify the associated air traffic services unit, when the information on the emergency has been received from another source;
- f) request at an early stage such aircraft, vessels, coastal stations, or other services not specifically included in a) as are in a position to do so, to:
  - 1) maintain a listening watch for transmission from the aircraft in distress or from an emergency locator transmitter;

*Note.— The frequencies contained in the specifications for emergency locator transmitters (ELTs) given in Annex 10, Volume III, are 121.5 MHz and 406 MHz.*

- 2) assist the aircraft in distress as far as practicable;
- 3) inform the rescue coordination centre of any developments;
- g) from the information available, draw up a plan for the conduct of the search and/or rescue operation required and communicate such plan for the guidance of the authorities immediately directing the conduct of such an operation;
- h) amend as necessary, in the light of circumstances, the guidance already given in g);
- i) notify the State of Registry of the aircraft;
- j) notify the appropriate accident investigation authorities.

The order in which these actions are described shall be followed unless circumstances dictate otherwise.

#### 5.2.4 Initiation of search and rescue action in respect of an aircraft whose position is unknown

In the event that an emergency phase is declared in respect of an aircraft whose position is unknown and may be in one of two or more search and rescue regions, the following shall apply:

- a) When a rescue coordination centre is notified of the existence of an emergency phase and is unaware of other centres taking appropriate action, it shall assume responsibility for initiating suitable action in accordance with 5.2 and confer with neighbouring rescue coordination centres with the objective of designating one rescue coordination centre to assume responsibility forthwith.
- b) Unless otherwise decided by common agreement of the rescue coordination centres concerned, the rescue coordination centre to coordinate search and rescue action shall be the centre responsible for:
  - the region in which the aircraft was according to its last reported position; or
  - the region to which the aircraft was proceeding when its last reported position was at the boundary of two search and rescue regions; or
  - the region to which the aircraft was destined when it was not equipped with suitable two-way radio communication or not under obligation to maintain radio communication.
- c) After declaration of the distress phase, the rescue coordination centre coordinating search and rescue action shall inform all rescue coordination centres that may become involved in the operation, of all the circumstances of the emergency and subsequent developments. Likewise, all rescue coordination centres becoming aware of any information pertaining to the incident, shall inform the rescue coordination centre which is coordinating the search and rescue action.

#### 5.2.5 Passing of information to aircraft in respect of which an emergency phase has been declared

Whenever applicable, the rescue coordination centre responsible for search and rescue action shall forward to the air traffic services unit serving the flight information region in which the aircraft is operating, information of the search and rescue action initiated, in order that such information can be passed to the aircraft.

### 5.3 Procedures where responsibility for operations extends to two or more Contracting States

Where the conduct of operations over the entire search and rescue region is the responsibility of more than one Contracting State, each involved State shall take action in accordance with the plan of operation when so requested by the rescue coordination centre of the region.

### 5.4 Procedures for authorities in the field

The authorities immediately directing the conduct of operations or any part thereof shall:

- a) give instructions to the units under their direction and inform the rescue coordination centre of such instructions;
- b) keep the rescue coordination centre informed of developments.

### 5.5 Procedures for rescue coordination centres — termination and suspension of operations

#### 5.5.1 Uncertainty and alert phases

When during an uncertainty or an alert phase the rescue coordination centre is informed that the emergency no longer exists, it shall so inform any unit or service which it has activated or notified.

#### 5.5.2 Distress phase

5.5.2.1 When during a distress phase the rescue coordination centre is informed that the emergency no longer exists, it shall take the necessary action to terminate the operations and to inform any authority, unit or service which it has activated or notified.

5.5.2.2 If during a distress phase it is determined that the search should be discontinued, the rescue coordination centre shall suspend the operations and so inform any authority, unit or service which has been activated. Pertinent information subsequently received shall be evaluated and operations resumed when justified on the basis of such information.

5.5.2.3 If during a distress phase it is determined that further searching would be of no avail, the rescue coordination centre shall terminate the operations and so inform any authority, unit or service which has been activated.

### 5.6 Procedures for rescue units

When notified by the rescue coordination centre, the rescue unit shall:

- a) act as required in the notification;
- b) keep the rescue coordination centre currently informed of the quantity and preparedness of its search and rescue equipment;
- c) keep the rescue coordination centre currently informed of its operations.

### 5.7 Procedures for person-in-charge of the rescue unit at the scene of an accident

The person assigned to be in charge of the rescue unit at the scene of an accident shall act as required by the rescue coordination centre and shall:

- a) ensure that no risk of setting fire to the aircraft is created by the use of improper types of lights or by equipment likely to produce electric or friction sparks;
- b) give aid to survivors;
- c) except as necessary for b), or when otherwise directed, ensure that the wreckage of the aircraft or marks made by it in landing are not disturbed until all information required for investigation of the causes of the accident has been obtained.

### 5.8 Procedures for pilots-in-command at the scene of an accident

5.8.1 When a pilot-in-command observes that either another aircraft or a surface craft is in distress, he shall, unless he is unable, or in the circumstances of the case considers it unreasonable or unnecessary:

- a) keep in sight the craft in distress until such time as his presence is no longer necessary;
- b) if his position is not known with certainty, take such action as will facilitate the determination of it;
- c) report to the rescue coordination centre or air traffic services unit as much of the following information as possible:

— type of craft in distress, its identification and condition;

— its position, expressed in geographical coordinates or in distance and true bearing from a distinctive landmark or from a radio navigation aid;

— time of observation expressed in hours and minutes Coordinated Universal Time (UTC);

— number of persons observed;

— whether persons have been seen to abandon the craft in distress;

— number of persons observed to be afloat;

— apparent physical condition of survivors;

- d) act as instructed by the rescue coordination centre or the air traffic services unit.

5.8.1.1 If the first aircraft to reach the scene of an accident is not a search and rescue aircraft it shall take charge of on-scene activities of all other aircraft subsequently arriving until the first search and rescue aircraft reaches the scene of the accident. If, in the meantime, such aircraft is unable to establish communication with the appropriate rescue coordination centre or air traffic services unit, it shall, by mutual agreement, hand over to an aircraft capable of establishing and maintaining such communications until the arrival of the first search and rescue aircraft.

5.8.2 When it is necessary for an aircraft to direct a surface craft to the place where an aircraft or surface craft is in distress, the aircraft shall do so by transmitting precise instructions by any means at its disposal. If no radio communication can be established the aircraft shall use the appropriate signal in the Appendix.

5.8.3 When it is necessary for an aircraft to convey information to survivors or surface rescue units, and two-way communication is not available, it shall, if practicable, drop communication equipment that would enable direct contact to be established, or convey the information by dropping the message.

5.8.4 When a ground signal has been displayed, the aircraft shall indicate whether the signal has been understood or not by the means described in 5.8.3 or, if this is not practicable, by use of the appropriate signal in the Appendix.

### 5.9 Procedures for pilot-in-command intercepting a distress transmission

Whenever a distress signal and/or message or equivalent transmission is intercepted on radiotelegraphy or radiotelephony by a pilot-in-command of an aircraft, he shall:

- a) record the position of the craft in distress if given;
- b) if possible take a bearing on the transmission;
- c) inform the appropriate rescue coordination centre or air traffic services unit of the distress transmission, giving all available information;
- d) at his discretion, while awaiting instructions, proceed to the position given in the transmission.

#### **5.10 Search and rescue signals**

5.10.1 The signals in the Appendix shall, when used, have the meaning indicated therein. They shall be used only for the purpose indicated and no other signals likely to be confused with them shall be used.

5.10.2 Upon observing any of the signals given in the Appendix, aircraft shall take such action as may be required by the interpretation of the signal given in that Appendix.

#### **5.11 Maintenance of records**

5.11.1 **Recommendation.**— *Each rescue coordination centre should keep a record of the operational efficiency of the search and rescue organization in its region.*

5.11.2 **Recommendation.**— *Each rescue coordination centre should prepare appraisals of actual search and rescue operations in its region. These appraisals should comprise any pertinent remarks on the procedures used by the pilot and on the emergency and survival equipment, and any suggestions for improvement of those procedures and equipment. Those appraisals which are likely to be of interest to other States should be submitted to ICAO for information and dissemination as appropriate.*

## APPENDIX. SEARCH AND RESCUE SIGNALS

*(Note.— See Chapter 5, 5.10 of the Annex)*

### 1. Signals with surface craft

*Note.— The following replies may be made by surface craft to the signal in 1.1:*

— For acknowledging receipt of signals:

- 1) the hoisting of the “Code pennant” (vertical red and white stripes) close up (meaning understood);
- 2) the flashing of a succession of “T’s” by signal lamp in the Morse code;
- 3) the changing of heading to follow the aircraft.

— For indicating inability to comply:

- 1) the hoisting of the international flag “N” (a blue and white checkered square);
- 2) the flashing of a succession of “N’s” in the Morse code.

1.1 The following manoeuvres performed in sequence by an aircraft mean that the aircraft wishes to direct a surface craft towards an aircraft or a surface craft in distress:

- a) circling the surface craft at least once;
- b) crossing the projected course of the surface craft close ahead at low altitude and:
  - 1) rocking the wings; or
  - 2) opening and closing the throttle; or
  - 3) changing the propeller pitch.

*Note.— Due to high noise level on board surface craft, the sound signals in 2) and 3) may be less effective than the visual signal in 1) and are regarded as alternative means of attracting attention.*

- c) heading in the direction in which the surface craft is to be directed.

Repetition of such manoeuvres has the same meaning.

1.2 The following manoeuvre by an aircraft means that the assistance of the surface craft to which the signal is directed is no longer required:

— crossing the wake of the surface craft close astern at a low altitude and:

- 1) rocking the wings; or
- 2) opening and closing the throttle; or
- 3) changing the propeller pitch.

*Note.— See Note following 1.1 b).*

### 2. Ground-air visual signal code

2.1 Ground-air visual signal code for use by survivors

| No. | Message                      | Code symbol |
|-----|------------------------------|-------------|
| 1   | Require assistance           | V           |
| 2   | Require medical assistance   | X           |
| 3   | No or Negative               | N           |
| 4   | Yes or Affirmative           | Y           |
| 5   | Proceeding in this direction | ↑           |

2.2 Ground-air visual signal code for use by rescue units

| No. | Message  | Code symbol   |
|-----|--|---|
| 1   | Operation completed  | LLL   |
| 2   | We have found all personnel  | <u>LL</u>   |
| 3   | We have found only some personnel                                    | ++  |
| 4   | We are not able to continue. Returning to base                       | XX  |
| 5   | Have divided into two groups. Each proceeding in direction indicated |  |
| 6   | Information received that aircraft is in this direction              |  |
| 7   | Nothing found. Will continue to search                               | NN  |

2.3 Symbols shall be at least 2.5 metres (8 feet) long and shall be made as conspicuous as possible.

*Note 1.— Symbols may be formed by any means such as: strips of fabric, parachute material, pieces of wood, stones or such like material; marking the surface by tramping, or staining with oil, etc.*

*Note 2.— Attention to the above signals may be attracted by other means such as radio, flares, smoke, reflected light, etc.*

**3. Air-to-ground signals**

3.1 The following signals by aircraft mean that the ground signals have been understood:

a) during the hours of daylight:

— by rocking the aircraft's wings;

b) during the hours of darkness:

— flashing on and off twice the aircraft's landing lights or, if not so equipped, by switching on and off twice its navigation lights.

3.2 Lack of the above signal indicates that the ground signal is not understood.

— END —