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**SUDAN CIVIL AVIATION REGULATIONS (SUCAR)
PART 12 – SEARCH AND RESCUE
Second Edition, August 2021**

Issued and Published under the Authority of the Director General

SUDAN CIVIL AVIATION AUTHORITY
THE REPUBLIC OF SUDAN
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SUDAN CIVIL AVIATION AUTHORITY
THE REPUBLIC OF SUDAN

(August 2021)

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INTRODUCTION – AUTHORITY TO PUBLISH

SUCAR Part 12– *Search and Rescue Second Edition*, August 2021 has been promulgated pursuant to Article 22 of the Sudan Civil Aviation Act, 2018 and issued by the Board of Directors of Civil Aviation. The SUCAR has been published under my Authority on the advice of the Board of Directors of Civil Aviation as is required by the Sudan Civil Aviation Act.

The Standards contained in this document including the associated Advisory Circulars, Directives, Operational Policies, Orders, or Sudan Civil Aviation Safety Publications, fully comply with the Standards and Recommended Practices (SARPs) contained in Annex 12 – *Search and Rescue* to the Convention on International Civil Aviation, signed in Chicago on 7 December 1944 (Chicago Convention) and related documents and guidance material issued by ICAO.

SUCAR Part 12 – *Search and Rescue, second Edition*, contains comprehensive requirements required for the Search and Rescue operations in Sudan.

The Director General of the SCAA has been delegated to issue, revise and amend Advisory Circulars, Directives, Operational Policies, Orders, relevant Procedures Manuals, Guidance Material, etc., related to and referred in this SUCAR. The Director General of the SCAA shall inform the Board of Directors of Civil Aviation, in writing, on the Advisory Circulars, Directives, Operational Policies, Orders, Procedures Manuals, Guidance Material, etc., that he may have issued, revised or amended under this authority and are enforceable under the Act.

SUCAR Part 12- *Search and Rescue*, is part of the overall regulatory framework of civil aviation in Sudan and supported by other related SUCARs

This Second Edition of SUCAR Part 12 repeals and supersedes the First Edition of the Document published in 2011.

Any amendments of this SUCAR are an integral part thereof.



Lieutenant General
Yassin Ibrahim Yassin Abdel-Hadi
Minister of Defence





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ABBREVIATIONS

AMVER	Automated Mutual-assistance Vessel Rescue
JRCC	Joint rescue coordination centre
RCC	Rescue coordination centre
RSC	Rescue sub-centre
SCAA	Sudan Civil Aviation Authority
SRR	Search and rescue region
SUCAR	Sudan Civil Aviation Regulations
COSPAS-SARSAT	<p>Cospas is an acronym for the Russian words “Cosmicheskaya Sistyema Poiska Avariynich Sudov,” which mean “Space System for the Search of Vessels in Distress.”</p> <p>Sarsat is an acronym for Search and Rescue Satellite-Aided Tracking.</p>



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FOREWORD

1. Legal background

- 1.1 Pursuant to Article 22 of the Civil Aviation Act, 2018 regarding the empowerment of the Board of Directors of Civil Aviation to issue and amend Sudan Civil Aviation Regulations (SUCAR) for acceptance and consent by the Competent Minister, SUCARs are issued to ensure full compliance with the Annexes to the Convention on International Civil Aviation, signed in Chicago on 7 December 1944 (Chicago Convention) to which the Republic of Sudan is a Party. The Chicago Convention, through its Annexes, establishes the minimum Standards and Recommended Practices (SARPs) to ensure the safety and security of global air navigation activities and environmental protection. Sudan Civil Aviation Regulations provide an appropriate and comprehensive framework for the definition and implementation of common technical requirements and administrative procedures in the field of civil aviation. Where not covered by the specific SUCAR, ICAO Annex SARPs, technical instruction in related technical publications and guidance material form a complimentary regulatory material for implementation in Sudan, as may be applicable, and thus are considered enforceable regulatory requirements in the areas that they address although they may not be contained in the relevant SUCAR, Operational Directive or Safety Notice. Technical instructions considered essential for implementation shall be included in the relevant SUCAR as soon as practicable and in any case during the next amendment of the SUCAR.
- 1.2 An aircraft, other than an aircraft registered in the Republic of Sudan, shall not fly over or land in the territories of the Republic of Sudan except under an authorization granted by the Sudan Civil Aviation Authority (SCAA) on behalf of the Government of the Republic of Sudan.
- 1.3 An aircraft other than an aircraft registered in the Republic of Sudan shall not take on-board or discharge any passengers or cargo at any location within the territories of the Republic of Sudan, being passengers or cargo carried or to be carried for hire or reward, without the permission of the SCAA granted for the aircraft in accordance with any conditions and limitations to which such permission may be subjected.
- 1.4 An aircraft shall not fly over or land in the territory of the Republic of Sudan unless it is registered in:
- a) The Republic of Sudan; or
 - b) An ICAO Contracting State; or
 - c) Any other State where there is an agreement/arrangement between the Republic of Sudan and that State making provisions for over-flight or landing in the territory of the Republic of Sudan.
- 1.5 In accordance with the provisions of SUCAR Part 7 – Aircraft Nationality and Registration, an aircraft registered in the Republic of Sudan shall comply with all applicable regulations contained in the Sudan Civil Aviation Regulations.



- 1.6 An aircraft registered outside the Republic of Sudan shall comply with all applicable regulations contained in the Sudan Civil Aviation Regulations while operating to/from or within the territories of the Republic of Sudan.
- 1.7 An aircraft registered in the Republic of Sudan shall comply with the regulations of other ICAO contracting States where it may be operating or overflying.
- 1.8 The Sudan Civil Aviation Authority (SCAA) recognizes the codes of the Type Certification Authority of the State of Manufacturer and/or Design, for the purpose of issuing or Revalidation of Airworthiness Certificates, Airworthiness Directives (ADs), Minimum Equipment List (MEL), and all other related issues in that respect. The SCAA may impose additional requirements.
- 1.9 Any difference that may exist between SUCAR requirements and corresponding ICAO Annex SARPs shall be reported to ICAO in line with the requirements of Article 38 of the Convention. Significant differences shall be published in the National Aeronautical Information Publications (AIP). The procedure for amending the SUCARs and filing of differences with ICAO are contained in the Rule making Manual, Fourth Edition, 2018 and is summarized in paragraph 4 below.
- 1.10 An effort has been made for SUCAR requirements to be fully compliant with corresponding ICAO Annex provisions; however, where an aviation activity for which a SUCAR regulation has not been promulgated is undertaken in the Sudan, the relevant ICAO Annex provisions shall be applicable (see also paragraph 1.1 above).
- 1.11 Provisions promulgated in the SUCARs shall be applicable within six months after the date that they have been signed by the Competent Minister and published following promulgation by the Board of Directors.

2. Layout of the SUCAR document

2.1 Sudan Civil Aviation Regulations (SUCARs)

- 2.1.1. The Republic of Sudan has promulgated or is in the process of promulgating operating regulations that are fully compliant with corresponding Standards contained in the Annexes to the *Convention on International Civil Aviation*. List of SUCARs promulgated in Sudan is contained in the Table below. The list shall be amended periodically to reflect the status of SUCAR implementation.
- 2.1.2. SUCARs, as may be applicable, are supported by various Guidance Materials, Procedures Manuals and Inspectors Handbooks designed to enable the SCAA to effectively and efficiently meet its safety oversight obligations as well as to provide the Inspectorate staff with a complete set of regulatory and supporting material.
- 2.1.3. Together, the SUCARs and relevant guidance materials, procedures and handbooks form the means by which the SCAA regulates and supervises civil aviation activity in Sudan and of Sudanese registered aircraft wherever they may be operating.

2.1.4. List of Sudan Civil Aviation Regulations is presented in the Table below which shall be amended as required from time-to-time to ensure its currency. Each SUCAR, except when it is found to be necessary shall be composed of:

- a) Consent by the Minister;
- b) Foreword;
- c) Definitions;
- d) Regulatory Standards;
- e) Notes;
- f) Tables and figures;
- g) Appendices; and
- h) Attachments.

No.	SUCAR Part No.	Title/Name	Edition/Year
1.	SUCAR Part 1	Personnel Licensing	2 nd Edition/2017
2.	SUCAR Part 2	Rules of the Air	2 nd Edition/2020
3.	SUCAR Part 3	Meteorological Services	1 st Edition /2011
4.	SUCAR Part 4	Aeronautical Charts	1 st Edition/2011
5.	SUCAR Part 5	Units of Measurement	1 st Edition/2011
6.	SUCAR Part 6 – Subpart I	Operations of Aircraft – Commercial Air Transport, aero planes	3 rd Edition/2017
7.	SUCAR Part 6 – Subpart II	Operations of Aircraft – General Aviation	Under Development
8.	SUCAR Part 6 – Subpart III	Operations of Aircraft – Commercial Helicopter Operations	Under Development
9.	SUCAR Part 6 – Subpart IV	Aerial Work	Under Development
10.	SUCAR Part 7	Aircraft Nationality and Registration Marks	2 nd Edition/2016
11.	SUCAR Part 8	Airworthiness of Aircraft	2 nd Edition/2017
12.	SUCAR Part 9	Facilitation	2 nd Edition/2021
13.	SUCAR Part 10	Aeronautical Telecommunications	1 st Edition/2017
14.	SUCAR Part 11	Air Traffic Services	2 nd Edition/2021
15.	SUCAR Part 12	Search and Rescue	2 nd Edition/2021
16.	SUCAR Part 13	Aircraft Accident and Incident Investigations	1 st Edition/2011
17.	SUCAR Part 14 – Subpart I	Aerodromes – Aerodrome Design and Operations	3 rd Edition/2021
18.	SUCAR Part 14 – Subpart II	Heliports	3 rd Edition/2021
19.	SUCAR Part 15	Aeronautical Information Services	1 st Edition/2011
20.	SUCAR Part 16	Environmental Protection –	Under Development

No.	SUCAR Part No.	Title/Name	Edition/Year
	– Subpart I	Aircraft Noise	
21.	SUCAR Part 16 – Subpart II	Environmental Protection – Aircraft Engine Emissions	Under Development
22.	SUCAR Part 17	Aviation Security	2 nd Edition/2021
23.	SUCAR Part 18	The Safe Transport of Dangerous Goods	1 st Edition/2011
24.	SUCAR Part 19	Aviation Safety Management	2 nd Edition/2018

3. Rules of Construction

3.1. In the Parts of these Regulations, unless the context requires otherwise:

- a) Words importing the singular include the plural
- b) Words importing the plural include the singular, and
- c) Words importing the masculine gender include the feminine.
- d) “Shall” is used in an imperative sense.
- e) “May/should” is used in a permissive sense to state authority or permission to do the act prescribed, and the words “no person may....” Or “a person may not” means that no person is required, authorized or permitted to do the act prescribed.
- f) The word “Includes” means includes but is not limited to.
- g) The word “Show” and its derivatives in these regulations have the exact intent as shown in the dictionary.

4. Amendment Rationale and Procedures

The Sudan Civil Aviation Regulations will from time-to-time be amended to reflect the latest updates of ICAO Standards and Recommended Practices (SARPs); it will also be amended to reflect the latest up-to-date aviation safety related matters detected by the Civil Aviation Authority, the aviation industry service providers or operators, and individuals and authorization holders. Amendment may also be generated to ensure safety standardization and to accommodate new initiatives or technologies. Information on the rule making process is contained in the “Rule Making Manual”, Fourth Edition, 2018.

5. Article 83bis

Sudan has ratified Article 83bis of the Convention on International Civil Aviation respecting the delegation of responsibilities in instances where aeroplane are leased, chartered, or interchanged in particular without crew, between ICAO contracting States that have ratified the Article.

6. Requirements

Search and rescue Services providers shall provide Search and rescue services in Sudan in accordance with the provisions of this SUCAR, and acceptable level to the Authority.



7. Status of SUCAR components

A SUCAR is normally made up of the following component parts, not all of which however may not be found in every SUCAR:

Standard

Any specification or physical characteristics, configuration, material, 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 the holder of an Air Operator Certificate issued by the Sudan Civil Aviation Authority shall conform to.

Appendices and Attachments

Text comprising material grouped separately for convenience but forming part of the Standards.

Definition

Definition of terms used in the SUCAR which are not self-explanatory in that they do have accepted dictionary meanings. A definition does not have independent status but is an essential part of each Standard in which the term is used, since a change in the meaning of the term would affect the specification.

Table and Figures

Elements which add to or illustrate a regulatory requirement referred to in the SUCAR and form part of the associated regulatory requirement and have the same status.

References

Text based on ICAO Standards and Recommended Practices and its guidance materials included in the SUCAR to enhance implementation.

8. Acceptable means of compliance (AMC)

Guidance and guidance material provided for in this Part constitutes acceptable means of compliance, or part thereof, with the concerned regulatory provision(s). Alternative means of compliance may be established by the service provider. Such alternative means shall only become acceptable after submission to the Authority for review and if satisfactory, accepted by the Authority.

Additional AMC and guidance are published by the Authority as separate documents such as Advisory Circulars.



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APPLICABILITY

SUCAR Part 11 sets out:

- a) processes and procedures for air traffic services in the Republic of Sudan; and
- b) procedures and practices for the management of air traffic services.

The Standards in this SUCAR-Part 11, together with the Standards in SUCAR-Part 2, govern the application of the Procedures for Air Navigation Services — Air Traffic Management (ICAO Doc 4444, PANS-ATM) and the Regional Supplementary Procedures — Rules of the Air and Air Traffic Services, contained in Doc 7030, in which latter document will be found subsidiary procedures of regional application.

SUCAR-Part 11 pertains to the establishment of airspace, units and services necessary to promote a safe, orderly and expeditious flow of air traffic. A clear distinction is made between air traffic control service, flight information service and alerting service. Its purpose, together with SUCAR-Part 2, is to ensure that flying on air routes is carried out under uniform conditions designed to improve the safety and efficiency of air operation.

The Standards in SUCAR-Part 11 apply in those parts of the airspace under the jurisdiction of Sudan wherein air traffic services are provided and also wherever Sudan accepts the responsibility of providing air traffic services over the high seas or airspace delegated to Sudan.

This regulation applies to air traffic services established and provided in the Republic of Sudan.



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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 sub-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 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 sub-centre (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 sub - centre 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 Sudan DGCA 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. Sudan 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 Part.

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, Sudan shall do so regardless of the nationality or status of such persons or the circumstances in which such persons are found.

2.1.3 Sudan 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, Sudan shall ensure the closest practicable coordination between the centres.

2.1.5 Sudan shall facilitate consistency and cooperation between their aeronautical and maritime search and rescue services.

2.1.6 RESERVED.

2.2 Search and rescue regions

2.2.1 Sudan 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.

Note1:- 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.



Note2:- 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 Search and rescue regions shall, 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 Coordination centres and rescue sub centres.

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

Note:- Sudan 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 RESERVED.

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

2.3.4 RCC personnel involved in the conduct of radiotelephony communications shall be proficient in the use of the English language.

2.3.5 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, Sudan shall 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 sub centres;
- (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 sub centre shall have means of rapid and reliable two-way communication with:

- (a) adjacent rescue sub centres;
- (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 Sudan 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 Sudan 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 2.6.2 Each search and rescue unit shall 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.

Note1:- Emergency locator transmitter (ELT) carriage requirements are given in ICAO Annex 6, Parts I, II and III.

Note2:- 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.

Note3:- 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 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 shall carry droppable survival equipment.

2.6.8 2.6.8 Sudan shall locate, at appropriate aerodromes, survival equipment suitably packed for dropping by aircraft.

CHAPTER 3 – COOPERATION

3.1 Cooperation between States

- 3.1.1 Sudan shall coordinate its search and rescue organizations with those of neighbouring States.
- 3.1.2 Sudan shall, 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 Sudan shall, 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, Sudan 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 State who wish their search and rescue units to enter the territory of Sudan 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 Sudan, or to such other authority as has been designated by Sudan.
- 3.1.4.1 The authorities of Sudan 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 Sudan DGCA shall 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 shall also provide for expediting entry of such units with the least possible formalities.
- 3.1.5.1 If no agreement has been established between Sudan and the other authority or an agreement has been established but authority to community has not been included in the agreement, the DGCA shall designate an authority for this purpose.
- 3.1.6 Sudan shall authorize its rescue coordination centres to:
- request from other rescue coordination centres such assistance, including aircraft, vessels, persons or equipment, as may be needed;
 - grant any necessary permission for the entry of such aircraft, vessels, persons or equipment into its territory; and
 - make the necessary arrangements with the appropriate customs, immigration or other authorities with a view to expediting such entry.
- 3.1.7 Sudan shall 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 Sudan shall make arrangements for joint training exercises involving its search and rescue units, those of other States and operators, in order to promote search and rescue efficiency.
- 3.1.9 RESERVED.

3.2 Cooperation with other services

- 3.2.1 Sudan 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 Sudan shall 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 Sudan 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 To facilitate accident investigation, rescue units shall, when practicable, be accompanied by persons qualified in the conduct of aircraft accident investigations.
- 3.2.5 Sudan 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 Sudan 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 When such information could benefit the provision of search and rescue services, Sudan shall make available, through the rescue coordination Centres or other agencies, information regarding their search and rescue plans of operation.
- 3.3.3 Sudan shall, 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 sub-centres 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 Each rescue coordination centre shall 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 un-located or unreported wreckage, particularly if viewed from the air.

4.1.3 RESERVED.

4.1.4 RESERVED.

4.2 Plans of operation

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

4.1.2 Search and rescue plans of operations shall 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.

4.1.3 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.

4.1.4 The search and rescue plans of operation shall 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.
- 4.1.5 Search and rescue plans of operation shall 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 Sudan shall:

- c) maintain in readiness the required number of search and rescue facilities; and
- d) 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. Sudan shall provide for regular training of its search and rescue personnel and arrange appropriate search and rescue exercises.

4.5 Wreckage

The SAR service provider shall, in coordination with the Sudan accident and incident investigation authority, establish and implement procedures to ensure that wreckage resulting from aircraft accidents within the search and rescue region(s) 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 ICAO 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:
 - o the region in which the aircraft last reported its position; or
 - o the region to which the aircraft was proceeding when its last reported position was on the line separating two search and rescue regions; or
 - o 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
 - o 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 States

Where the conduct of operations over the entire search and rescue region is the responsibility of more than one 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:- Sudan 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 sub-centre 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 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 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 ICAO Doc9731.

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 center 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 Each rescue coordination centre shall keep a record of the operational efficiency of the search and rescue organization in its region.
- 5.9.2 Each rescue coordination centre shall prepare appraisals of actual search and rescue operations in its region. These appraisals shall 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 shall be submitted to ICAO for information and dissemination as appropriate.



APPENDIX – SEARCH AND RESCUE SIGNALS

(See Chapter 5, 5.8 of the SUCAR)

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 check red 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
- 2) Require medical assistance
- 3) No or Negative
- 4) Yes or Affirmative
- 5) Proceeding in this direction

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

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

Note1:- 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.

Note2:- 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.

No. Message Code symbol

- 1. Operation completed
- 2. We have found all personnel
- 3. We have found only some personnel
- 4. We are not able to continue. Returning to base
- 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

-END-

**Sudan Civil Aviation Authority
SUCAR PART 12 – Search and Rescue
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