

**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 24 February 2004 and supersedes, on 25 November 2004, 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**

## AMENDMENTS

The issue of amendments is announced regularly in the *ICAO Journal* and in the monthly *Supplement to the Catalogue of ICAO Publications and Audio-visual Training Aids*, which holders of this publication should consult. The space below is provided to keep a record of such amendments.

### RECORD OF AMENDMENTS AND CORRIGENDA

AMENDMENTS			
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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 obligations 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 six languages — English, Arabic, Chinese, 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 Effective Applicable</i>
1st Edition	Search and Rescue Division, Second Session (1946) Air Navigation Commission	International Standards and Recommended Practices — Search and Rescue Services.	25 May 1950 1 December 1950 1 March 1951
1 (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 1 September 1952 1 January 1953
2 (3rd Edition)	Second Air Navigation Conference (1955)	Rescue sub-centres; servicing and refuelling rescue units of other Contracting States.	8 May 1956 1 September 1956 1 December 1956
3	Third Air Navigation Conference (1956). Amendment 140 to Annex 6, Chapter 6	Marking of areas of the fuselage suitable for break-in.	13 June 1957 1 October 1957 1 December 1957
4 (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 1 May 1960 1 August 1960
5	Amendment 13 to Annex 11	Notification of rescue coordination centres by air traffic services units.	13 April 1962 — 1 November 1962
6	Amendment 4 to Annex 9	Temporary entry of rescue units from other Contracting States.	— — 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 1 November 1964 1 February 1965
8	International Convention for the Safety of Life at Sea. Amendment 15 to Annex 11	Updating of reference; alerting service.	10 December 1965 — 25 August 1966
9 (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 25 September 1970 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 11 April 1973 16 August 1973

<i>Amendment</i>	<i>Source(s)</i>	<i>Subject(s)</i>	<i>Adopted/approved Effective Applicable</i>
11 (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 25 March 1975 9 October 1975
12	Amendment 60 to Annex 3	Supplementary communication facilities between meteorological offices and search and rescue units.	8 December 1975 8 April 1976 12 August 1976
13	Air Navigation Commission	Ground-air visual signal code for use by survivors.	15 December 1980 15 April 1981 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 30 July 1990 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 26 July 1993 11 November 1993
16 (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 16 July 2001 1 November 2001
17	ICAO Secretariat/Air Navigation Commission	Updating to align provisions with the IMO Convention to the extent practicable; harmonization of definitions between aeronautical and maritime SAR documents; regional approach to SAR system establishment; policy agreement between States and operational coordination between aeronautical and maritime SAR services; ready availability of essential data to RCC.	23 February 2004 12 July 2004 25 November 2004

# INTERNATIONAL STANDARDS AND RECOMMENDED PRACTICES

*Note.— This Annex is supplemented by the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual, Volume I — Organization and Management, Volume II — Mission Co-ordination, and Volume III — Mobile Facilities (Doc 9731), the purpose of which is to assist States in meeting their search and rescue (SAR) needs and obligations accepted under the Convention on International Civil Aviation. These obligations, as they relate to the provision of SAR services, are specified in this Annex as Standards and Recommended Practices. The three volumes of the IAMSAR Manual provide guidance for a common aviation and maritime approach to organizing and providing SAR services. States are encouraged, by use of the manual, to develop and improve their SAR services and to cooperate with neighbouring States.*

## CHAPTER 1. DEFINITIONS

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

**Alerting post.** Any facility intended to serve as an intermediary between a person reporting an emergency and a rescue coordination centre or rescue subcentre.

**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 and 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.

**Joint rescue coordination centre (JRCC).** A rescue coordination centre responsible for both aeronautical and maritime search and rescue operations.

**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.

**Rescue.** An operation to retrieve persons in distress, provide for their initial medical or other needs, and deliver them to a place of safety.

**Rescue coordination centre (RCC).** 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 (RSC).** A unit subordinate to a rescue coordination centre, established to complement the latter according to particular provisions of the responsible authorities.

**Search.** An operation normally coordinated by a rescue coordination centre or rescue subcentre using available personnel and facilities to locate persons in distress.



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

**Search and rescue facility.** Any mobile resource, including designated search and rescue units, used to conduct search and rescue operations.

**Search and rescue service.** The performance of distress monitoring, communication, coordination and search and rescue functions, initial medical assistance or medical evacuation, through the use of public and private resources, including cooperating aircraft, vessels and other craft and installations.

**Search and rescue region (SRR).** An area of defined dimensions, associated with a rescue coordination centre, within which search and rescue services are provided.

**Search and rescue unit.** A mobile resource composed of trained personnel and provided with equipment suitable for the expeditious conduct of search and rescue operations.

**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 Search and rescue services

2.1.1 Contracting States shall, individually or in cooperation with other States, arrange for the establishment and prompt provision of search and rescue services within their territories to ensure that assistance is rendered to persons in distress. 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. Contracting States having accepted the responsibility to provide search and rescue services in such areas shall thereafter, individually or in cooperation with other States, 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.*

2.1.1.2 Basic elements of search and rescue services shall include a legal framework, a responsible authority, organized available resources, communication facilities and a workforce skilled in coordination and operational functions.

2.1.1.3 Search and rescue services shall establish processes to improve service provision, including the aspects of planning, domestic and international cooperative arrangements and training.

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 or status of such persons or the circumstances in which such persons are found.

2.1.3 Contracting States having accepted responsibility to provide search and rescue services shall use search and rescue units and other available facilities to assist any aircraft or its occupants that are or appear to be in a state of emergency.

2.1.4 Where separate aeronautical and maritime rescue coordination centres serve the same area, States shall ensure the closest practicable coordination between the centres.

2.1.5 **Recommendation.**— *Contracting States should facilitate consistency and cooperation between their aeronautical and maritime search and rescue services.*

2.1.6 **Recommendation.**— *Contracting States should establish joint rescue coordination centres to coordinate aeronautical and maritime search and rescue operations, where practical.*

### 2.2 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 and neighbouring regions shall be contiguous.

*Note 1.— Search and rescue regions are established to ensure the provision of adequate communication infrastructure, efficient distress alert routing and proper operational coordination to effectively support search and rescue services. Neighbouring States may cooperate to establish search and rescue services within a single SAR region.*

*Note 2.— The delineation of search and rescue regions is determined on the basis of technical and operational considerations and is not related to the delineation of boundaries between States.*

2.2.1.1 **Recommendation.**— *Search and rescue regions should, in so far as practicable, be coincident with corresponding flight information regions and, with respect to those areas over the high seas, maritime search and rescue regions.*

### 2.3 Rescue coordination centres and rescue subcentres

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

*Note.— A Contracting State may establish a rescue coordination centre with an associated search and rescue region that, in accordance with regional air navigation agreement, extends over an area greater than its sovereign airspace.*

2.3.2 **Recommendation.**— *Where all or part of the airspace of a Contracting State is included within a search and rescue region associated with a rescue coordination centre in another Contracting State, that former State should establish a rescue subcentre subordinate to the rescue coordination centre wherever this would improve the efficiency of search and rescue services within its territory.*

2.3.3 Each rescue coordination centre and, as appropriate, rescue subcentre, shall be staffed 24 hours a day by trained personnel proficient in the use of the language used for radiotelephony communications.

2.3.4 **Recommendation.**— *RCC personnel involved in the conduct of radiotelephony communications should be proficient in the use of the English language.*

2.3.5 **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 Search and rescue communications

2.4.1 Each rescue coordination centre shall have means of rapid and reliable two-way communication with:

- a) associated air traffic services units;
- b) associated rescue subcentres;
- c) appropriate direction-finding and position-fixing stations;
- d) where appropriate, coastal radio stations capable of alerting and communicating with surface vessels in the region;
- e) the headquarters of search and rescue units in the region;
- f) all maritime rescue coordination centres in the region and aeronautical, maritime or joint rescue coordination centres in adjacent regions;
- g) a designated meteorological office or meteorological watch office;
- h) search and rescue units;
- i) alerting posts; and
- j) the Cospas-Sarsat Mission Control Centre servicing the search and rescue region.

*Note.*— *Maritime rescue coordination centres are identified in relevant documents of the International Maritime Organization.*

2.4.2 Each rescue subcentre shall have means of rapid and reliable two-way communication with:

- a) adjacent rescue subcentres;

- b) a meteorological office or meteorological watch office;
- c) search and rescue units; and
- d) alerting posts.

## 2.5 Search and rescue units

2.5.1 Contracting States shall designate as search and rescue units elements of public or private services suitably located and equipped for search and rescue operations.

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

2.5.2 Contracting States shall designate as parts of the search and rescue plan of operation, elements of public or private services that do not qualify as search and rescue units but are nevertheless able to participate in search and rescue operations.

## 2.6 Search and rescue equipment

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

2.6.2 **Recommendation.**— *Each search and rescue unit should have means of rapid and reliable two-way communication with other search and rescue facilities engaged in the same operation.*

2.6.3 Each search and rescue aircraft shall be equipped to be able to communicate on the aeronautical distress and on-scene 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 distress frequencies.

*Note 1.* — *Emergency locator transmitter (ELT) carriage requirements are given in Annex 6, Parts I, II and III.*

*Note 2.*— *Specifications for 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, shall be equipped to be able to communicate with vessels.

*Note.*— Many vessels can communicate with aircraft on 2182 kHz, 4125 kHz and 121.5 MHz. However, these frequencies, and in particular 121.5 MHz, may not be routinely monitored by vessels.

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

*Note.*— The International Code of Signals is published in English, French and Spanish by the International Maritime Organization as documents I994E, I995F and I996S.

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 locate, at appropriate aerodromes, survival equipment suitably packed for dropping by aircraft.

## CHAPTER 3. COOPERATION

### 3.1 Cooperation between States

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

3.1.2 **Recommendation.**— *Contracting States should, whenever necessary, coordinate their search and rescue operations with those of neighbouring States especially when these operations are proximate to adjacent search and rescue regions.*

3.1.2.1 **Recommendation.**— *Contracting States should, in so far as practicable, develop common search and rescue plans and 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 search and 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 who wish their search and 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 to strengthen search and rescue cooperation and coordination, setting forth the conditions for entry of each other's search and 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, persons or equipment, as may be needed;*
- b) *grant any necessary permission for the entry of such aircraft, vessels, persons 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, persons 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 **Recommendation.**— *Contracting States should ensure the closest practicable coordination between the relevant aeronautical and maritime authorities to provide for the most effective and efficient search and rescue services.*

3.2.3 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.

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

3.2.5 States shall designate a search and rescue point of contact 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 search and rescue units of other States into its territory or, alternatively,

include this information in search and rescue service arrangements.

3.3.2 **Recommendation.**— *When such information could benefit the provision of search and rescue services, 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.**— *Contracting States should, to the extent desirable and practicable, disseminate information to the general public and emergency response authorities regarding actions to be taken when there is reason to believe that an aircraft's emergency situation may become cause for public concern or require a general emergency response.*

## CHAPTER 4. PREPARATORY MEASURES

### 4.1 Preparatory information

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

- a) search and 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) addresses and telephone numbers of all operators, or their designated representatives, engaged in operations in the region; and
- 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 readily 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 support of search and rescue operations;*
- b) *the locations and hours of watch of services keeping radio watch, and the frequencies guarded;*
- c) *locations where supplies of droppable emergency and survival equipment are stored; and*
- d) *objects which it is known might be mistaken for unlocated or unreported wreckage, particularly if viewed from the air.*

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, course and speed of ships within such areas that may be able to provide assistance to aircraft in distress and information on how to contact them.*

*Note.*— *This information may either be kept in the rescue coordination centres or be readily accessible.*

4.1.4 **Recommendation.**— *Contracting States should, individually or in cooperation with other States, either establish ship reporting systems in cooperation with maritime authorities or arrange communication links with Amver or regional ship reporting systems to facilitate search and rescue operations at sea.*

*Note.*— *Amver is a cooperative international ship reporting system with worldwide coverage that is available for interrogation by all rescue coordination centres. A number of Contracting States also operate regional ship reporting systems.*

### 4.2 Plans of operation

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

4.2.2 **Recommendation.**— *Search and rescue plans of operations should be developed jointly with representatives of the operators and other public or private services that may assist in providing search and rescue services or benefit from them, taking into account that the number of survivors could be large.*

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

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

- a) *the manner in which search and rescue operations are 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 other rescue coordination centres;*
- d) *the methods of alerting en-route aircraft and ships at sea;*

- e) *the duties and prerogatives of persons 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, persons 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 proceed to aircraft in distress; and*
- k) *cooperative actions taken in conjunction with air traffic services units and other authorities concerned to assist aircraft known or believed to be subject to unlawful interference.*

4.2.5 **Recommendation.**— *Search and rescue plans of operation should be integrated with airport emergency plans to provide for rescue services in the vicinity of aerodromes including, for coastal aerodromes, areas of water.*

### 4.3 Search and rescue units

- 4.3.1 Each search and rescue unit shall:

- a) be cognizant of all parts of the plans of operation prescribed in 4.2 that are necessary for the effective conduct of its duties; and
- b) keep the rescue coordination centre informed of its preparedness.

#### 4.3.2 Contracting States shall:

- a) maintain in readiness the required number of search and rescue facilities; and
- b) maintain adequate supplies of rations, medical stores, signalling devices and other survival and rescue equipment.

### 4.4 Training and exercises

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

### 4.5 Wreckage

**Recommendation.**— *Each Contracting State should 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, obliterated or charted following completion of the accident investigation, if its presence might constitute a hazard or confuse subsequent search and rescue operations.*



## CHAPTER 5. OPERATING PROCEDURES

### 5.1 Information concerning emergencies

5.1.1 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.

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

5.1.3 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

Upon the occurrence of an 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 search and rescue units and initiate any necessary action.

#### 5.2.3 Distress phase

Upon the occurrence of a distress phase, the rescue coordination centre shall:

- a) immediately initiate action by search and rescue units in accordance with the appropriate 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 the operator informed of developments;
- d) notify other 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 and other services not specifically included in the appropriate plan of operation and able to assist to:
  - 1) maintain a listening watch for transmissions from the aircraft in distress, survival radio equipment or an ELT;

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

- 2) assist the aircraft in distress as far as practicable; and
- 3) inform the rescue coordination centre of any developments;
- g) from the information available, draw up a detailed plan of action 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 evolving circumstances, the detailed plan of action;
- i) notify the appropriate accident investigation authorities; and
- j) notify the State of Registry of the aircraft.

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 last reported its position; or
  - the region to which the aircraft was proceeding when its last reported position was on the line separating 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; or
  - the region in which the distress site is located as identified by the Cospas-Sarsat system.
- c) After declaration of the distress phase, the rescue coordination centre with overall coordination responsibility 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 emergency shall inform the rescue coordination centre that has overall responsibility.

#### 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 relevant plan of operations 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; and
- b) keep the rescue coordination centre informed of developments.

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

5.5.1 Search and rescue operations shall continue, when practicable, until all survivors are delivered to a place of safety or until all reasonable hope of rescuing survivors has passed.

5.5.2 The responsible rescue coordination centre shall normally be responsible for determining when to discontinue search and rescue operations.

*Note.— Contracting States may require input from other appropriate State authorities in the decision-making process leading to termination of SAR operations.*

5.5.3 When a search and rescue operation has been successful or when a rescue coordination centre considers, or is informed, that an emergency no longer exists, the emergency phase shall be cancelled, the search and rescue operation shall be terminated and any authority, facility or service that has been activated or notified shall be promptly informed.

5.5.4 If a search and rescue operation becomes impracticable and the rescue coordination centre concludes that there might still be survivors, the centre shall temporarily suspend on-scene activities pending further developments and shall promptly inform any authority, facility or service which has been activated or notified. Relevant information subsequently received shall be evaluated and search and rescue operations resumed when justified and practicable.

### 5.6 Procedures at the scene of an accident

5.6.1 When multiple facilities are engaged in search and rescue operations on-scene, the rescue coordination centre or rescue subcentre shall designate one or more units on-scene to coordinate all actions to help ensure the safety and effectiveness of air and surface operations, taking into account facility capabilities and operational requirements.

5.6.2 When a pilot-in-command observes that either another aircraft or a surface craft is in distress, the pilot shall, if possible and unless considered unreasonable or unnecessary:

- a) keep the craft in distress in sight until compelled to leave the scene or advised by the rescue coordination centre that it is no longer necessary;
- b) determine the position of the craft in distress;
- c) as appropriate, 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 or grid 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;
  - on-scene weather conditions;
  - apparent physical condition of survivors;
  - apparent best ground access route to the distress site; and
- d) act as instructed by the rescue coordination centre or the air traffic services unit.

5.6.2.1 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.

5.6.3 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 a hard copy message.

5.6.4 When a ground signal has been displayed, the aircraft shall indicate whether the signal has been understood or not by the means described in 5.6.3 or, if this is not practicable, by making the appropriate visual signal.

5.6.5 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 make the appropriate visual signal.

*Note.— Air-to-surface and surface-to-air visual signals are published in Volume III of Doc 9731.*

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

Whenever a distress transmission is intercepted by a pilot-in-command of an aircraft, the pilot shall, if feasible:

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

### 5.8 Search and rescue signals

5.8.1 The air-to-surface and surface-to-air visual 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.

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

## 5.9 Maintenance of records

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

5.9.2 **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 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.*

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## APPENDIX. SEARCH AND RESCUE SIGNALS

*(Note.— See Chapter 5, 5.8 of the Annex)*

### 1. Signals with surface craft

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 manoeuvres 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.— 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.*



*Note.— See Note following 1.1 b), 3).*

### 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.*

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

**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 —