Manual of Standards For Search and Rescue

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FOREWORD

Under Republic Act No. 9497, also known as Civil Aviation Authority Act of 2008, CAAP exercises safety regulatory oversight by developing and promulgating appropriate, clear and enforceable aviation safety standards.

This Manual of Standards for Search and Rescue (MOS-SAR) is one of the manuals that CAAP uses to ensure that safety standards and recommended practices (SARPs) stated under ICAO Document 9731 Volumes I-III, International Aeronautical and Maritime Search and Rescue are adopted consistent with Republic Act 9497. This MOS is a supplement to CAR-ANS Part 12 and prescribes the detailed safety standards, technical requirements and procedures for establishment, maintenance and operation of SAR within the Philippines Search and Rescue Region which have been determined to be necessary for promoting and supporting global standardization and aviation safety in civil air navigation.

Search and Rescue (SAR) is the search for and provision of lifesaving assistance to people in distress and in imminent danger of loss of life. Philippine SAR arrangements are intended to complement other emergency services (police, firemen, ambulance, etc.) in circumstances where those services are unable to operate effectively. Such circumstances could include, for example, remote area operations, rescues at sea and the need for SAR specialist facilities not normally available to emergency services.

The Standards and Recommended Practices in this manual are based on those stipulated in ICAO Document 9731 Volumes I-III (International Aeronautical and Maritime Search and Rescue Manual) and CAR-ANS Part 12, Search and Rescue and shall be applicable to all authorities, service providers and agencies responsible for the provision of search and rescue services.

Any amendment to this MOS-SAR shall be the responsibility of the Director General of CAAP. Readers should forward advice of errors, inconsistencies or suggestions for improvement to this Manual to AANSOO Chief at the Civil Aviation Authority of the Philippines, Old MIA Road corner Ninoy Aquino Avenue, Pasay City, Metro Manila, Philippines 1300 or thru email at aansoo_chief@caap.gov.ph.

CAPTAIN MANUEL ANTONIO L. TAMAYO
Director General

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RECORD OF AMENDMENTS AND CORRIGENDA

Amendments			
Number	*Date applicable*	*Subject(s)*	*Entered by*
1	11 March 2025	Incorporating MC No. 006-2025 regarding addition of the following: new Appendix 4, SAR aircraft entry and exit reports; Appendix 5, Training; Attachment 1, Sample template for a joint search and rescue exercise; Attachment 2, Checklist for multiple aircraft SAR operations; and, Attachment 3, Standard format for search and rescue situation report (SITREP).	Captain Manuel Antonio L. Tamayo

Corrigenda			
Number	*Date applicable*	*Subject(s)*	*Entered by*

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DEFINITIONS

Aerial work. Refers to an aircraft operation in which an aircraft is used for specialized services such as agriculture, construction, photography, surveying, observation and patrol, search and rescue, aerial advertisement, etc.

Aircraft coordinator. A person or team who coordinates the involvement of multiple aircraft in SAR operations in support of the SAR mission coordinator and on-scene coordinator.

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

Alerting post. Any facility intended to serve as an intermediary between a person reporting an emergency and a rescue coordination center or rescue sub-center.

Automated Mutual-assistance Vessel Rescue system. An international maritime mutual assistance program which provides vital aid and coordination of SAR efforts in offshore areas of the world; operated by the United States Coast Guard where merchant vessel data are compiled, printed and distributed to selected addresses having SAR responsibility

Area control center. An air traffic control facility primarily responsible for providing ATC services to IFR aircraft in controlled areas under its jurisdiction.

Captain. Master of a ship or pilot-in-command of an aircraft, commanding officer of a warship or an operator of any other vessel.

COSPAS-SARSAT System. A satellite system designed to detect and locate activated distress beacons transmitting in the frequency band of 406.0 - 406.1 MHz.

Craft. Any air or sea-surface vehicle, or submersible of any kind or size.

Digital selective calling. A technique using digital codes which enables a radio station to establish contact with, and transfer information to, another station or group of stations.

Direction finding. Radio determination using the reception of radio waves for the purpose of determining the direction of a station or object.

Distress alert. The reporting of a distress incident to a unit which can provide or coordinate assistance.

Distress phase. A situation wherein there is 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 locator transmitter. A generic term (related to aircraft) describing equipment which broadcast distinctive signals on designated frequencies and,

depending on application, may be automatically activated by impact or be, manually activated.

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

Emergency position-indicating radio beacon. A device, usually carried aboard maritime craft, that transmits a signal that alerts search and rescue authorities and enables rescue units to locate the scene of the distress.

Flight information center. A unit established to provide flight information and alerting services.

General communications. Operational and public correspondence, traffic other than distress, urgency and safety messages, transmitted or received by radio.

Geographic information system. A system which captures, stores, analyses, manages and presents data that is linked to location.

Global maritime distress and safety system. A global communication service based upon automated systems, both satellite-based and terrestrial, to provide distress alerting and promulgation of maritime safety information for mariners.

Global positioning system. A specific satellite-based system used in conjunction with mobile equipment to determine the precise position of the mobile equipment.

International mobile satellite organizational. A system of geostationary satellites for world-wide mobile communications services which support the Global Maritime Distress and Safety System and other emergency communications systems.

Joint rescue coordination center. A rescue coordination center responsible for both aeronautical and maritime search and rescue operations.

Local user terminal. An Earth receiving station that receives beacon signal relayed by COSPAS-SARSAT satellites, processes them to determine the location of the beacon and forwards the signal to relevant Mission Control Center (MCC).

Locating. The finding of ships, aircraft, units or persons in distress.

Long-range identification and tracking. A system which requires certain vessels to automatically transmit their identity, position and date/time at six-hour intervals, in accordance with SOLAS regulation V/19-1.

Manual of Standards. Means the document called 'Manual of Standards (MOS) for Search and Rescue' (SAR) services, published by CAAP, as in force from time to time.

Note: The Manual of Standards for Search and Rescue services shall be made available for download at CAAP's official website at: www.caap.gov.ph.

Maritime domain awareness. The effective understanding of any activity associated with the maritime environment that could impact upon the security, safety, economy or environment.

Mass rescue operation. Search and rescue services characterized by the need for immediate response to large numbers of persons in distress, such that the capabilities normally available to search and rescue authorities are inadequate.

Mission Control Center. Part of the COSPAS-SARSAT system that accepts alert messages from local user terminals and other mission control centers for distribution to appropriate rescue coordination centers or search and rescue points of contact (SPOC).

NAVAREA. A geographical sea area established for the purpose of coordinating the broadcast of navigational warnings. The term NAVAREA followed by a roman numeral may be used to identify a particular sea area. The delimitation of such areas is not related to and shall not prejudice the delimitation of any boundaries between States.

NAVTEX. The system for the broadcast and automatic reception of maritime safety information by means of narrow-band direct-printing telegraphy.

On-scene coordinator. A person designated to coordinate search and rescue operations within a specified area.

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

Personal locator beacon. A portable device, manually activated, which transmits a distress signal on 406 MHz, and may have an additional homing signal on a separate frequency.

Primary Search and Rescue Unit. Recognized groups with the capability to conduct on-scene operation to retrieve persons in distress, provide initial medical or other needs and deliver them to a place of safety.

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.

Place of safety. A location where rescue operations are considered to terminate; where the survivor's safety of life is no longer threatened and where their basic human needs (such as food, shelter and medical needs) can be met; and, a place from which transportation arrangements can be made for the survivors' next or final destination. A place of safety may be on land, or it may be on board a rescue unit or other suitable vessel or facility at sea that can serve as a place of safety until the survivors are disembarked at their next destination.

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 center. 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-center. A unit subordinate to a rescue coordination center, established to complement the latter according to particular provisions of the responsible authorities.

SafetyNET. A service of Inmarsat enhanced group call (EGC) system specifically designated for promulgation of maritime safety information (MSI) as a part of the Global Maritime Distress and Safety System (GMDSS).

Search. An operation normally coordinated by a rescue coordination center or rescue sub-center using available personnel and facilities to locate persons in distress.

Search and rescue coordinating communications. Communications necessary for the coordination of facilities participating in a search and rescue operation.

Search and rescue coordinator. One or more persons or agencies within an Administration with overall responsibility for establishing and providing SAR services and ensuring that planning for those services is properly coordinated.

Search and rescue data provider. A source for a rescue coordination center to contact to obtain data to support search and rescue operations, including emergency information from communications equipment registration databases, ship reporting systems and environmental data systems (e.g. weather or sea current).

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 mission coordinator. The official temporarily assigned to coordinate response to an actual or apparent distress situation.

Search and rescue organization. The provider of search and rescue services within the Philippine search and rescue region.

Search and rescue plan. A general term used to describe documents which exist at all levels of the national and international search and rescue structure to describe goals, arrangements and procedures which support the provision of search and rescue services.

Search and rescue point of contact. A point of contact for SAR, designated by the national administration, that is responsible for receiving distress alert information and providing the information to appropriate SAR authorities.

Search and rescue region. An area of defined dimensions, associated with a rescue coordination center, within which search and rescue services are provided.

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 sub-region. A specified area within a search and rescue region associated with a rescue sub-center.

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

Secondary Rescue Unit. Recognized off-scene groups with the ability to continuously assist in providing medical or other needs to retrieved persons in distress, and deliver them to a better place of safety.

State of registry. The State on whose register the aircraft is entered.

Ship reporting system. Reporting system which contributes to safety of life at sea, safety and efficiency of navigation and/or protection of the marine environment. This is established under SOLAS regulation V/11 or, for SAR purposes, under chapter 5 of the International Convention on Maritime Search and Rescue, 1979.

Telemedical assistance service. A medical service permanently staffed by doctors qualified in conducting remote consultations and well versed in the particular nature of treatment on board ship.

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

Unnecessary SAR alert. A message sent by an RCC to the appropriate authorities as a follow-up when the SAR system is unnecessarily activated by a false alarm.

Vessel. A maritime craft.

Vessel monitoring system. A tracking system which provides for environmental and fisheries regulatory organizations to monitor the position, time at a position, course and speed of commercial fishing vessels.

Vessel tracking. A generic term applied to all forms of vessel track data derived from multiple sources such as ship reporting systems, AIS, LRIT, SAR aircraft, VMS and VTS.

Vessel traffic services. A marine traffic monitoring system established by harbor or port authorities to keep track of vessel movements and provide navigational safety in a limited geographical area.

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ABBREVIATIONS

AAIIB	Aircraft Accident Investigation and Inquiry Board
AANSOO	Aerodrome and Air Navigation Safety Oversight Office
ACs	Advisory Circulars
ACC	Area Control Center
ACO	Aircraft Coordinator
AIP	Aeronautical Information Publication
AIS	Aeronautical Information Service
ALERFA	Alert Phase
AMVER	Automated Mutual-assistance Vessel Rescue system
ATC	Air Traffic Control
ATMSID	Air Traffic Management Safety Inspectorate Division
ATS	Air Traffic Service
ATSU	ATS Unit
CAAP	Civil Aviation Authority of the Philippines
CAR-ANS	Civil Aviation Regulations – Air Navigation Services
CE	Critical Element
CGAC	Coast Guard Action Center
COSPAS	Cosmicheskaya Systeyama Poiska Avariynich Sudov
DETRESFA	Distress Phase
DF	Direction Finding
DILG	Department of Interior and Local Government Unit
DSC	Digital selective calling
DSWD	Department of Social Welfare and Development
ELT	Emergency Locator Transmitter
EPIRB	Emergency position-indicating radio beacon
FIC	Flight Information Center
FIR	Flight Information Region
GADSS	Global Aeronautical Distress and Safety System
GIS	Geographic Information System
GMDSS	Global Maritime Distress and Safety System
GPS	Global Positioning System
IAMSAR	International Aeronautical and Maritime Search and Rescue
ICAO	International Civil Aviation Organization
IFR	Instrument Flight Rule
IMO	International Maritime Organization
INCERFA	Uncertainty Phase

INMARSAT	International Mobile Satellite
JRCC	Joint Rescue Coordination Center
LGU	Local Government Unit
LUT	Local User Terminal
LRIT	Long-range identification and tracking
MANOPs	Manual of Operations
MC	Memorandum Circular
MCC	Mission Control Center
MDA	Maritime Domain Awareness
MOS	Manual of Standards
MRCC	Maritime Rescue Coordination Council
MRSC	Maritime Rescue Sub-Centers
MRO	Mass Rescue Operation
NDRRMC	National Disaster Risk Reduction and Management Council
NGO	Non-Government Organizations
OSC	On-scene Coordinator
PAF	Philippine Air Force
PCAR	Philippine Civil Air Regulations
PCG	Philippine Coast Guard
PANS-OPS	Philippine Air Navigation Service – Aircraft Operations
PARCC	Philippine Aeronautical Rescue Coordination Center
PLB	Personal Locator Beacon
POB	Persons on board
POSc	Cumulative probability of success
PRC	Philippine Red Cross
RA	Republic Act
RCC	Rescue Coordination Center
RSC	Rescue Sub-center
SAR	Search and Rescue
SARPs	Standards and Recommended Practices
SARSAT	Search and Rescue Satellite-Aided Tracking
SC	Search and Rescue Coordinator
SCC	SAR Coordinating Committee
SITREP	Situation Report
SMC	Search and Rescue Mission Coordinator
SOLAS	Safety of Life at Sea
SRR	Search and Rescue Region

SRS	Search and Rescue Sub-Region
SRU	Search and Rescue Unit
SWD	Social Welfare and Development
UNSAR	Unnecessary SAR Alert
UTC	Coordinated Universal Time
VMS	Vessel Monitoring System
VTS	Vessel Traffic Services

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RULES OF CONSTRUCTION

Terminology

Through this regulation the following word usage applies:

a) ***Shall*** indicates a mandatory requirement.

b) ***May*** indicates that discretion can be used when performing an act described in a regulation.

c) ***Will*** indicates an action incumbent upon the Authority.

d) ***Should*** indicates a recommended practice.

Amendment/Revision to MOS-SAR

Proposals for any amendment or revision to MOS-SAR shall be submitted to the Technical Working Group (TWG) of the Air Traffic Management Safety Inspectorate Division (ATMSID). Any amendment or revision initiated by CAAP or by any other aviation stakeholders, the ATMSID TWG shall submit the deliberated proposal to the Regulations Review Committee (RRC) for furtherance.

The Chairman of the RRC shall be the Director General or his authorized representative and the Vice Chairman for MOS-SAR related matters shall be the Chief of AANSOO. The Secretariat of the RRC on matters concerning MOS-SAR shall be the current Chief of the Regulatory Safety Standards Division (RSSD) of AANSOO.

The RRC shall follow the procedures prescribed in the Regulations Amendment/ Revision Procedure (RAP) in deciding on the amendment or revision to or any other proposals associated with it. Once the amendment or revision is reviewed and endorsed by the RRC for the approval of the Director General, it shall have to be published in the Official Gazette of the Philippines or in a newspaper of general circulation. A copy of this published amendment/revision to regulations must be filed to the University of the Philippines Law Center - Office of the National Administrative Register (UP-ONAR).

The Chairman of the RRC shall convene the committee during regular meetings or at the instance of the Chairman or Vice-Chairmen and follow the Internal Rules of Procedures prescribed in the RAP.

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CHAPTER 1 – INTRODUCTION

1.1 General

1.1.1 Search and Rescue (SAR) comprises the search and rescue for and provision of aid to persons who are or are believed to be in imminent danger. The two (2) operations – search and rescue – may take many forms, depending on whether they are both required or not, the size and complexity of the operation, and the available staff and facilities.

1.1.2 The Manual of Standards for Search and Rescue (MOS-SAR) is supplementary to the rules and regulations contained in CAR-ANS Part 12, Search and Rescue and is based on ICAO Document 9731, International Aeronautical and Maritime Search and Rescue (IAMSAR) Volumes I, II and III. It is supplemented when necessary by regional procedures contained in the ICAO Document 7030, Regional Supplementary Procedures. Standards and procedures contained in this manual shall apply to organizations providing search and rescue services.

1.1.3 This manual provides standards, requirements and procedures for the establishment, maintenance, and operation of search and rescue services within the Philippine Search and Rescue Region (SRR). The primary purpose of the MOS-SAR is to ensure that the SAR of the Philippines meets the search and rescue needs and obligations under the Convention on International Civil Aviation.

1.1.4 The following terms are used in this manual:

a) “must” and “shall” – indicate a statement of specification, the compliance with which is required to achieve the implementation of the specification;

b) “should” – indicates a recommendation or best practice; and

c) “may” – indicates an optional element.

1.1.5 Service providers must document internal actions (rules) in their Manuals of Operations (MANOPs), to ensure the maintenance and conformance with standards. *(See Chapter 6 of this manual).*

1.1.6 Where the service provider is unable to comply with a requirement in this manual, the service provider shall explain the basis for its non-compliance and propose alternative steps, to ensure that SAR objectives are met effectively despite the deficiency. The Air Traffic Management Safety Inspectorate Division (ATMSID) will review the service provider’s proposal and may impose conditions or restrictions prior to approval. The alternative means of compliance shall be included in the service provider’s operations manual and must be updated by the time compliance with the required standard is met.

1.1.7 Deviations or exemptions shall also be recorded in the service providers’ MANOPs. The MANOPs shall also contain details of the deviation such as the reason for exemption and resulting effects and limitations if any.

1.1.8 It should be noted that CAAP oversight and SAR service providers, including rescue coordination centers (RCCs), are separate components that should collaborate to achieve an effective level of professionalism in their work and ensure safe assistance to persons in distress when rendered.

1.2 Differences between ICAO Standards and those in the MOS-SAR

1.2.1 In case of a difference between a standard prescribed in International Civil Aviation Organization (ICAO) Annex and the Manual of Standards (MOS), the MOS shall prevail.

1.3 Significant differences published in the AIP

1.3.1 Significant differences from the ICAO Standards and Recommended Practices (SARPs) are published in an Aeronautical Information Publication (AIP) GEN 1.7.

1.4 MOS documentation change management

1.4.1 This MOS is issued and may only be amended under the authority of the Director General of CAAP.

a) Requests for any change to the content of this MOS may come from:

   i) Technical services/offices within CAAP; or

   ii) Aviation and maritime industry service providers or operators;

1.4.2 The need to change any standards in this MOS may arise for any of the following:

a) To ensure safety;

b) To ensure standardization;

c) To respond to amendments to Philippine CAR-ANS regulations;

d) To respond to approved ICAO regional supplementary procedures; or

e) To accommodate proposed initiatives or new technologies.

1.4.3 CAAP may approve trials of new procedures or technologies in order to develop appropriate standards.

1.5 Periodic review

1.5.1 The SAR Safety Inspectorate unit must conduct continuous maintenance and periodic review of this manual within intervals not exceeding five (5) years from the date of its publication or as the need arises.

1.6 Relevant Documents

1.6.1 This Manual should be read in conjunction with:

a) Civil Aviation Regulations – Air Navigation Services (CAR-ANS) Part 12 Search and Rescue

b) Civil Aviation Regulations – Air Navigation Services (CAR-ANS) Part 11 Air Traffic Services

c) Philippine Civil Aviation Regulations (PCAR) Part 13 Accident and Incident Reporting and Investigation

d) Annex 12 – Search and Rescue

e) ICAO Document 9731, International Aeronautical and Maritime Search and Rescue (IAMSAR)

   i) Volume I – Organization and Management

   ii) Volume II – Mission Coordination

   iii) Volume III – Mobile Facilities

f) ICAO Document 7030 – Regional Supplementary Procedures for Alerting and SAR Services (Southeast Asia)

g) ATMSID Inspectors handbook

h) ICAO Circular 185 – Search and Rescue – The COSPAS-SARSAT System

i) ICAO Circular 347 – Aircraft Tracking Implementation Guidelines for Operators and Civil Aviation Authorities

1.6.2 Supplemental documents to this MOS may include Memorandum Circulars, Advisory Circulars, or information circulars.

a) **Memorandum Circular** – mandatory requirement to be complied with by the service provider organization. It is published for the purpose of immediate promulgation of local regulations and standards in response to amendments to ICAO annexes or CAAP initiated amendments. Memorandum Circular issued shall be incorporated into subsequent amendments of this Manual of Standards.

b) **Advisory Circular** – issued for the purpose of providing supplementary guidance materials to the standards in this MOS. Said guidance materials are issued to provide recommendations and guidance to illustrate means of complying with the regulatory standards of this MOS. Advisory Circulars may be explanations or interpretations of certain regulatory requirements.

c) **Information Circular** – published for the purpose of bringing to the attention of the service provider organization related materials to aviation safety. This circular is initiated as a result of ICAO State letters that do not require immediate changes to local regulations or new safety regulations as identified by the ATMSID. The service provider organization is encouraged to review and adopt the material if applicable. When practicable, materials published in the circulars may be incorporated into amendments to this MOS.

1.6.3 This manual consists of chapters described in the succeeding paragraphs:

1.6.3.1 Chapter 1, Introduction discusses the purpose of the MOS, the manner in which to read the MOS and the description of the contents of the MOS.

1.6.3.2 Chapter 2, CAAP Safety Oversight Function provides the standards for the CAAP to conduct safety oversight of the RCC and SAR service providers. It also provides an overview of the CAAP's responsibilities pertaining to SAR as provided in CAR-ANS Part 12 and a description of the regulatory framework established by CAAP to meet the requirements of the National regulations.

1.6.3.3 Chapter 3, Organization and Management discusses the global SAR system concept, the establishment and improvement of national SAR systems and cooperation with neighboring States to provide effective and economical SAR services.

1.6.3.4 Chapter 4, Mission Coordination assists personnel who plan and coordinate SAR operations and exercises.

1.6.3.5 Chapter 5, Mobile Facilities purpose is to assist vessels and aircraft in the performance of a search, rescue, or on-scene coordinator function and with aspects of search and rescue (SAR) that pertain to their own emergencies. It is intended to be carried aboard rescue units, aircraft, and vessels to help with the performance of search, rescue, or on-scene coordinator function and with aspects of SAR that pertain to their own emergencies.

1.6.3.6 Chapter 6, Facility Operations Manual contains guidance procedures to be employed by the SAR and RCC facility in setting up the facility's manual of operations.

CHAPTER 2 – CAAP SAFETY OVERSIGHT

2.1 STATE SAFETY OVERSIGHT SYSTEM

A State Safety Oversight System consists of eight (8) Critical Elements (CEs) as described in the Safety Oversight Manual (ICAO Document 9734 Part A – The Establishment and Management of a State Safety Oversight System, Chapter 3). The following sections describe CAAP's implementation of each of the critical elements with regard to SAR.

2.1.1 CE-1: Primary Aviation Legislation

2.1.1.1 Republic Act No. 9497 otherwise known as the Civil Aviation Authority Act of 2008, Chapter V Powers and Functions of the Board, Section 24 (j). *"Promulgate rules and regulations as may be necessary in the interest of safety in air commerce pertaining to the issuance if the airman's certificate including the licensing of operating and mechanical personnel, type of certificate for aircraft, aircraft engines, propellers and appliances, airworthiness certificates, air carrier operating certificates, air agency certificates, navigation facility and aerodrome certificate; air traffic routes; radio and aeronautical telecommunications and air navigation aids; aircraft accident inquiries; aerodromes, both public and private-owned; construction if obstructions to aerodromes; height of buildings; antennae and other edifices; registration of aircrafts;* ***search and rescue****; facilitation of air transports; operations of aircrafts, both for domestic and international, including scheduled and non-scheduled; meteorology in relation to civil aviation; rules of the air; air traffic services; rules for prevention of collision of aircrafts; identification of aircraft; rules for safe altitudes of flight; and such other rules and regulations, standards, governing other practices, methods and/or procedures as the Director General may find necessary and appropriate to provide adequately for safety regularity and efficiency in air commerce and air navigation."*

2.1.2 CE-2: Specific Operating Regulations

2.1.2.1 CAAP's specific operating regulations for SAR are contained in the following publications;

a) CAR-ANS Part 12, Search and Rescue, contains the general requirements for the establishment, organization maintenance, provision, operation, and coordination of Aeronautical SAR service in cooperation with Maritime SAR and other relevant emergency organizations.

b) This MOS-SAR, as supplement to CAR-ANS Part 12.

2.1.3 CE-3: State System and Functions

2.1.3.1 Compliance with General Requirements

2.1.3.1.1 The Air Traffic Service under CAAP has established the PARCC as one of its units. The Director General, under Chapter V – Powers of the Authority, Section 31, Delegation of Functions, (b) of Republic Act No. 9497. *"Delegation to Private Person – The Director General, in accordance with the policy guidelines prescribed by the Board, is*

*authorized to delegate any assigned powers and duties to any properly qualified private person subject to his continuing supervision, regulation, and review as may be prescribed. However, the Director General shall ensure that such functions are not delegated in such a way that air operators, **aerial work** or general aviation operators and maintenance facilities, in effect, regulate themselves."*

2.1.3.1.2 Consistent with the provisions of Section 31, Chapter V of Republic Act No. 9497, the discharge of the oversight functions of the Director General was delegated to AANSOO by virtue of CAAP MC No. 15-09 – "Establishment and Institution of the Aerodrome and Air Navigation Safety Oversight Office (AANSOO)".

2.1.3.1.3 Under CAR-ANS Part 12, 12.2.3.1, the PARCC of CAAP is mandated to have supervision and control of aeronautical search and rescue coordination service to be provided within Manila SRR.

2.1.3.2 Search and Rescue Services are performed by:

2.1.3.2.1 Philippine Coast Guard

2.1.3.2.1.1 The Philippine Coast Guard (PCG), in accordance with the Convention of Safety of Life at Sea (SOLAS), is the national maritime search and rescue service of the country. The Coast Guard Action Center (CGAC) at the PCG Headquarters in Manila, by virtue of the current functions and facilities, serves as the coordinating centers for all search and rescue operations.

2.1.3.2.1.2 The PCG's SAR organization maintains constantly-manned watch centers that operate 24 hours a day, continuously monitoring distress frequencies and conducting coastal foot and seaborne patrol within their area of responsibility. There is at least one division or squadron of Coast Guard Auxiliary in each MRSC where watch can be set and assistance can be obtained when required. Likewise, at least one Deployable Response Team composed of a Special Operations Group, Medical Team, K-9 and rescue swimmers is organized at each Coast Guard District or MRCC which can be dispatched immediately to any maritime and land base search and rescue operations.

2.1.3.2.2 505th Search and Rescue Group, Philippine Air Force

2.1.3.2.2.1 Since its activation in 1956 as a squadron under the PAF's 205th Tactical Operations Wing till its expansion as a Group, the 505th Search and Rescue Group has been a unit of the Philippine Air Force which remained true to its commitment as savior of the Filipino people. With its motto: THAT OTHERS MAY LIVE", it has indeed accomplished so much that it earned recognition and gratitude from our fellowmen. With 505th SRG, feeling safe has never been this easy.

2.1.3.2.2.2 The year 1996 saw the expansion of 505th Search and Rescue Group into a major unit of the Air Force is tasked to conduct air search and rescue operations in support of the AFP and civilian agencies. On the forefront of its search and rescue operations are its three squadrons strategically deployed in Luzon - the 5051st with an Advance post in Palawan, Visayas - 5052nd SRS and Mindanao - the 5053rd SRS.

2.1.3.2.3 Philippine National Police Aviation Security Group

2.1.3.2.3.1 The Philippine National Police Aviation Security Group (PNP-AVSEGROUP) are responsible in securing all the country's airports against offensive and terroristic acts that threaten civil aviation, in exercising operational control and supervision over all agencies involved in airport security operations, and enforce all laws and regulations relative to air travel protection and safety to all domestic and international airports in the Philippines.

2.1.3.2.4 National Disaster Risk Reduction and Management Council (NDRRMC)

2.1.3.2.4.1 The National Disaster Risk Reduction & Management Council (NDRRMC) is the highest organized and authorized body for Disaster Risk Reduction and Management (DRRM) in the Philippines. Established by virtue of Republic Act 10121 in 2010, the NDRRMC is composed of various government, non-government, civil sector and private sector organizations. The NDRRMC is vested with the overall policy-making, coordination, integration, supervision, monitoring and evaluation functions focusing on DRRM.

2.1.3.2.5 Department of Social Welfare and Development (DSWD)

2.1.3.2.5.1 The Department of Social Welfare and Development (DSWD) is mandated by law to develop, administer and implement comprehensive social welfare programs designed to uplift the living conditions and empower the disadvantaged children, youth, women, older persons, person with disabilities, families in crisis or at-risk and communities needing assistance.

2.1.3.2.5.2 With the passage of Local Government Code in 1991, the delivery of most basic services was developed to the Local Government Units (LGUs). On the other hand, the department is mandated to do policy and program development, standard setting, technical assistance and monitoring functions to LGUs and Non-Government Organizations (NGOs) to effectively implement Social Welfare and Development (SWD) programs in target areas as reflected in EO 15 s. 1998 *"Redirecting the Functions and Operations of the DSWD".* Through authorizing SWD agencies to implement SWD program and deliver service, DSWD extends its mandate and share responsibility and potential liability for all clients that these agencies serve. DSWD has the responsibility to oversee the implementation of SWD programs and services at all levels being the primary agency on SWD. It is for this purpose that these guidelines on program supervision is issued so that SWD agencies are guided by DSWD, including its own facilities to efficiently and effectively manage cases of disadvantaged individuals, groups, families and communities and learn from and develop skills in the process.

2.1.3.2.6 Department of Interior and Local Government Unit (DILG) and Local Government Units (LGUs)

2.1.3.2.6.1 The Mayor is mandated by RA 7160 or the Local Government Code of 1991 “to carry such emergency measures as may be necessary during and in the aftermath of man-made and natural disasters and calamities.” RA 10121 or the Disaster Risk Reduction and Management (DRRM) Act of 2010 (Sec. 11, a) states that the Mayor shall chair the Local Disaster Risk Reduction Management Council (LDRRMC”) which has the following functions (Sec. 11, b):

a) Approve, test, monitor, review and evaluate the implementation of the LDRRMPs;

b) Ensure the integration of disaster risk reduction and climate change adaptation into local development plan;

c) Recommend the implementation of the forced or pre-emptive evacuation of local residents; and

d) Convene the local council once every three (3) months as necessary.

2.1.3.2.7 Philippine Red Cross (PRC)

2.1.3.2.7.1 The Philippine Red Cross (PRC) is an independent and autonomous non-government organization tasked to help the Philippine government in the humanitarian field and to adhere to the obligations of the Philippines to the Geneva Conventions and International Red Cross and Red Crescent Movements.

2.1.3.2.7.2 On February 14, 1947, the Philippines proclaimed its commitment to adhere to the Geneva Red Cross Convention, which necessitated the creation of the Philippine Red Cross. The creation of this body was fulfilled on March 22, 1947, when Republic Act 95 was signed into law by President Manuel Roxas. Since its creation, the Philippines Red Cross Charter (RA 95) has undergone several changes by virtue of Republic Acts 855 and 6373, and Presidential Decree No. 1264 s. 1977. The original charter and amending laws were eventually repealed in 2010 when President Gloria Macapagal-Arroyo signed into law Republic Act 10072, otherwise known as the Philippine Red Cross Act of 2009. RA 10072 currently serves as the charter of the Philippine Red Cross.

2.1.3.2.7.3 The purpose of the Red Cross are as follows:

a) To cooperate with public authorities in the prevention of disease, promotion of health and the mitigation of human suffering through programs administered by the Philippine Red Cross;

b) To organize emergency relief operations and other such services to aid the sick and wounded of the armed forces in times of armed conflict;

c) To perform all duties devolving upon the Philippine Red Cross as a result of the adherence of the Republic of the Philippines to the Geneva Convention;

d) To act in matters of voluntary relief and of communication between the Republic of the Philippines and their Armed Forces, and

between other countries, their Governments and people, and the Armed Forced of the Republic of the Philippines.

e) To establish and maintain a system of national and international relief in times of calamities.

f) To devise and promote services as may be found desirable in improving the health, safety and welfare of the people; and

g) To devise such means to make every citizen and/or resident of the Philippines a member of the Philippine Red Cross.

2.1.3.3 SAR Safety Inspectorate

2.1.3.3.1 General Function

2.1.3.3.1.1 Ensure effective implementation of the safety oversight organizational unit providing Search and Rescue services.

2.1.3.3.2 Specific Functions

2.1.3.3.2.1 Develop, review and amend Rules/Regulations, Standards, and Procedures pertaining to the Search and Rescue operations/services in accordance with the applicable policies and procedures.

2.1.3.3.2.2 Monitor compliance by the search and rescue service providers in accordance with the applicable National Legislation, Civil Aviation Rules/Regulations, and prescribed Standards/Procedures through safety audit, inspection, and surveillance.

2.1.3.3.2.3 Safety information gathering and dissemination to relevant stakeholders.

2.1.3.3.2.4 May participate in different activities such as emergency exercises, and actual SAR operations for the purpose of procedure reviews for the improvement of SAR services provision, as appropriate or as necessary.

2.1.3.3.2.5 Perform such other tasks as may be assigned by the Director General or the Chief of the AANSOO and ATMSID.

2.1.3.3.3 Job description of SAR Safety Inspectors

2.1.3.3.3.1 The SAR Safety Inspector is responsible for performing the safety oversight functions of SAR service providers. The inspector ensures compliance with rules, regulations, standards, and directives related to SAR provisions. It includes:

a) Developing and amending SAR regulations, standards, directives and guidance materials required for aviation safety related to SAR provision; and

b) Conducting audits and regularly inspecting the adequacy of SAR and RCC service providers in terms of operational procedures, practices, staffing, operational equipment/facilities and personnel training/development to ensure the proper implementation of safe procedures.

2.1.3.3.3.2 Inspectors assigned at the SAR Safety Inspectorate may also be delegated to perform other regulatory tasks of the civil aviation system (e.g. ATS, AIS/Charting, MET and PANS-OPS).

2.1.3.4 Resources for the SAR Safety Inspectorate

2.1.3.4.1 CAAP shall ensure that financial resources must be readily available to enable the SAR Inspectorate to effectively fulfill its functions and responsibilities including, pieces of training to ensure the competencies of the SAR inspectors as well as for obligations imposed by other legislation such as those that may involve industry visits.

2.1.3.4.2 Resources must be available when needed to gather performance data and review, analyze and recommend improvements in the SAR system and its operation.

2.1.4 CE-4: Qualified Technical Personnel

2.1.4.1 The established minimum qualification requirements, training, and competencies for ATM Safety Inspectors (AIS/Charting, ATS, MET, PANS-OPS and SAR) performing oversight and safety-related functions are described in the general rule of Chapter 3 of the ATMSID Inspectors Training Manual 2020 Edition.

2.1.4.2 CAAP ensures that the established qualifications, required competency, knowledge, skill, and attitude are met by all SAR Safety Inspectors.

2.1.4.3 The ATMSID Inspectors Training Manual contains the training program and training plan for SAR Safety Inspectors within an established period. The training includes initial (introduction, basic specialization), on-the-job training (OJT), continuation (recurrent, refresher and advanced specialization course), requalification and advanced training for senior inspectors.

2.1.4.4 The training program must be appropriately implemented in accordance with the periodic training plan detailing and prioritizing the type of training needed over a specified time frame.

2.1.4.5 The system to maintain training records of all SAR Safety Inspectors is also included in Chapter 2 of the ATMSID Inspectors Training Manual.

2.1.5 CE-5: Technical Guidance, Tools and provision of Safety-Critical Information.

2.1.5.1 CAAP provides appropriate facilities, comprehensive and up-to-date technical guidance material procedures, safety-critical information, tools and equipment, and transportation means, as applicable, to the SAR safety inspectors to enable them to perform their safety oversight functions effectively and in accordance with established procedures in a standardized manner described in this MOS and the ATMSID Inspectors Handbook.

2.1.5.2 CAAP also provides technical guidance to the aviation industry on the implementation of relevant regulations thru forums or symposiums and thru the issuance of guidance materials that may be in the form of Advisory Circulars (ACs).

2.1.6 CE-6: Certification, Licensing, Authorization and Approval Obligations

2.1.6.1 CAAP ensures that the service provider complies with statutory and regulatory requirements in force.

2.1.7 CE-7: Surveillance obligations

2.1.7.1 As part of the surveillance activities for SAR and RCC service providers, the SAR Inspectorate develops periodic surveillance plans as described in the ATMSID Inspectors Handbook.

2.1.7.2 The surveillance activities are carried out using standardized procedures and checklists.

2.1.8 CE-8: Resolution of Safety Issues

2.1.8.1 ATMSID Inspectors Handbook documents the process to take appropriate actions, up to and including enforcement measures, to resolve identified safety issues. CAAP ensures that identified safety issues are resolved in a timely manner through a system that monitors and records progress, including actions taken by the SAR and RCC service providers in resolving such issues.

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CHAPTER 3 – ORGANIZATION AND MANAGEMENT

3.1 System Organization

3.1.1 Global SAR system organization

3.1.1.1 ICAO and the International Maritime Organization (IMO) coordinate, on a global basis, member States' efforts to provide SAR services. Briefly, the goal of ICAO and IMO is to provide an effective worldwide system, so that wherever people may be in danger, in the air or at sea, SAR services will be available if needed. The overall approach the Philippines takes in establishing, providing, and improving SAR services is affected by the fact that these efforts are an integral part of a global SAR system.

3.1.1.2 A basic, practical, and humanitarian effect of having a global SAR system is that it eliminates the need for the Philippines to provide SAR services for its own citizens wherever they travel worldwide. Instead, the globe is divided into SRRs, each with an RCC and associated SAR services, which assist anyone in distress within the SRR without regard to nationality or circumstances.

3.1.2 Basic System Functions

3.1.2.1 Any SAR system should be structured to provide all SAR services:

a) receive, acknowledge, and relay notifications of distress from alerting posts;

b) coordinate search response;

c) coordinate rescue response and delivery of survivors to a place of safety; and

d) provide medical advice, initial medical assistance or medical evaluation.

3.1.3 System Management and Support

3.1.3.1 To ensure success, the involved parties must be committed to providing the best possible SAR services with available resources. This commitment should also be reflected in national legislation designating agencies responsible for SAR.

3.1.3.2 Close cooperation between various civilian and military organizations is essential.

3.1.3.3 SAR cases, accidents, exercises and drills should be carefully assessed and potential improvements to the SAR system identified. Lessons identified in such cases, and other information of use to the SAR community, should be shared as appropriate at local, national, regional and/or international levels.

3.1.3.4 Commitments between CAAP and various (government and private) agencies to support the SAR system are often documented by means of coordination, memoranda or letters of agreement, etc., which evolve

over time in a hierarchical fashion at the local, national and regional levels.

3.1.3.5 When necessary, an RCC with an associated SRR, and perhaps a rescue sub-center (RSC) with one or more associated search and rescue sub-regions (SRSs), should be established.

3.1.4 National System

3.1.4.1 The establishment of a national system is typically based on the development of multilateral national plans, agreements, etc., to suit the desires and needs of the Philippines. These documents may discuss the establishment of RSCs, equivalent arrangements in lieu of establishing SRRs, etc., but usually provide for:

a) effective use of all available resources for SAR;

b) delineation of SRRs;

c) description of relationships between parties; and

d) discussion of how higher-level conventions, plans, agreements, etc., will be implemented and supported.

3.1.4.2 The basic requirements for developing an effective SAR system include:

a) legislative establishment of the SAR service(s);

b) arrangement for use of all available resources, and provision of others if necessary;

c) establishing geographic areas of responsibility with associated RCCs and RSCs;

d) staffing, training, and other personnel support to manage and operate the system:

i) adequate and functioning communications capabilities; and

ii) agreements, plans and related documents, to achieve goals and define working relationships.

3.1.4.3 The Philippines, being a Party to the Safety of Life at Sea (SOLAS) Convention, the International Convention on Maritime Search and Rescue, and the Convention on International Civil Aviation, accepted the obligation to provide SAR coordination services for its territories, territorial seas, and the high seas within its SRR.

3.1.5 SAR operations by maritime rescue services in times of armed conflict.

Note: - The guidance contained in this provision has been prepared by the International Committee of the Red Cross.

3.1.5.1 Such craft and their associated fixed coastal rescue installations, when employed by the Philippines that is a party to a conflict (whether by its armed forces or by civilian governmental agencies) or by officially recognized lifeboat institutions (i.e. the institution must have been approved or authorized by a governmental authority or other public body to perform coastal rescue functions, which presupposes the

existence of a legal or administrative framework in the State in which the lifeboat institution operates to provide for its prior approval or authorization in peacetime) **"shall be respected and protected, that is, may not be attacked, captured or otherwise prevented from performing their humanitarian tasks, so far as operational requirements permit".**

3.1.5.2 Neutral coastal rescue craft (i.e. craft of the Philippines which is not a Party to an armed conflict between two or more other States) enjoy protection under other sources of international law and may also obtain special protection under Geneva Convention II. Neutral vessels that agree to take on board and care for the wounded, sick and shipwrecked and to collect the dead "**shall enjoy special protection and facilities to carry out such assistance**".

3.1.6 SAR as a system

3.1.6.1 Development of a SAR system typically involves the establishment of one or more SRRs, along with capabilities to receive alerts and to coordinate and provide SAR services within each SRR. Each SRR is associated with an RCC. For aeronautical purposes, SRRs often coincide with flight information regions (FIRs).

3.1.6.2 The national SAR system should have arrangements in place for coordination with local authorities for land SAR response, as appropriate. In some cases, the national SAR system may be designated as being responsible for conducting certain land SAR operations; or, it may have a supporting role because the RCC received the initial alert or the local authorities requested the support of nearby national SAR facilities.

3.1.6.3 Good communications are essential. They should promptly provide the RCC with alerting information permitting the RCC to dispatch SRUs and other resources to search areas without delay and to maintain two-way contact with the persons in distress.

3.1.6.4 Communications to and from RCCs and RSCs should be as timely and reliable as possible and sufficient to handle the total diversity and volume of needs for the worst potential scenarios. Specific details are provided in the ICAO Document 9731 IAMSAR Manual, Vol. II, Mission Coordination.

3.1.7 Staffing

3.1.7.1 General staffing considerations for administrative and support functions combine with operational functions to form a SAR structure are shown in Table 5.1 of ICAO Document 9731 IAMSAR Vol. I. Key aspects, general skills, and desired personal characteristics for SAR personnel are discussed in the following provisions thereat.

3.1.8 Training, qualification, and certification

3.1.8.1 Training and experience are crucial to proper SAR operations. RCC and RSC watch standers usually need formal SAR training. If unable to immediately attend formal training, they must receive a period of on-

the-job training and an interim qualification and certification. More on the content and process of training, qualification, and certification is contained in Chapter 3 of ICAO Document 9731 IAMSAR Vol I.

3.1.8.2 RCC and RSC SAR training should include at least the following topics. If search planning expertise gained from formal training is not used on a regular basis for operations or exercises, periodic refresher training will normally be needed. General categories include:

- Aeronautical drift
- AFN
- AFTN
- Bailout scenarios and planning
- Briefing/questioning
- Case studies
- Charts
- Coastal SAR planning
- Computer applications
- COSPAS–SARSAT
- Datum marker buoys
- Datum determination
- Dealing with families
- Dealing with public and news media
- Documentation of incidents
- Electronic sweep width
- Emergency care
- Environmental factors
- Evaluation of flare sightings
- Fatigue factors
- Inmarsat
- International aspects
- Interviewing techniques
- Leeway drift
- Legal concerns
- Look-out skills and limitations
- Maneuvering boards
- Mass rescue operations
- Medical advice
- Medical evacuations
- Obtain and evaluate data
- On-scene coordinator duties
- SRUs Parachute drift
- Plotting skills
- Registration databases
- Rescue procedures
- Resource allocation
- Risk assessment
- SAR agreements
- SAR communications
- SAR mission coordination
- SAR operations conclusion
- SAR phases, stages, and components
- SAR resource capabilities
- SAR system organization
- SAR technology
- Search areas
- Search patterns
- Search planning
- Ship reporting systems for SAR
- SRU selection
- Stress management
- Survival equipment
- Vessel tracking systems (AIS, LRIT, VMS)
- Visual sweep width
- Water currents

3.1.8.3 Guidance for the training of:

a) SAR personnel;

b) Air SAR facilities;

c) Maritime SAR facilities;

d) Masters and officers of merchant ships;

e) Land SAR facilities;

f) Pararescue and paramedical personnel; and

g) Depot personnel.

Note: - the following are contained in Section 23 of ICAO Document 9731 IAMSAR Vol. III.

3.1.8.4 The need for a working knowledge of the English language may be considered. RCCs must be able to communicate with other RCCs, as well as ship masters and aircraft commanders, who are required to be able to speak English. Air traffic services units also have requirements for English language speaking skills.

Note: - ATS units English proficiency requirements are specified in PCAR Part 2, 2.2.7.

3.1.9 SAR Communications

3.1.9.1 Communication consists of a sender passing information to a receiver by various means. SAR personnel, survivors, RCCs and RSCs, SAR facilities, and many others must have the means to be senders and receivers. SAR managers must seek to provide the essential communications elements to receive distress alerts and perform the SAR mission.

3.1.9.2 Basic functions and requirements; Important factors for SAR communications; Mobile equipment; Land-based infrastructure; Supplemental capabilities; MEDICO communications; Radio callsigns for aircraft involved in a SAR operation and Social media are discussed in Chapter 4 of ICAO Document 9731 IAMSAR Vol. I. Chapter 2 of ICAO Document 9731 IAMSAR Vol. II focuses primarily on SAR communications topics which include distress communications, emergency beacons, communications for SAR operations and a variety of communications and safety systems related to or used by the SAR system.

3.1.10 Exercises

3.1.10.1 Exercises test and improve operational plans, provide learning experience and improve liaison and coordination skills. Exercises, conducted on a realistic basis, help to demonstrate and assess the true effectiveness of training and the operational efficiency and competence of the SAR service. Exercises will reveal deficiencies that may exist in SAR plans and enable them to be improved. It is safer to have shortcomings revealed by exercises rather than during actual operations. Attachment A of this Manual provides a sample template to serve as a guide to assist a State to develop a SAR exercise with its local SAR supporting agencies as well as with one or more neighboring States

3.1.10.2 Types of exercises

3.1.10.2.1 Exercises can and should be conducted on three levels.

a) The most simple type of exercise, a *communications exercise*, requires the least planning. It consists of periodic use of all means of communications between all potential users to ensure capability for actual emergencies.

b) A *coordination exercise* involves simulated response to a crisis based on a series of scenarios. All levels of the SAR service are involved but do not deploy. This type of exercise requires considerable planning, and usually one to three days to execute.

c) The third type, a *full-scale exercise* or a *field exercise*, differs from the previous types in that actual SAR facilities are deployed. This increases the scope of SAR system-testing and adds realistic constraints due to times involved in launching, transit and activities of the SRUs.

3.1.10.3 Other considerations

3.1.10.3.1 The need for exercises varies. Having very few SAR operations each year, exercises will be critical to sustaining proficiency. Joint exercises among neighboring States or parties to SAR agreements will also be valuable. It may be necessary to assign persons full-time to planning and evaluating exercises. Success of an exercise is measured by:

a) how many problems are discovered;

b) how much is learned;

c) how much operating plans are improved; and

d) how few mistakes are repeated during the next exercise.

3.1.10.4 Exercise elements

3.1.10.4.1 Successful exercises require planning, execution and evaluation. Exercises are carried out for training, to evaluate established plans and procedures and to test new concepts. Exercises also offer experience in the management of risks and safety for SAR operations.

3.1.10.4.2 *Planning*. The typical exercise sequence involves: development of the concept (broad goals and objectives) of what is to be exercised; selection of participants (staff and facilities); detailed planning for how the exercise will be conducted; conduct of the exercise; and evaluation to determine lessons learned and to develop recommendations for improvement. It is essential to have a clear understanding of which plans and procedures are being exercised. Scenarios can then be developed that include specific situations to which personnel will react and respond. Response, or lack of response, to established policy and guidance, and need for additional policy guidance, is evaluated.

3.1.10.4.3 *Execution*. Those who plan exercises should not be the same ones who respond to the created scenarios. This avoids covering up known weaknesses to ensure ideal results, instead of revealing what would occur in an actual SAR situation.

a) Scenarios must be as realistic as possible. The decision as to how large and realistic exercises should be will depend on the extent of the SAR service, the demands expected to be made upon it and general considerations of economy. Since the primary responsibility for SAR has been delegated to military authorities or Government services, full-scale exercises involving as many units and facilities as possible may provide satisfactory means of implementing training programs. Where private concerns are relied upon to play a major part in SAR, the timing of major exercises should be arranged so as to minimize disruption to normal activities.

b) Opportunities should be taken to complement formal training programs with exercises conducted on a unit basis by combining them with normal activities during quiet periods. They should be carried out at regular intervals as determined by the SAR units and arranged so that all personnel participate. This is particularly important in respect of those facilities which seldom receive operational calls.

c) Exercises carried out separately by facilities will not be as valuable as combined operations, but they can ensure that the SAR service will function in an emergency.

d) As many facilities, including air and surface craft, should be exercised as possible. Communications between the SRUs is a vital test of coordination.

e) It is not always practicable for organizations to engage in formal SAR training programs. Whenever possible, personnel from these organizations should be invited to participate in or observe training exercises. They should be provided with documents, publications or other literature which describe the SAR policies and procedures used by the SAR service, showing the desired roles of the participating organizations in SAR operations.

f) Adjacent RCCs should periodically execute SAR exercises together to develop and maintain efficient cooperation and coordination between their services. These exercises need not always be on a large scale, but at least those SAR units which are likely to operate together should engage periodically in coordinating exercises. Much may be learned by exchanging information on training methods (e.g. programs, literature, and films) and visits between staff of adjacent SRRs.

g) Safety requirements, particularly when using live “survivors”, may impose significant constraints on the conduct of SAR exercises. SAR coordinating authorities should ensure that specific safety rules and limitations are issued for use during both the planning and conduct of SAR exercises.

3.1.10.4.4 *Evaluation*. The evaluation process is crucial. Inputs should come from a team of evaluation experts who observe the exercise, and from the people who actually participated in the exercise scenarios. Those observing and evaluating the response must have expertise in the areas they are evaluating, and clearly understand what is being evaluated. The evaluators should know the situations being posed and then record the participant’s response to the objectives of the exercise.

The final step is identification of weaknesses and development of recommendations for improvement. Subsequent exercises would emphasize these recommended changes as well as other concerns.

3.1.10.4.5 The RCC, RSC, and SAR units should determine the regularity and duration when to conduct the exercise for its personnel.

3.1.10.5 Reports

3.1.10.5.1 A permanent record of the exercise, addressing each element, is necessary to disseminate valuable information and to maintain a historic file for later case studies, analyses and system improvements. A system of indexing and filing the reports is recommended for later retrieval.

3.1.10.5.2 A copy of the report should be submitted to CAAP-AANSOO.

3.1.11 SAR Coordination

3.1.11.1 The SAR system has three levels of coordination associated with SAR coordinators (SCs), SAR mission coordinators (SMCs), and on-scene coordinators (OSCs).

3.1.11.2 *SAR coordinators.* SCs have the overall responsibility for establishing, staffing, equipping, and managing the SAR system, including providing appropriate legal and funding support, establishing RCCs and rescue sub-centers (RSCs), providing or arranging for SAR facilities, coordinating SAR training, and developing SAR policies. SCs are the top-level SAR managers; each State normally will have one or more persons or agencies for whom this designation may be appropriate. More information on SAR management responsibilities may be found in the *International Aeronautical and Maritime Search and Rescue Manual on Organization and Management.* SCs are not normally involved in the conduct of SAR operations.

3.1.11.3 SAR operations are normally carried out under the direction and supervision of an SMC, who is usually the supervisor of the RCC or RSC watch team. In multiple-incident situations this officer could be SMC for all incidents, or, for some of those incidents, the SMC role could be delegated to another suitably qualified member of the watch team. The SMC should in all cases be supported by RCC watch team members to undertake functions in the coordinating process such as communications, plotting, logging and search planning. For complex cases or those of long duration, the assisting team as well as the SMC must be replaced at regular intervals. The SMC must be able to competently gather information about emergencies, transform emergency incident information into accurate and workable plans and dispatch and coordinate the facilities which will carry out the SAR missions.

a) The SMC is in charge of a SAR operation until a rescue has been effected or until it has become apparent that further efforts would be of no avail, or until responsibility is accepted by another RCC. The SMC should be able to use readily available facilities and to request additional ones during the operation. The SMC plans the

search and rescue operations and coordinates the transit of SAR facilities to and from the scene.

b) The SMC should be well trained in all SAR processes and be thoroughly familiar with the applicable SAR plans. The SMC must competently gather information about distress situations, develop accurate and workable action plans, and dispatch and coordinate the resources which will carry out SAR missions. The plans of operation maintained by the RCC provide information to assist in these efforts. Guidelines for SMC duties include:

i) obtain and evaluate all data on the emergency;

ii) ascertain the type of emergency equipment carried by the missing or distressed craft;

iii) remain informed of prevailing environmental conditions;

iv) if necessary, ascertain movements and location of vessels and alert shipping in likely search areas for rescue, lookout (visual and electronic) and/or radio watch on appropriate frequencies to facilitate communications with SAR facilities;

v) plot the area to be searched and decide on the methods and facilities to be used;

vi) develop the search action plan (and rescue action plan as appropriate), i.e. allocate search areas, designate the OSC, dispatch SAR facilities and designate on-scene communications frequencies;

vii) inform the RCC chief of the search action plan;

viii) coordinate the operation with adjacent RCCs when appropriate;

ix) arrange briefing and debriefing of SAR personnel;

x) evaluate all reports from any source and modify the search action plan as necessary;

xi) arrange for the fueling of aircraft and, if necessary, rescue vessels and, for prolonged search, make arrangements for the accommodation of SAR personnel;

xii) arrange for delivery of supplies to sustain survivors;

xiii) maintain in chronological order an accurate and up-to-date record with a plot, where necessary, of all proceedings;

xix) issue progress reports;

xx) recommend to the RCC chief the abandoning or suspending of the search;

xxi) release SAR facilities when assistance is no longer required;

xxii) notify accident investigation authorities;

xxiii) notify police and other government authorities where relevant and necessary;

xxiv) if applicable, notify the State of registry of the aircraft or vessel in accordance with established arrangements; and

xxv) prepare a final report on the results of the operation.

3.1.11.4 *On-scene coordinator.* When two or more SAR units are working together on the same mission, there is sometimes an advantage if one person is assigned to coordinate the activities of all participating units. The SMC designates this on-scene coordinator (OSC), who may be the person in charge of a search and rescue unit (SRU), ship or aircraft participating in a search, or someone at another nearby facility in a position to handle OSC duties. The person in charge of the first SAR facility to arrive at the scene will normally assume the function of OSC until the SMC directs that the person be relieved. The OSC may have to assume SMC duties and actually plan the search and/or rescue if the OSC becomes aware of a distress situation directly and communications cannot be established with an RCC. The OSC should be the most capable person available, taking into consideration SAR training, communications capabilities, and the length of time that the unit the OSC is aboard can stay in the search area. Frequent changes in the OSC should be avoided. Duties which the SMC *may* assign to the OSC, depending on needs and qualification, include any of the following:

a) assume operational coordination of all SAR facilities on scene;

b) receive the search and/or rescue action plan from the SMC;

c) modify the action plan based on prevailing environmental conditions and keep the SMC advised of any changes to the plan (discuss proposed modifications with the SMC when practicable);

d) provide relevant information to the other SAR facilities;

e) implement the action plan;

f) monitor the performance of other units participating in the operation; and

g) make consolidated reports (SITREPs) to the SMC.

3.1.11.5 *Aircraft coordinator.* The purpose of the aircraft coordinator (ACO) function is to maintain high flight safety and cooperate in the rescue action to make it more effective. The ACO function should be seen as a cooperating, supporting and advisory service. The ACO should normally be designated by the SMC, or if that is not practicable, by the OSC. The ACO function will normally be performed by the facility with the most suitable mix of communication means, radar, GNSS (Global Navigation Satellite System) combined with trained personnel to effectively coordinate the involvement of multiple aircraft in SAR operations while maintaining flight safety. Generally, the ACO is responsible to the SMC; however, the ACO work on scene must be coordinated closely with the OSC, and if no SMC or OSC, as the case may be, the ACO would remain in overall charge of operations. Duties of the ACO can be carried out from a fixed-wing aircraft, helicopter, ship, a fixed structure such as an oil rig, or an appropriate land unit, such as an ATS unit or RCC. Depending on needs and qualifications, the ACO may be assigned duties that include the following:

a) coordinate the airborne resources in a defined geographical area;

b) assist in maintaining flight safety by issuing safety-related information;

c) practice flow planning (example: point of entry and point of exit);

d) prioritize and allocate tasks;

e) coordinate the coverage of search areas;

f) forward radio messages (can be the only duty);

g) make consolidated situation reports (SITREPs) to the SMC and the OSC, as appropriate; and work closely with the OSC; and

h) it is important that the ACO is aware of the fact that the participating airborne units, if possible, try to avoid disturbing other participating units with, for example, noise and rotor wind.

3.1.11.6 Airborne SRUs should make a standard joining entry report to the ACO when entering a search and rescue mission area, including:

a) call sign;

b) nationality;

c) type (specify fixed-wing or helicopter and type);

d) position;

e) altitude (on pressure setting used);

f) ETA (at relevant point or search area);

g) endurance on scene; and

h) remarks (specific equipment or limitations).

3.2 COORDINATION BETWEEN STATES

3.2.1a Until 25 November 2026, CAAP thru PARCC 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.

3.2.1b As of 26 November 2026, CAAP thru PARCC should make arrangements for joint training exercises involving their RCCs, RSCs and search and rescue units, those of other States and operators, in order to promote search and rescue efficiency.

3.2.2 CAAP should make arrangements for periodic liaison visits by PARCC personnel to RCCs of neighboring States.

3.2.3 When such information could benefit the provision of search and rescue services, CAAP should make available, through the PARCC or other agencies, information regarding their search and rescue plans of operation.

3.2.4 CAAP 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.

3.3 SYSTEM MANAGEMENT

3.3.1 Global Solution

3.3.1.1 The establishment of a global SAR system is intended to ensure that all persons in distress will be assisted regardless of their nationality or circumstances and wherever they may be found. CAR-ANS Part 12 Search and Rescue and IMO's International Convention on Maritime Search and Rescue are the primary documents for establishing SAR service requirements.

3.3.1.2 SAR services provisions should be viewed as part of a global safety system. To this end, the States concerned with a particular land mass or ocean area should cooperate to use all available resources in assisting persons in distress.

3.3.1.3 Each State should assess its own responsibilities and requirements and then evaluate its abilities as a SAR service provider for both national and regional needs. Whether establishing a SAR system or conducting a periodic review of an established one, assessments provide a factual basis on which to make improvements. Such assessments also help to gain continued support for SAR system funding, to obtain assistance from other agencies, or to justify procurement of additional resources. Appendix H of ICAO Document 9731 IAMSAR Vol I contain a national self-assessment questionnaire which may be used to evaluate international and national SAR systems aligned to ICAO and IMO SAR obligations, to identify areas for improvement, and to assist SAR managers in assessing needs. The questionnaire may be used for conducting a periodic review of an established SAR system or as a support tool to guide the establishment of a SAR system.

3.3.2 Planning process

3.3.2.1 SAR management planning processes involve:

a) assessing emerging technologies and other environmental changes and opportunities;

b) appraising the system, including use of SAR statistics to identify recurring causes of distress incidents;

c) analyzing and responding to the findings and recommendations of accident investigations;

d) promoting legislation, rules, treaties, or agreements to improve safety;

e) sharing information among programs and organizations; and

f) participating in SAR coordinating committee (SCCs) and international and interagency SAR meetings.

3.3.2.2 SAR managers should periodically assess their program and update their long-range plans. An annual review is recommended for this type of activity.

3.3.2.3 SAR managers should develop long-range (typically five-year) plans for achievements in their respective areas of responsibility. These plans will document goals, objectives and intended actions. All these goals should relate directly or indirectly to SAR operational needs. They also serve as a tool for implementing higher-level directives, legislation, SAR coordinating committee (SCC) plans, and other similar documents.

3.3.3 SAR plans

3.3.3.1 A national SAR plan is a single document that pertains to the SRRs, RCCs, and RSCs and SAR-related functions for which one State is responsible. Principles of operational coordination must be covered in this plan, which serves as a basis for more detailed provisions in subordinate State documents such as a SAR manual or plans of operation. Other types of SAR cooperation, such as mutual visits and training, also may be addressed. The national SAR plan may include a:

a) description of the SRR, including the limits for any SRSs created to make the organization more efficient;

b) description of the available facilities, personnel, and equipment;

c) discussion of the SAR personnel training program, qualification standards, and certification procedures;

d) discussion of the roles and responsibilities of all agencies which will provide or support SAR services;

e) copy or summary of all agreements with authorities providing facilities and services not under the direct control of the SAR managers; and

f) copy or summary of all agreements regarding mutual assistance with neighboring RCCs.

3.3.3.2 A SAR plan may be supported by legislation or regulations if necessary, or may be a self-supporting memorandum of understanding (MOU) between appropriate agencies. Ratification of an MOU at the Deparment level recognizes the importance of SAR, while allowing for an easier revision process than higher-level agreements would allow.

3.3.3.3 Plans of Operation

3.3.3.3.1 Each RCC should prepare comprehensive plans of operation for its SRR, and take into account agreements with providers of facilities or other support for SAR operations. The plans of operation should be brought up to date whenever a change in conditions or experience in actual operations and exercises makes this necessary or advisable.

3.3.3.3.2 The location of the RCC and the description of its area of responsibility should be published in a national document (e.g. the Aeronautical Information Publication (AIP) or equivalent publication for maritime. The

plans of operation should include information on the following general categories:

a) procedures for SAR coordination and types of SAR operations;

b) responsibilities of personnel assigned to SAR operations;

c) facilities;

d) communications;

e) operational information; and

f) training and discussion.

3.3.4 Establishment of RCCs and RSCs

3.3.4.1 Each SRR must have an RCC. When a State assumes responsibility for an SRR, it commits to establish and staff a fully capable RCC. If necessary, RSCs may be established under an RCC to assist in providing services within an SRR. An RSC would be responsible for SAR services within its SRS.

3.3.4.2 There may be situations where an RCC is not able to exercise direct and effective control over SAR facilities in an area within its SRR. The establishment of an RSC with its SRS may be appropriate. Such situations include:

a) where the communications facilities in a portion of an SRR are not adequate for close coordination between the RCC and SAR facilities; and

b) where local control of SAR operations will be more effective.

3.3.4.3 RCCs and their subordinate RSCs are the primary operational elements in the SAR organization. Chapter 2 of ICAO Document 9731 IAMSAR Vol I discusses their roles and responsibilities.

3.3.4.4 Each RCC is responsible for preparing comprehensive plans for the conduct of SAR in its SRR and for coordinated actions within adjacent SRRs. These plans must cover the whole SRR and be based on agreements between the SAR service and the providers of facilities or other support for SAR operations. Plans are intended to be valuable aids for time-critical search planning and SAR coordination processes. Each RCC and RSC should develop plans that:

a) meet the requirements of applicable international SAR manuals;

b) cover all the emergency scenarios likely to occur within the SRR;

c) are reviewed and updated regularly; and

d) are in a convenient form for quick and easy use.

3.3.4.5 The plans of operation set out the details for the conduct of SAR at operational levels. The IAMSAR Manual, volume II, *Mission Coordination* contains an outline of plans of operation.

3.3.5 Dealing with the media

3.3.5.1 The management of media affairs is an important element in SAR operations and should be an integral part of the SAR system. It should thus receive appropriate consideration and planning. If the media do not obtain information from the primary source, they will seek it elsewhere. Incorrect or misleading information may then emerge which will benefit no-one and may lead to undue concern amongst next of kin.

3.3.5.2 As search and rescue operations often take place in public, it is important that the information that emerges is correct. The SAR service thus has a responsibility to ensure that an accurate picture is reported. As the primary source, the SAR service should be proactive in communicating facts to the media. Holding back information that is available from other sources may lead to incorrect information being communicated by the media.

3.3.5.3 Social media are not part of the national distress alerting system and are not monitored as a primary means of distress notification. However, the public uses social media to create online communities to share information, ideas, personal messages, and other content. This can raise a public expectation that SAR authorities, especially for prolonged SAR incidences with news media interest, should either provide information to or accept information from social media sites. The SAR/RCC should have procedures in place for the efficient management of social media.

3.3.5.4 All personnel who may be required to have direct contact with the media should receive appropriate training.

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CHAPTER 4 – MISSION COORDINATION

4.1 Awareness and Initial Action

4.1.1 SAR Stages

4.1.1.1 The response to a SAR incident usually proceeds through a sequence of five stages. These stages are groups of activities typically performed by the SAR system in responding to a SAR incident from the time the system becomes aware of the incident until its response to the incident is concluded. The response to a particular SAR incident may not require the performance of every stage. For some incidents, the activities of one stage may overlap the activities of another stage such that portions of two or more stages are being performed simultaneously. The five SAR stages are described below.

a) **Awareness.** Knowledge by any person or agency in the SAR system that an emergency situation exists or may exist.

b) **Initial action.** Preliminary action is taken to alert SAR facilities and obtain more information. This stage may include evaluation and classification of the information, alerting of SAR facilities, communication checks, and, in urgent situations, the immediate performance of appropriate activities from other stages.

c) **Planning.** The development of operational plans, including plans for search, rescue, and final delivery of survivors to medical facilities or other places of safety as appropriate.

d) **Operations.** Dispatching SAR units to the scene, conducting searches, rescuing survivors, assisting distressed craft, providing necessary emergency care for survivors, and delivering casualties to medical facilities.

e) **Conclusion.** Return of SRUs to a location where they are debriefed, refueled, replenished, and prepared for other missions, return of other SAR units to their normal activities, and completion of all required documentation.

4.1.2 Awareness Stage

4.1.2.1 The SAR system's first notification of an actual or potential SAR incident initiates the awareness stage. Persons or craft in difficulty may report a problem, alerting posts may receive information, nearby personnel may observe an incident, or an uncertainty may exist due to lack of communication or to non-arrival. Anyone who becomes aware of an actual or potential SAR incident should report it immediately to the appropriate RCC or RSC if known, or to the nearest RCC or RSC otherwise. If an SRU receives the information, it should also respond to the incident as appropriate.

4.1.2.2 Air Traffic Services Units. ATS units receive information on most aircraft flights and are periodically in contact with them. Most of this information will come from aircraft reporting directly to ATS units. An aircraft emergency and its development are therefore likely to come to their notice first. It is for these reasons that each ATS unit:

a) provides alerting services to all aircraft flights known to it; and

b) Serves as a collection through Manila Area Control Center point for all information concerning an aircraft in distress within the Manila FIR.

4.1.2.3 ATS unit (ATSU) notification and coordination

4.1.2.3.1 When an abnormal event is detected, and the operational state of the aircraft cannot be determined, the operator contacts the ATSU(s) corresponding with the last known position of the aircraft and the expected track. The operator may use the contact directory service for obtaining the ATSU ID and point of contact. Once the ATSU establishes that there may be an emergency, the operator must make available on request, all information that may be of use to the ATSU and/or SAR, including aircraft tracking information.

Note. — Refer to Appendix 3 for the missed 4D/15 report form that should be used by the operator to relay aircraft information to the relevant ATSU.

4.1.2.4 Operator Missed Reports Notification to ATS Unit

4.1.2.4.1 Missed Report Processing

4.1.2.4.1.1 The following provisions under sub-section 4.1.2.4 outlines outlines the procedures to be followed when an operator notifies an ATSU of a missed aircraft 4D/15 tracking report. The procedures relating to the ATS alerting service are detailed in CAR-ANS Part 11. The new element comes from the fact that those procedures can now benefit from the information provided, by the operator, to the ATSU(s).

4.1.2.4.1.2 ATSUs are responsible for providing alerting services that notify appropriate organizations when an aircraft is considered to be in a state of emergency. This involves notifying the RCCs. The ATSU serves as the central point for collecting all information relevant to the emergency state of an aircraft operating within the flight information region or control area concerned, and for forwarding such information to the appropriate RCC. However, ATSUs may not always have direct access to the most recent 4D aircraft position data.

4.1.2.4.1.3 In areas outside ATS surveillance and direct controller-pilot communication, operators may undertake 4D/15 tracking, depending on airspace region, as described in ICAO Circular 347, Chapter 2. Consequently, and after following the procedures outlined in ICAO Circular 347 Chapter 5, 5.1.1.1, the operator is required to notify the relevant ATSU when communication attempts with the aircraft are unsuccessful and/or 4D/15 missed reports occur. Figure 4.1 provides an overview of the process to follow following a missed 4D/15 position report.

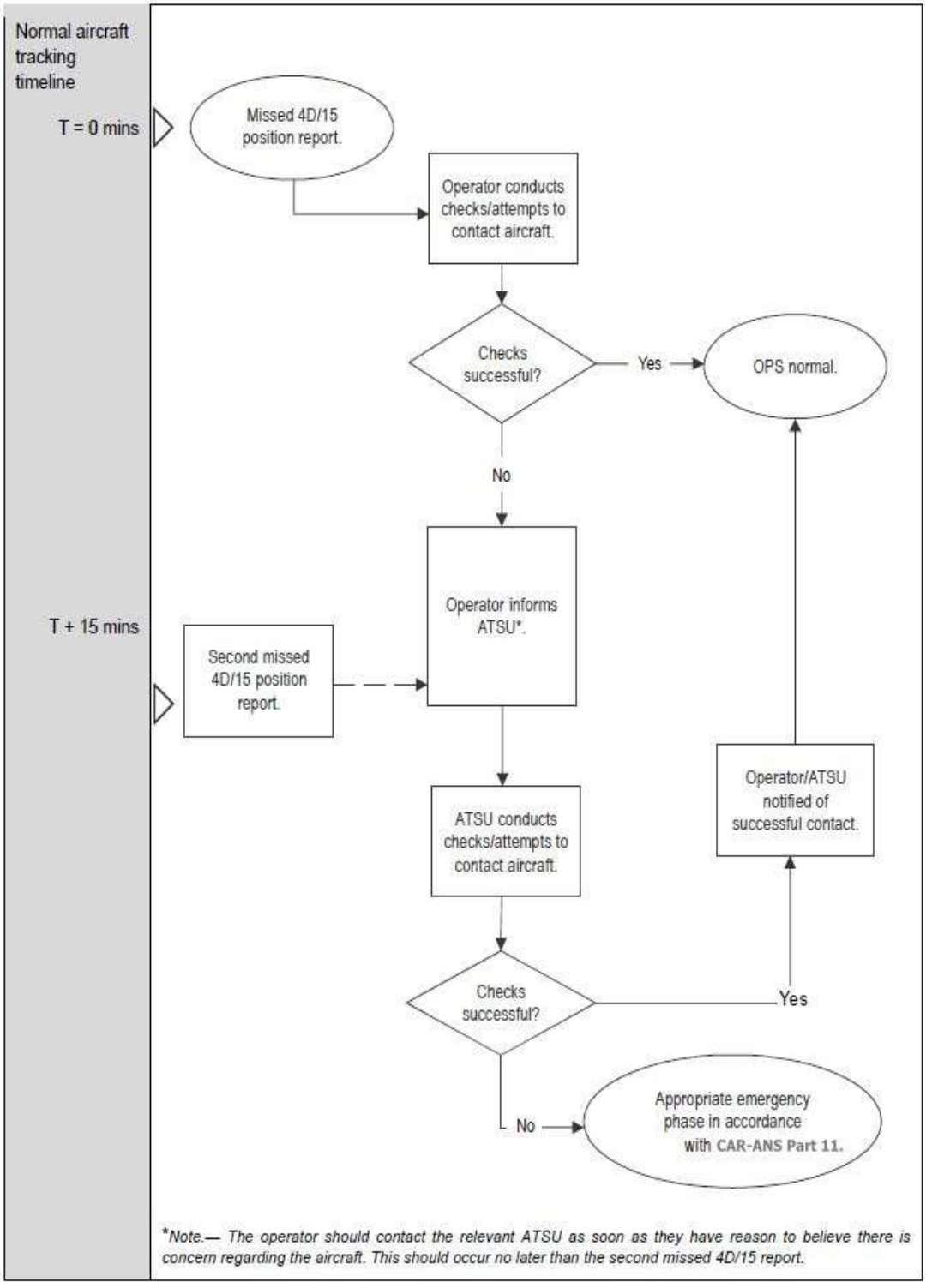

Figure 4-1. Example flowchart for missed 4D/15 position report

4.1.2.4.2 Content of the Operator Notification Report

4.1.2.4.2.1 The notification report should include, at a minimum, the following information:

a) initial or subsequent notification indication;

b) flight number and call-sign;

c) aircraft type;

d) last known 4D/15 position;

e) time of last communication;

f) last known altitude or flight level;

g) next expected 4D/15 position (if known), and estimate;

h) name of ATSU notified;

i) name of operator; and

j) contact details of operator primary point of contact for this event.

4.1.2.4.2.2 The report may also contain the following supplementary information:

a) contact actions attempted;

b) registration;

c) color and distinctive marking;

d) fuel endurance or fuel endurance remaining at last known position;

e) total persons on board;

f) alternate or possible alternate aerodromes; and

g) any other relevant information (e.g. dangerous goods carried).

Note.— Every attempt should be made to include items a - g in subsequent reports.

4.1.2.4.2.3 An example of the 4D/15 missed report form containing the above information can be found in Appendix 3.

4.1.2.4.3 Follow-up of a Notification Report

On receipt of such a report, the ATSU would conduct their own attempts to contact the aircraft, in line with their established procedures.

4.1.2.4.3.1 Action when communication is re-established

Should the ATSU establish contact with the aircraft, the ATSU needs to notify the operator so that the operator may verify if there are any system failures that caused the missed 4D/15 reports. The flight will continue without this capability in the event of a failure, subsequently the operator will re-establish 4D/15 tracking if possible.

4.1.2.4.3.2 Action when communication is not established emergency phase declarations:

4.1.2.4.3.2.1 If the ATSU is not able to establish contact with the aircraft, the ATSU will declare the appropriate emergency phase. When determining which emergency phase to initiate, the ATSU will build on the sequence of events that led to the present situation and will consider that, for the event to have progressed to this stage, the following had occurred:

a) one 4D/15 report was missed (possibly more) and the operator was unable to contact the aircraft; and

b) the ATSU was also unable to contact the aircraft.

4.1.2.4.3.2.2 In the absence of any recent communication between the ATSU and the aircraft, the additional information provided to the ATSU as a result of operator aircraft tracking will therefore provide direct support to the provision of the appropriate alerting service. The time of the first missed 4D/15 position report, could, in particular, be used as the time at which a loss of communication with the aircraft is assumed to have begun. This may provide enough justification for the ATSU to begin an alert phase because attempts to establish communication with the aircraft or enquiries to other relevant sources have failed. Initiating the alert phase in a timely manner increases the likelihood of finding survivors after an accident.

4.1.2.4.4 Obligations of ATS Units

Should there be an upgrade of the emergency phase after the initial declaration, the ATSU, in accordance with CAR-ANS 11, Chapter 11.5, must inform the RCC immediately. When the ATSU is informed that an aircraft has resumed normal operations or has landed safely following the declaration of an emergency phase, the RCC is informed, without delay, that the emergency situation no longer exists. All information notified to the RCC by an area control or flight information center should, whenever practicable, also be communicated without delay, to the operator.

4.1.2.5 An ATS unit will usually notify its associated RCC when an aircraft is actually or likely in a state of emergency. However, when the nature of the emergency is such that local rescue facilities can deal with it, such as when an incident occurs at or near an aerodrome, the RCC may not be informed. The notification from an ATS unit to an RCC will contain information, if available, in the order listed below.

1) UNCERTAINTY, ALERT or DISTRESS as appropriate to the phase of emergency

2) Agency and person calling;

3) Nature of the emergency;

4) Significant information from the flight plan:

   a) A/C call sign and type;

   b) point of departure and departure time;

   c) route of flight;

   d) destination and ETA;

   e) number of persons on board;

f) endurance;

g) color and distinctive markings;

h) survival equipment carried;

i) dangerous goods;

j) telephone number of pilot-in-command or any other person on board; and

k) any member of the crew or passengers known to make use of an emergency tracking or locating app.

4) Unit which made last contact, time, and frequency used;

5) Last position report and how the position was determined (course, speed, altitude);

6) Any action taken by the reporting office;

7) Any direction finder equipment available; and

8) Other information.

4.1.2.5.1 An MRCC may also request an ATS unit to provide the above information in the case of an aeronautical incident at sea. The MRCC should communicate first with a local ATS unit, such as an aerodrome tower. An ARCC, a Flight Information Center (FIC) or an area control center (ACC) may also have relevant information, or may be able to assist with investigations using aeronautical communications and resources.

4.1.2.6 *Notification by other sources.* All persons are encouraged to report any abnormal occurrence they have witnessed or heard about. Notification that an aircraft has crashed, *or an aircraft, ship, or other craft* is overdue or in a state of emergency, may therefore reach an RCC from any source, either directly or relayed through an alerting post.

4.1.2.7 A record of events should be maintained by the RCC

1) The RCC should open a log for each incident to record all information as it is received, either in full or by reference to other permanent records such as separate reports, forms, folders, charts, telegrams, recorded radio frequencies and telephones, and recorded radar data.

2) The initial notification should be entered on a standard Incident Processing Form. This form should be available at RCCs, RSCs, ATS units, and other alerting posts as necessary. It is used to obtain the important information at first contact since it may be impossible or too time-consuming to obtain such information later. Its use will prevent the loss of details. The form lists the occupation and address of the reporting source to help assess the reliability of the report and for obtaining additional information.

4.1.3 Emergency Phases and Initial Actions

4.1.3.1 Once an RCC receives an initial report about persons or craft in distress, some immediate action often is appropriate pending receipt and evaluation of more complete information. RCCs usually have in

their plans of operation a checklist of steps to accomplish for each type of incident with which the RCC expects that it may become involved.

4.1.3.2 An uncertainty phase is said to exist when there is knowledge of a situation that may need to be monitored, or to have more information gathered, but that does not require the dispatching of resources. When there is doubt about the safety of an aircraft, ship, or other craft or persons on board, or it is overdue, the situation should be investigated and information gathered. A communications search may begin during this phase. An uncertainty phase is declared when there is doubt regarding the safety of an aircraft, ship, or other craft, or persons on board. For aircraft, an uncertainty phase is declared when:

a) no communication has been received from an aircraft within a period of thirty minutes after the time a communication should have been received, or from the time an unsuccessful attempt to establish communication with such aircraft was first made, whichever is the earlier; or,

b) an aircraft fails to arrive within thirty minutes of the last estimated time of arrival (ETA) last notified to or estimated by air traffic services (ATS) units, whichever is the later, except when no doubt exists as to the safety of the aircraft and its occupants.

4.1.3.3 For ships or other craft, an uncertainty phase is declared when it has:

a) been reported overdue at its intended destination; or

b) failed to make an expected position safety report.

4.1.3.4 When an uncertainty phase has been declared by the RCC, RSC, or ATS unit, the RCC or RSC should:

a) Immediately appoint a SAR mission coordinator (SMC) and inform appropriate SAR authorities, centers, services, and facilities of this action. The identity of the RCC or RSC where SMC functions are being performed for an incident should never be in doubt. One RCC or RSC may request another to assume the role of SMC whenever such a change will aid the response effort. (See also the discussions of “First RCC” in section 3.6 and SMC considerations in section 3.8 of ICAO Document 9731, IAMSAR, Part II).

b) Verify the information received, if necessary and if it does not cause undue delay.

c) Attempt to obtain information from which the route and times of departures and arrivals of the aircraft, ship, or other craft may be reconstructed when no flight plan has been filed or, in the case of ships or other craft, no information is available on the intentions of the captain.

d) Maintain close liaison with the appropriate ATS or, when available Coastal Radio Station (CRS) facility (i.e. Philippine Coast Guard …), so that:

i) new information (such as that obtained through a communication search, verification of flight plan, or review of weather information passed to the pilot before and during the

flight) will be available immediately for evaluation, plotting, decision-making, etc.; and

ii) duplication of action will be avoided.

e) Plot the actual track of the craft involved, as far as it is known, and the intended or estimated track beyond that point, making use of all relevant information.

f) Conduct a communication search including obtaining information about any mobile telephone devices, e.g. mobile phone, carried and locating and tracking apps used by persons on board.

g) For ships or other craft, send an Urgency broadcast via RCCNet requesting ships to keep a lookout by all means available for missing or overdue ships or other craft.

h) Consider if any person on board has a mobile device and/or tracking and locating app and investigate access to this information which may provide track history and/or current location.

4.1.3.5 An alert phase exists when an aircraft, ship, or other craft or persons on board are having some difficulty and may need assistance, but are not in immediate danger. Apprehension is usually associated with the alert phase, but there is no known threat requiring immediate action. SRUs may be dispatched or other SAR facilities diverted to provide assistance if it is believed that conditions might worsen or that SAR facilities might not be available or able to provide assistance if conditions did worsen at a later time. For overdue craft, the alert phase is considered when there is a continued lack of information concerning the progress or position of a craft. SAR resources should begin or continue communications searches, and the dispatch of SRUs to investigate high-probability locations or overfly the craft's intended route should be considered. Vessels and aircraft passing through areas where the concerned craft might be located should be asked to maintain a sharp lookout, report all sightings and render assistance if needed. An alert phase is declared when:

a) following the uncertainty phase, subsequent attempts to establish communication with the aircraft, ship, or other craft have failed, or inquiries to other relevant sources have failed, to reveal any news of that craft;

b) an aircraft has been cleared to land and fails to land within five minutes of the estimated time of landing and communication has not been re-established with the aircraft;

c) information has been received which indicates that the operating efficiency of the aircraft, ship or other craft has been impaired, but not to the extent that a forced landing or distress situation is likely, except when evidence exists that would allay apprehension as to the safety of that craft and its occupants;

d) an aircraft is known or believed to be the subject of unlawful interference; or

e) a ship is under attack or threat of attack from pirates or armed robbers.

4.1.3.6 Upon the declaration of an alert phase, the RCC or RSC should:

a) Initiate or continue any appropriate or incomplete actions normally performed during the uncertainty phase. In particular, ensure an SMC has been appointed and that all interested parties have been informed of this action.

b) Enter in a log all incoming information and progress reports, details of action as described below, and subsequent developments.

c) Verify the information received.

d) Obtain information about the aircraft, ship or other craft from sources not previously contacted, such as:

i) communication stations associated with radio navigation aids, radar facilities, direction-finding stations and any other communication stations which might have received transmissions from the aircraft, ship or other craft. (These facilities should also be requested to guard specified radio frequencies.); and

ii) all possible landing or stopping points along the intended route, and other agencies and facilities included in the flight or voyage plan, which may be capable of providing additional information or verifying information on hand.

e) Maintain close liaison with associated ATS units, CRS, and similar alerting posts so that any new information obtained from other aircraft and ships will be made available immediately for evaluation, plotting, and decision-making and so that duplication of effort can be avoided.

f) Plot relevant details obtained through the actions described above on an appropriate map or chart to determine the probable position of the aircraft, ship or craft and its maximum range of action from its last known position and plot the positions of any ship or craft known to be operating in the vicinity.

g) As appropriate, initiate search planning and report any action taken to the associated ATS unit or CRS.

h) Whenever possible, communicate to the craft's operating agency, owner, or agent all information received and action taken. Try to obtain information about persons in distress who may be carrying mobile telecommunications devices. Attempt to communicate with them by mobile/ cell telephone call, text or email and/or contact the mobile communications service provider and request information about the device(s) last known location and use.

Note: - Legislative restrictions may require that another agency undertake this task on behalf of the SAR services.

i) Thoroughly evaluate the craft's intended route, weather, terrain, possible communication delays, last known position, last radio communication and operator's qualification.

j) For aviation incidents, estimate fuel exhaustion time and note the aircraft's performance under adverse conditions.

k) Request assistance from ATS or CRS facilities who may assist by:

i) passing instructions and information to the distressed craft, or to the craft reporting the distress;

ii) informing craft operating in the vicinity of the distress of the nature of the emergency; and

iii) monitoring and keeping the RCC and RSC informed on the progress of any craft of which the operating efficiency has been impaired to the extent that a distress is likely.

4.1.3.7 The distress phase exists when there is reasonable certainty that an aircraft, ship, or other craft or persons on board is in danger and requires immediate assistance. For overdue craft, a distress exists when communications searches and other forms of investigation have not succeeded in locating the craft or revising its ETA so that it is no longer considered overdue. If there is sufficient concern for the safety of a craft and the persons aboard to justify search operations, the incident should be classified as being in the distress phase. For aircraft, a distress phase is declared when:

a) following the alert phase, the further unsuccessful attempts to establish communication with the aircraft and more widespread unsuccessful inquiries point to the probability that the aircraft is in distress;

b) the fuel on board is considered to be exhausted, or to be insufficient to enable the aircraft to reach safety;

c) information is received which indicates that the operating efficiency of the aircraft has been impaired to the extent that a forced landing is likely;

d) information is received or it is reasonably certain that the aircraft is about to make or has made a forced landing, except when there is reasonable certainty that the aircraft and its occupants do not require immediate assistance; or

e) a downed aircraft is inadvertently located as the result of a sighting or of homing on an ELT transmission.

4.1.3.8 A distress phase may be declared by an ATS unit, an RCC or an RSC. The SAR system may be able to respond quickly by dispatching SAR facilities and effecting the rescue. If a search is required, the search planning guidance in Chapter 4 of ICAO Document 9731 IAMSAR Vol II should be used.

4.1.3.9 Upon the declaration of a distress phase, the RCC or RSC should:

a) Initiate or continue any appropriate or incomplete actions normally performed during the uncertainty and alert phases. In particular, ensure an SMC has been appointed and that all interested parties have been informed of this action.

b) If normal radio or satellite communications are unavailable or not connecting, and terrestrial telecommunications are likely to be within range, attempt or make calls, texts or emails to any distressed person(s) known to be carrying a mobile telecommunications device.

c) Examine the detailed plans of operation for the conduct of SAR operations in the area.

d) Determine the availability of SAR facilities to conduct SAR operations and attempt to obtain more facilities if a need for them is anticipated. Check vessel tracking systems (e.g. AIS, LRIT, VMS and VTS) for vessels which may be able to assist.

e) Estimate the position of the distressed craft, estimate the degree of uncertainty of this position and determine the extent of the area to be searched. If a significant search effort is anticipated, use the search planning techniques described in Chapter 4 to maximize the chances of finding the survivors with the available search facilities. Chapter 5 of ICAO Document 9731 IAMSAR, Vol. II contains information on the conduct of search operations.

f) Develop a search action plan (chapters 4 and 5) or rescue planning (Chapter 6) of ICAO Document 9731 IAMSAR, Vol. II, as appropriate, for the conduct of the SAR operation and communicate the plan to the appropriate authorities.

g) Initiate the action and pass relevant details of the plan on to:

   i) the ATS unit, or CRS, for transmission to the distressed craft or to the craft reporting the distress or to the SAR resources; and

   ii) all RCCs and RSCs along the intended route of the distressed craft as well as those whose SRRs are within the maximum radius of action as determined from the last known position (the possibility area).

   Note: - The ATS units, CRSs, and RCCs so informed should pass any information they receive about the incident to the responsible RCC.

h) Amend the plan as the operation develops.

i) Notify the State of Registry of the aircraft, or the owner.

j) Notify the appropriate accident investigation authorities.

k) Request at an early stage such aircraft, vessels, CRSs, or other services not specifically included among SRUs, as are in a position to do so, to:

   i) maintain a listening watch for transmission from the distressed craft, from survival radio equipment, or from an ELT or Emergency position-indicating radio beacon (EPIRB);

   ii) assist the distressed craft as far as practicable; and

   iii) inform the RCC or RSC of any developments.

l) Notify the distressed craft's operating agency and keep it informed of developments.

4.1.3.10 Checklists are helpful in gathering information and listing the actions to be taken by the RCC or RSC. The uncertainty phase checklist can be found in Appendix D, the Alert phase checklist in Appendix E, and the distress phase checklist in Appendix F of the ICAO Document 9731 IAMSAR, Volume II.

4.1.4 RCC procedures for requesting SAR facilities

4.1.4.1 When an RCC, at the request of another RCC, provides facilities to assist in SAR operations, the RCCs should agree upon position, start time on scene, expected time on scene, communications, operational limitations, and time of assumption of coordination responsibility by the requesting RCC. The RCCs should also agree upon how the SAR facilities will be briefed and tasked. The RCC providing the facilities will advise them of these procedures. Once the SMC has assumed coordination of the SAR facilities, it will keep the RCC which provided the facilities informed of progress.

4.2 Search planning and evaluation concepts

4.2.1 Search planning involves the following steps:

1) evaluate the situation, including the results of any previous searching;
2) estimate the distress incident location and probable error of that location;
3) estimate the survivors' post-distress movements and probable error of that estimate;
4) using the results above, estimate the most probable location (datum*) of survivors and the uncertainty (probable error of position) about that location;
5) determine the best way to use the available search facilities so the chances of finding the survivors are maximized (optimal search effort allocation);
6) define search sub-areas and search patterns for assignment to specific search facilities;
7) provide a search action plan that includes a current description of the situation, search facility requirements.

Note: - Details on search planning and evaluation concepts can be found in ICAO Document 9731 IAMSAR Vol. II Chapter 4.

4.2.2 These steps are repeated until either the survivors are located or evaluation of the situation shows that further searching would be futile.

4.3 Search techniques and operation

4.3.1 As a minimum, developing a search action plan consists of the following steps:

1) select search facilities and equipment to be used;
2) asses the search conditions;
3) select search patterns to cover the optimal search area as nearly as may be practical;
4) divide the search area into appropriate sub-areas for assignment to individual search facilities; and,
5) plan on-scene coordination.

4.3.2 Selection of search facilities

4.3.2.1 The types and numbers of available search facilities, along with their calculated sweep width(s), determine how much search effort will be available at the scene. Small search efforts will result in correspondingly small probabilities of success, even when the effort is deployed in the most optimal fashion, and it will probably take longer to locate survivors. Since survival times may be limited and locating survivors almost always becomes more difficult as time passes, it may be necessary to seek additional search facilities early in the search planning process. It is usually preferable to use larger rather than smaller numbers of search facilities for the first few searches. By doing this, survivors are often located sooner rather than later, and the need for a much larger, prolonged search effort is avoided. No matter how many search facilities the search planner tries to obtain, it is unlikely that so many will be made available that they cannot be used effectively. Detailed factors for the SAR planner to consider in selecting search facilities are discussed in Appendix G of ICAO Document 9731, Vol. II.

4.3.3 Assessing search conditions

4.3.3.1 The differences in the search plan and the attainable probability of success (POS) between ideal and poor conditions are usually significant. Therefore, it is important to accurately assess the search conditions. The two primary factors in determining search conditions are:

a) the sweep width, which in turn depends on a number of factors related to the search object, sensor(s) used, and environmental conditions; and,

b) the ability of the search craft to accurately navigate its assigned search pattern.

4.3.4 Selecting search patterns

4.3.4.1 The basic technique for searching an area is to move look-outs and/or electronic sensors through the area, using one of a few standard patterns. This technique has several benefits.

a) A regular, organized pattern of search ensures the entire assigned area is covered more or less uniformly.

b) Regular patterns improve the probability of detection (POD) as compared to random, disorganized searching, especially when search conditions are ideal.

c) Standard patterns are easier to communicate accurately and compactly with less chance of error or misunderstanding.

d) Standard patterns make multiple-facility search efforts easier to coordinate.

e) Standard patterns are safer to perform, especially in multiple-facility efforts.

4.3.4.2 The selection and orientation of a search pattern are very important and all pertinent factors should be considered before a selection is made.

Search pattern(s) and their directional orientation(s) should meet the criteria listed below.

a) They should be appropriate for the:

i) degree of uncertainty in the search object's position;

ii) navigational capabilities of each search facility;

iii) type of sensor(s) being employed;

iv) primary type of search object or signal the search facility is attempting to detect and locate;

v) environmental conditions;

vi) direction and rate of the search object's predicted movement during the search; and,

vii) time limits imposed by the survivors' expected survival time, search facility endurance, availability of daylight, etc.

b) It should be within the operational capability of each available search facility to accurately and safely complete its assigned pattern.

c) The expected result should be worth the estimated time and effort (see the discussion on using the Possibility of Success (POS) in paragraph 4.7.9 of ICAO Document 9731, IAMSAR, Vol II).

d) The selected search patterns should minimize the risk of collision with other search facilities, allow adequate fuel reserves, and avoid, where practicable, navigation hazards.

4.3.5 Planning on-scene coordination

4.3.5.1 In planning on-scene coordination, the following actions should be taken:

a) designate the SMC;

b) designate the On-scene coordinator (OSC);

c) designate Aircraft Coordinator (ACO), as appropriate;

d) determine the on-scene time for search facilities;

e) assign search facilities, areas and patterns;

f) issue coordination instructions to the OSC and ACO;

g) request airspace reservations;

h) request air and marine safety notices be issued as appropriate;

i) activate appropriate pre-arranged mutual assistance agreements;

j) designate primary and secondary communications channels; and,

k) establish a situation report (SITREP) schedule between the OSC and SMC.

4.3.6 Search action plans

4.3.6.1 After an attainable search action plan is developed for accomplishment by the OSC and facilities on the scene, it is provided to them in a search action message. Potential parts of the message are given below. An example of a search action message is provided in Appendix L of ICAO Document 9731, Vol. II with the Search Action Plan Worksheet. The message should include a situation summary of the on-scene situation, including the nature of the emergency, the last known position, search object description, types of detection aids and survival equipment which survivors may have, present and forecast weather, and search facilities on scene. The message should include a listing of the search area(s) and sub-areas that can be searched by the search facilities in the allotted time. The message should assign primary and secondary control channels, on-scene, monitor and press channels, and special radio procedures, schedules, or relevant communication factors. It is better to release the message early. If a "first light" search is being planned, parent agencies providing search facilities should typically receive the message at least six hours before departure time. The message can always be expanded or amended later.

4.3.6.2 The message normally includes six parts:

a) **Situation:** includes a brief description of the incident, position, and time; number of persons on board (POBs); primary and secondary search objects, including the amount and types of survival equipment; weather forecast and period of forecast; and search facilities on scene.

b) **Search area(s):** presented in column format with headings for area, size, corner points, other essential data.

c) **Execution:** presented in column format with headings for area, search facility, parent agency or location, pattern, creep direction, commence search points, and altitude.

d) **Coordination:** designates the SMC, OSC and ACO; search facility on-scene times; track spacings and coverage factors desired; OSC and ACO instructions, such as on the use of datum marker buoys; airspace reservations; aircraft safety instructions; search facility change of operational control information if pertinent; parent agency relief instructions; and authorizations for non-SAR aircraft in the area.

e) **Communications:** prescribes control channels; on-scene channels; monitor channels; method to identify OSC, ACO and search facilities (such as radar transponder codes); and press channels.

f) **Reports:** requirements for OSC and ACO reports of on-scene weather, progress, and other SITREP information; and for parent agencies to provide at the end of daily operations, such as sorties, hours flown, hours and area(s) searched, and coverage factor(s).

4.3.7 Aircraft search procedures

4.3.7.1 Aircraft are the most capable facilities for searching a large area quickly. As each aircraft has its operational and technical limitations, the urgency of a situation should never cause an aircraft to be used beyond these limits or on operations for which it is not suitable. Reliable

communications between aircraft and the controlling agency are essential to keep all parties aware of the progress of the search. In areas of poor radio reception or when working beyond the range of CRSs, a high-flying aircraft or a surface craft with an appropriate communications capability can serve as a central communications facility. SITREPs should be sent to the controlling RCC at the intervals specified in the search action plan. An example of a SITREP is provided in Appendix I of ICAO Document 9731, Vol. II. Detailed in-flight procedures, including scanning techniques, are included in the International Aeronautical and Maritime SAR Manual for Mobile Facilities.

4.4 Rescue planning and operations

4.4.1 General

4.4.1.1 When the search object has been located, the SMC (or the OSC or master or pilot in command of the SAR facility as the case may be) must decide on the method of rescue to be followed and the facilities to be used. The following factors should be considered:

a) action taken by the sighting craft and the SAR action which can be taken by other craft on scene;

b) location and disposition of the survivors;

c) condition of survivors and medical considerations;

d) number of persons reported to be on board the distressed craft and the number who have been located;

e) environmental conditions, observed and forecasted;

f) available SAR facilities and their state of readiness (to reduce delay, the SAR facilities which are likely to be used should be alerted and deployed to a suitable location while the search is in progress);

g) effect of weather conditions on SAR operations;

h) time of day (remaining daylight) and other factors relating to visibility; and

i) any risks to SAR personnel, such as hazardous materials.

4.4.2 Sighting and subsequent procedures

4.4.2.1 When the search object has been located, ensure that the search facility (or rescue team if it is a land-based facility) understands that the rescue of survivors may be even more difficult and hazardous than the search. The search facility should indicate to the survivors that they have been sighted, by any of the following methods:

a) flashing a signaling lamp or searchlight; or

b) firing two, preferably green, signal flares a few seconds apart; or

c) if the search facility is an aircraft, the pilot may be able to fly low over the survivors with landing lights on or rocking the wings.

4.4.2.2 If the search facility is unable to effect an immediate rescue, ensure that it knows it may consider other steps such as:

a) dropping communications and survival equipment;

b) keeping the distress scene in sight at all times, thoroughly surveying the scene and accurately plotting its location, and marking it with a dye marker, smoke float or floating radio beacons;

c) reporting the sighting to the SMC with available information on:

i) time of sighting – time zone to be specified;

ii) position of the search object;

iii) description of the distress scene;

iv) number of sighted survivors and their apparent condition;

vi) apparent condition of the distressed craft;

vii) supplies and survival equipment required by survivors (in general, the supply of water should take priority over that of food);

viii) all messages, including radio transmissions, received from survivors;

ix) weather and, if applicable, sea conditions;

xi) type and location of nearby surface craft;

xii) action taken or assistance already given, and future actions required;

xiii) remaining fuel and on-scene endurance of the search facility or land facility making the report; and

xix) apparent risks involved in the rescue, including hazardous materials.

4.4.3 Supplies and survival equipment

4.4.3.1 Supplies and survival equipment are carried by air and maritime SAR facilities to aid survivors and facilitate their rescue. The type and number to be carried depend on the circumstances on the scene. Maritime facilities and helicopters generally can deliver this equipment directly to survivors. Fixed-wing aircraft can deliver supplies to survivors if suitable landing areas exist nearby or if the supplies can be dropped at the scene. The packing of supplies and survival equipment should be adapted to the manner of delivery.

4.4.3.2 For air SAR facilities:

a) All fixed-wing search aircraft should carry supplies and survival equipment for dropping to survivors as soon as they have been found. This will be important when survivors are found to be in a weakened condition, or, after being located, must sustain themselves for extended periods.

b) Life rafts packed for dropping should be available for use when:

i) survival craft have not been launched successfully or have been damaged in launching;

ii) survival craft have become unserviceable;

iii) survivors are overcrowded in the survival craft in use; or

iv) survivors are in the water.

Life rafts, supplies, and equipment may be dropped together in a chain (ideally with life rafts at each end).

c) An airborne droppable lifeboat may contribute to the rescue, but the need for a particular type of aircraft, handling, and dropping procedures makes it an item which can only be used by specialized SRUs.

4.4.3.3 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 supplies and survival equipment.

4.4.3.4 Containers or packages containing survival equipment for dropping to survivors should have the general nature of their contents clearly printed in at least in three languages or indicated by self-explanatory symbols and appropriately color coded.

4.4.3.5 At appropriate aerodromes where search and rescue aircraft are not readily available, suitably packed survival equipment for dropping by aircraft not normally participating in search and rescue operations should be provided.

4.4.4 Medical personnel

4.4.4.1 In formulating any rescue plan, the SMC should consider establishing a forward medical base to enable triage by competent medical staff. Once the search object has been sighted, the SMC must consider whether to send medical personnel to the scene. Another consideration is the mental trauma that both survivors and rescuers may endure. Plans and procedures should be developed for post-traumatic stress syndrome debriefings.

4.4.5 Ditching assistance

4.4.5.1 RCC assistance for ditching should include:

a) obtaining the latest position of the aircraft by any means available, e.g. from the aircraft, from its escort (if applicable), by direction finding, or by radar;

b) requesting the maritime RCC or CRSs to alert vessels in the vicinity of the distressed aircraft, asking them to keep a listening watch on frequencies 121.5 MHz and 118.1 MHz otherwise;

c) providing the aircraft with the position of the nearest ship (hence, the importance of ship reporting systems to ARCCs), the course to steer, and information on sea conditions and ditching heading;

d) requesting the distressed aircraft to communicate with the selected vessel on 121.5 MHz and 118.1 MHz or any other

suitable frequency (if applicable — if this is not possible, act as a relay station); and

e) if time permits, informing the ship of how it can assist the aircraft.

4.4.6 Mass rescue operations

4.4.6.1 A mass rescue operation (MRO) is characterized by a need for immediate response to large numbers of persons in distress such that the capabilities normally available to SAR authorities are inadequate. It is therefore necessary to plan to enhance SAR capability in MROs. Three means of doing this are to:

a) agree to share SAR facilities regionally and/or internationally;

b) identify additional SAR facilities locally, including shipping in the area; and

c) extend survival time by providing support to persons in distress until they can be rescued.

4.4.6.2 Further information on the identification and selection of SAR facilities, and on the provision of supporting supplies and survival equipment, is included in Appendix G of ICAO Document 9731, Vol. II.

4.4.7 Search and rescue within areas remote from SAR facilities

4.4.7.1 SAR routines and SAR planning should be proactively prepared by the responsible RCC for efficient SAR operations in areas remote from SAR facilities.

4.4.7.2 Within the areas remote from SAR facilities, the SAR authority should describe the availability of suitable infrastructure and facilities, capable of supporting a SAR response (e.g. airports/bases, seaports, fuel facilities, landing locations, and places of safety).

4.4.7.3 It is important that RCCs should be aware of the SAR resources available in regional and neighboring RCCs, and arrange a regular exchange and update of such information including details about SRUs (aircraft, vessels, land, and specialized units), airstrips, refueling and other facilities.

4.4.7.4 RCCs in adjacent States should conduct SAREXs with each other with regards to areas remote from SAR facilities. Such SAREXs need not be complex but simple dialogues and coordination exercises to foster an understanding of how each RCC may help the other, including operations across SRR boundaries or lines of delimitation. It is important that information is exchanged between neighboring States' RCCs about SAR data formats and interpretation of such data, for example, drift modelling outputs and any other computer applications that may assist each other.

4.4.7.5 The RCC should support the ACO, OSC and other rescue personnel in assessing risks, identifying hazards and response options, and other relevant factors of importance when participating in SAR missions in areas remote from SAR facilities.

4.4.8 Termination of rescue

4.4.8.1 As soon as the rescue operation has been completed, the SMC should immediately notify all authorities, facilities, or services that have been activated. All information on the conduct of the rescue operation should be added to that of the search operation and a final report prepared. Information of interest to accident investigation and medical authorities should be given to them without delay. Chapter 9 of ICAO Document 9731 Vol. II provides guidance on the conclusion of SAR operations.

4.5 Area of SAR action

4.5.1 The term “area of SAR action” is derived from ICAO Procedures for Air Navigation Services (PANS-ATM). An area of SAR action is an area of defined dimensions that is established, notified, or agreed upon for the purposes of protecting aircraft during SAR operations and within which SAR operations take place. There should be an arrangement in place for SMCs to establish an “area of SAR action”.

4.5.2 Establishing areas of SAR action

4.5.2.1 SAR authorities should plan to establish temporary airspace reservations, danger areas, restricted areas, or other suitable categories of the area through appropriate State authorities. These areas should be agreed upon and put in place as early as possible during a multiple-aircraft SAR operation. The guidance for SAR aircraft flying within areas of SAR action are described later in this section.

4.5.2.2 It might not always be possible to formally agree or use an area of SAR action. In such situations, SAR authorities, SMCs/OSCs, ACOs and SRUs should, in cooperation with affected ATS units, agree on suitable coordinates and dimensions within which agreed SAR flying procedures should take place. Within these coordinates and dimensions, even if no area of SAR action formally exists, procedures for multiple aircraft operations should still be applied and flown by the aircraft involved, provided that these can be carried out safely.

4.5.3 Entering areas of SAR action

4.5.3.1 SAR aircraft intending to enter an area of SAR action should not enter the area until the relevant unit (RCC, ACO, OSC or responsible ATS unit) gives them approval and provides them with sufficient information to safely join the flow of SAR aircraft involved in the operation (see also paragraph 7.4.2 of ICAO Document 9731, Vol II). Aircraft should call the relevant unit as early as possible before entering the area, in order to allow time for information to be exchanged and in case they are required to remain clear of it. As a general guide, aircraft should make contact when at least ten minutes flying time from the edge of an area of SAR action and pass entry information using the format described in Appendix T of ICAO Document 9731 Vol. II. In the event that an area of SAR action has been established without an ACO, SAR aircraft should receive information that they require primarily from the coordinating RCC or OSC.

4.5.4 Leaving areas of SAR action

4.5.4.1 Aircraft leaving areas of SAR action should contact the relevant unit before the area boundary and before changing to another frequency. Aircraft leaving should use the format described in Appendix T of ICAO Document 9731 Vol II.

4.5.5 Flights in areas of SAR action by other aircraft

4.5.5.1 Aircraft that are not involved in a SAR operation should normally not fly within areas of SAR action. However, if such aircraft need to enter an area of SAR action, they should do so only with the approval of an SMC, ACO, OSC or coordinating ATS unit and are subject to the rules of the area or the relevant class of airspace. If an SMC or coordinating ATS unit is giving approval, the ACO or OSC should first be consulted.

4.5.5.2 SAR plans should consider providing alerting service for SAR aircraft operating in the Area of SAR Action. Although this may normally be provided by the ATS unit responsible, the provision of this supplementary service by OSCs or ACOs may assist ATS to reduce their workload, reduce frequency congestion and maintain communications in areas of poor ATS radio coverage. It should also be considered for SAR aircraft operating in areas where no ATS is provided. OSCs or ACOs may maintain SAR alerting watch using entry/exit and on-scene scheduled reports by SAR aircraft.

4.6 Purpose of an Aircraft coordinator (ACO)

4.6.1 The purpose of an ACO is to contribute to flight safety and to perform an efficient SAR operation. The ACO should have a clear understanding of the aim of the SAR operation. ACOs should be prepared and able to coordinate SAR aircraft tasked by an SMC. Particular attention should be paid to aircraft that are likely to operate close to each other.

4.6.2 ACO qualification and training

4.6.2.1 ACOs fulfill a vital function during SAR operations and their duties can be complex and require specialist knowledge. Therefore, ACOs need to have experience in relevant operations and/or exercises and be specially prepared for their duties. In order to ensure the best standard of SAR operations and safety, people likely to be designated as ACOs should be specially trained to carry out this duty. Once trained, SAR authorities should ensure that exercises take place to train ACOs and to practice multiple aircraft operations. RCCs should be aware of trained ACOs in their SRRs and establish procedures for tasking them whenever they might be needed for a SAR mission.

4.6.3 ACO duties

4.6.3.1 Procedures, duties and tasks involving ACOs are described throughout this Section. A list of normal duties for an ACO, also contained in ICAO Document 9731 IAMSAR Volume III, can include the following tasks:

a) Contributing to flight safety:

i) Maintain a safe flow of aircraft;

ii) Ensure the use of a common altimeter setting for all aircraft involved;

iii) Advise the SMC/OSC of on-scene weather implications;

iv) Determine a direction for entering and leaving areas of SAR action;

v) Determine all points necessary for maintaining a safe flow of aircraft within the area of SAR action;

vi) Filter radio messages to and from SAR aircraft;

vii) Ensure frequencies are used in accordance with SMC directives; and

viii) Coordinate with adjacent air traffic services (ATS) units.

b) Prioritizing and allocating tasks:

i) Ensure SAR aircraft are aware of the SMC/OSC overall plan and their own tasks;

ii) Monitor and report search area coverage; and

iii) With appropriate SMC/OSC, identify emerging tasks and direct SAR aircraft to meet them.

c) Coordinating aircraft operations:

i) Respond to changing factors on scene and supervise the effectiveness of operations;

ii) Ensure the continuity of aircraft operations in coordination with SMC/OSC; and

iii) Monitor and keep SMC/OSC informed about the progress of tasks assigned to SAR aircraft.

d) Informing SAR aircraft (note also 7.3.3 Responsibility for safety of ICAO Document 9731, Vol II):

i) Assign tasks to aircraft;

ii) Distribute relevant flight information;

iii) Provide information about relevant air activity and dangers on scene;

iv) Provide information about search areas (if applicable) evacuation points (if applicable) and refueling facilities;

v) Provide operational information about the ongoing SAR-mission; and

vi) Provide relevant weather information.

e) Make periodic situation reports (SITREPs) of SAR aircraft operations to the SMC and the OSC, as appropriate.

f) Work closely with the OSC:

i) Assist in the execution of SMC directives;

ii) Maintain communications; and

iii) Advise on how the ACO can assist.

g) Coordinate aircraft refueling.

4.6.4 Designating an ACO

4.6.4.1 An ACO is designated by an SMC and should carry out missions under an SMC's direction. ACOs should be notified of their mission as early as possible, in order to give them the maximum time to prepare for their tasks. There are many factors for SMCs to consider when designating an ACO, however, some significant considerations are as follows:

a) Designating an ACO should be considered when multiple aircraft are involved in a SAR mission.

b) An ACO should be equipped with appropriate forms of communication for the SAR mission, such as the appropriate radios for communicating with aircraft, ATS units, SAR authorities and SRUs on the surface. ACO situational awareness can also be assisted by equipping with surveillance capabilities such as ADS-B, AIS or other flight tracking capabilities.

c) An ACO should clearly understand the overall objective of the SAR operation and relevant SMC plans.

d) ACOs should be provided with sufficient information to carry out their mission or have access to sufficient information.

e) An ACO should know which authority to report to (normally an SMC) and which other units are involved in a mission.

f) ACOs should be able to reach the required location in sufficient time for them to prepare for and carry out their duties.

g) A person or SAR unit designated as an ACO should have received appropriate training in advance.

h) An ACO should be familiar with the types of aircraft involved and their flying operations.

i) An ACO should be familiar with SAR operations involving multiple aircraft.

j) ACOs should ideally be familiar with the environment, normal procedures, activities and air traffic systems in the areas of operation.

k) The time that ACOs may be available to carry out their missions should be considered. If an ACO is on board an aircraft, then aircraft endurance might limit the amount of time for which that ACO can be available.

4.6.5 Coordination with other adjacent facilities

4.6.5.1 As much as possible, SMCs should aim to reduce an ACO's workload by coordinating SAR activities taking place within an area of SAR action, with relevant ATS units, airfields and other facilities. However, depending on the location and circumstances of an incident, ACOs should also be prepared to carry out these duties.

4.6.6 On-scene altimeter setting

4.6.6.1 A common altimeter setting should be used by all aircraft within an area of SAR action. This altimeter setting might be determined when the first SAR aircraft equipped with a radio altimeter arrives on scene. Alternatively, the on-scene altimeter setting can be determined by the ACO, in consultation with an ATS unit (when available) an SMC or an OSC (when appropriate). The ACO should pass the information to all aircraft in the area of SAR action.

4.6.7 Reporting on-scene activity

4.6.7.1 The ACO should make regular reports of on-scene activity to the SMC and aircraft involved in the SAR operation. When possible, these reports should be made when ACOs or aircraft are not busy with other operational tasks. The radio communications procedures described in paragraph 7.4.2 of ICAO Document 9731 Vol. II, can be used for this purpose; however, other methods might also be appropriate. A general guide is for ACOs to make reports every thirty minutes during a SAR operation or when anything of significance occurs.

4.6.8 Transfer of ACO tasks

4.6.8.1 During some SAR operations, particularly those lasting for long periods of time, it may be necessary to transfer the tasks from one ACO to another. This might be due to fatigue, factors affecting an ACO's location, such as the requirement for an ACO's aircraft to refuel, or for other reasons.

4.6.8.2 Before accepting the task, the new ACO should understand the details of the SAR operation and the SMC's plans. The details required may include the aim of the operation, the position of the missing object, number of persons in distress, other units involved, locations of participating aircraft, communications and any limitations to the operation. When possible, basic pre-flight information should be provided by an SMC in order to simplify the transfer to the new ACO. Examples of information that might be of use to ACOs on scene can be found in Appendix T-3 of ICAO Document 9731 Vol. II.

4.6.8.3 A new ACO will need enough time to obtain information, study it and then prepare to accept the task from the previous ACO. Every SAR mission may be different, but as a general guidance, a handover of information should begin approximately thirty minutes before a new ACO formally takes over.

4.6.8.4 A change of ACO might also involve a change of ACO location. If this is the case then, upon taking over, the new ACO should make a general communications broadcast announcing the new information and, whenever possible, obtain acknowledgements from all the participating aircraft. A new ACO should inform all participating aircraft that a handover has taken place.

4.6.9 When to conclude ACO operations

4.6.9.1 An SMC is normally in charge of a SAR mission and determines which SRUs take part in it. However, in practice, an ACO is often in the best position to advise the SMC, when a SAR operation no longer requires an ACO. The decision to end ACO operations should normally be made by the SMC that designated the ACO, after consulting with relevant organizations and units.

4.6.10 ACO duties

Duties for an ACO can include the following tasks:

4.6.10.1 Contributing to flight safety:

a) maintain a safe flow of aircraft;

b) ensure use of a common altimeter setting for all aircraft involved;

c) advise the SMC/OSC of on-scene weather implications;

d) determine a direction for entering and leaving an area of SAR action;

e) determine all points necessary for maintaining safe flow in an area of SAR action;

f) manage radio messages to and from SAR aircraft;

g) ensure frequencies are used in accordance with SMC directives; and

h) coordinate with adjacent ATS units.

4.6.10.2 Prioritizing and allocating tasks:

a) ensure SAR aircraft are aware of the SMC/OSC overall plan and their own tasks;

b) monitor and report search area coverage and/or rescue action; and

c) with appropriate SMC/OSC, identify emerging tasks and direct SAR aircraft to meet them.

4.6.10.3 Coordinating aircraft operations:

a) respond to changing factors on scene and supervise effectiveness of operations;

b) ensure the continuity of aircraft operations in coordination with SMC/OSC; and

c) monitor and keep SMC/OSC informed about the progress of tasks assigned to SAR aircraft.

4.6.10.4 Informing SAR aircraft:

a) assign tasks to aircraft;

b) provide information about relevant air activity and dangers on scene;

c) provide information about search areas (if applicable), evacuation points (if applicable) and refueling facilities;

d) provide operational information about the ongoing SAR mission; and

e) provide relevant weather information.

4.6.10.5 Make periodic situation reports (SITREPs) of SAR aircraft operations to the SMC and the OSC, as appropriate. The standard SITREP format may be found in Attachment 3 of this manual.

4.6.10.6 Work closely with the OSC:

a) assist in the execution of SMC directives;

b) maintain communications; and

c) advise on how the ACO can assist.

4.6.10.6.1 Coordinate aircraft refueling.

4.6.10.7 ACO call sign

4.6.10.7.1 In order to make the identity of an ACO clear to all participating units, the standard call sign "**Air coordinator**" should be used by all ACOs.

4.6.10.8 Information from SAR aircraft to the ACO

4.6.10.8.1 In order to enhance situational awareness for ACOs and other SAR aircraft and to assist with safety and the continuity of operations, participating aircraft should report as follows:

a) Entry report;

b) Reaching assigned points;

c) Leaving assigned points;

d) Commencing operations (search, investigation during search, approach to the surface/ship, approach difficulties, hoist, landing, etc.);

e) Completing operations, including information regarding results;

f) Leaving present altitude;

g) Reaching new altitude;

h) 30 minutes on-scene endurance, expecting fuel at (location);

i) 10 minutes to completing hoist operation;

j) 10 minutes to completing search; and

k) Exit report.

4.6.10.9 Transfer of ACO tasks

4.6.10.9.1 Before accepting the task the new ACO should understand the details of the SAR operation and the SMC's plans. The details required may include the aim of the operation, the position of the missing object,

number of persons in distress, other units involved, locations of participating aircraft, communications and any limitations to the operation. When possible, basic pre-flight information should be provided by an SMC in order to simplify the transfer to the new ACO.

4.6.10.10 Checklist and guides

4.6.10.10.1 ACOs and SAR aircraft are recommended to use checklists or guides containing relevant information. Units who are likely to be designated as ACOs or take part as airborne SRUs in the event of a multiple aircraft SAR operation, should always have ACO checklists or guides available whenever they are on duty.

4.6.10.10.2 An operational summary known as the pilot information file (PIF) contains useful in-flight information for all aircraft involved in multiple aircraft operations. The PIF, guides and checklists suitable for ACOs and SAR aircraft are contained in Attachment B of this Manual.

4.7 Search mission

4.7.1 The most likely situations in which multiple aircraft might be involved in searches is when large areas need to be searched in which the confidence of the datum position is low. The procedures described below generally assume that visual search techniques are used. However, other technical devices and/ or techniques might also be required or SAR aircraft might only be able to locate persons in distress by homing onto transmissions from emergency distress beacons, transponders or other devices. In these situations, the use of multiple SAR aircraft should be considered carefully in conjunction with risk assessment procedures to ensure flight safety including assisting pilots-in-command with their management of deconfliction from other aircraft.

4.7.2 Methods used to safely keep aircraft apart will depend on the on-scene conditions. Beginning with good weather conditions and progressing to poor conditions, methods for keeping aircraft apart to enhance flight safety are as follows:

a) Visual

Visual methods involve the allocation of aircraft to search areas and aircraft avoiding each other visually. Visual methods may be the only measure necessary when weather conditions on scene are good. When using visual methods, the ACO can allow aircraft more freedom of action compared to other, more restrictive, methods. However, this freedom will not relieve the need to operate with due regard to other flight information and reporting requirements as outlined earlier in this section.

b) Flow

Flow methods can be used to assist keeping SAR aircraft apart in slightly poorer conditions, by ensuring that they fly the same search patterns (commence search point CSP/direction of creep, etc.) in adjacent search areas. The first aircraft on scene should be allocated the search area furthest away from the direction of

creep. This method generally enables aircraft to execute effective searches of areas with a minimum of radio communication. Aircraft can also be kept apart by using time. This method could be used if aircraft arrive on scene at considerably different times, for example as a result of departing from different base locations. All aircraft should still be very well informed of each other to avoid any conflicts, particularly for small track spacings and with high performance aircraft turning circles at high speeds before rejoining search legs.

c) Coordination zones

Coordination zones are border areas established between adjacent search areas, which SAR aircraft can only enter under specific conditions. Coordination zones enable aircraft to have operational flexibility within their allocated search areas and ensure a level of safety between them.

The dimensions of a coordination zone depend on the on-scene conditions and the size of a search area. As a general guide, a coordination zone might be 2 nautical miles across, but this size may be increased or decreased if needed. Allowance for aircraft turns at the end of search legs needs to be considered especially for high speed aircraft. Before entering a coordination zone, aircraft sharing the zone should communicate with each in order to safely coordinate the entry. The ACO, OSC or RCC should ensure that the aircraft have a clear understanding of their mutual operating areas. The aircraft should call again when leaving the zone.

d) No fly zones

If on-scene conditions are sufficiently difficult, no-fly zones can be used in which flight is not permitted while searching is taking place in adjacent areas. The dimensions of no-fly zones can be similar to coordination zones. Whenever no-fly zones are used, the ACO should coordinate with the SMC and OSC to ensure that the no-fly zones are searched appropriately during the SAR operation.

4.8 Evacuation missions

4.8.1 The main aim of on-scene procedures for SAR aircraft should be safety. In general, there are two methods that can be used to ensure a safe flow of multiple aircraft, which are as follows:

a) Horizontal spacing. Horizontal spacing of aircraft operating visually should be the basic method used by SAR authorities and ACOs. It can be achieved by establishing coordinated specific routes to be flown by SAR aircraft to, from and within the area of SAR action.

The minimum components should include:

i) A direction for entering and leaving the area of SAR action.

ii) Entry and Exit points.

iii) Adequate horizontal spacing between individual search areas.

iv) Same alignment of search legs and direction of creep.

v) Timed entry and exit from individual search areas.

b) Vertical spacing. Vertical spacing of aircraft can be used in combination with horizontal spacing for aircraft operating visually but is a key consideration for safety during poor weather conditions when more segregated operations are likely to be required.

c) In general, altitudes for RPAs should be kept apart from altitudes allocated for other SAR aircraft.

4.8.2 Aircraft approach and departure flight paths are usually influenced by the prevailing wind direction; factors that might also have to be considered are:

a) Fumes directly downwind from burning structures may be unsafe – the direction of approach for aircraft might have to be offset from the wind direction.

b) Geographic features or the design of the casualty location might compel aircraft to approach only from specific directions. Structures such as cranes, towers or vertical obstructions in line with the wind direction, might be dangerous as physical obstacles or due to mechanical turbulence created downwind.

c) ACOs and SAR aircraft should be informed of all surface vessels, installations or other obstructions in the approach and departure sectors and plan to avoid them.

d) Approach fallback procedures (see 7.6.8 of ICAO Document 9731, Vol. II).

4.9 Unlawful acts

4.9.1 The RCC may become aware of an aircraft known or believed to be subject to unlawful interference. ATS units would usually become aware of the situation first and would be responsible. The RCC should declare an alert phase, advise appropriate authorities (ATS units if not already aware, and response agencies specified in the plans of operation), and begin preparations for possible SAR operations as appropriate.

4.9.2 In situations such as piracy or armed robbery against ships where the ship or crew is in grave and imminent danger, the master may authorize the broadcasting of a distress message, preceded by the appropriate distress alerts (MAYDAY, DSC, etc.), using all available radiocommunications systems. Also, ships subject to the SOLAS Convention are required to carry equipment called the Ship Security Alert System (SSAS) for sending covert alerts to shore for vessel security incidents involving acts of violence against ships (i.e. piracy, armed robbery against ships or any other security incident directed against a ship). The system is intended to allow a covert activation to be made which alerts the competent authority ashore and denies knowledge of its activation to perpetrators of the acts of violence. Under

the SSAS concept, national governments should establish a security forces authority to be in charge of providing the response to such security incidents. The RCC, due to it being available on a 24-hour basis, is often the first point of contact between the ship and coastal authorities concerned. Two common systems for transmitting SSAS alerts are Inmarsat and Cospas-Sarsat. (A sample SSAS alert message is found in ICAO Document 9731 IAMSAR VOL. II appendix B, under RCC–Cospas-Sarsat message formats.) National procedures can vary but the role of the RCC, if involved, is usually to receive the SSAS alert and inform the security forces authority that will be in charge of the response. Actions taken by the RCC upon receiving a covert SSAS alert include:

a) do not acknowledge receipt of the alert;

b) do not attempt to contact the ship originating the alert;

c) do not send any communications to other ships in the vicinity of the ship under threat unless directed by the security forces authority;

d) if the position of the incident is within its SRR, the RCC should immediately inform its national security forces authority;

e) if the position of the incident is outside of its SRR, the RCC should relay the alert to the appropriate RCC using the normal methods of communication; and

f) place SAR resources on standby, if appropriate, since it may become a SAR case.

4.10 Aerodrome emergency plan

4.10.1 Reference to CAR-ANS Part 12, Aerodrome Emergency Plans should provide for cooperation and coordination with the rescue coordination center, as necessary. This plan is maintained to minimize the number of personal injuries and the extent of property damage resulting from an emergency. These Plans focus on emergency services and resources available to aerodrome and local emergency service organizations. Cooperation and coordination between the aerodrome operators and the RCC should be promoted for the provision of mutual assistance. The plan is to include the readily availability of, and coordination with, appropriate specialist rescue services to be able to respond to emergencies where an aerodrome is located close to water and/or swampy areas or difficult terrain and where a significant portion of approach or departure operations takes place over these areas.

4.10.2 Aerodromes should make provisions with local SAR service providers for water rescue and mass casualties near aerodromes, as appropriate. The aerodrome emergency plan is required to contain procedures for periodic testing of the adequacy of the plan and for reviewing the results in order to improve its effectiveness. Testing may be by joint exercises conducted so that:

a) aerodrome operators understand the SAR service organization, capabilities, and limitations; and

b) SAR facilities become familiar with the aerodrome layout, support facilities, and access points.

4.11 Conclusion of SAR operations

4.11.1 Closing a SAR case

4.11.1.1 The authority to terminate a case sometimes rests with different levels within the SAR organization depending on the circumstances dictating that the incident be closed or active search suspended. In particular, the responsible SC or other SAR managers may retain the authority to suspend a case when the subjects of a search have not been found, and may delegate to the SMC the authority to close cases in all other circumstances, i.e. when the SMC determines that the craft or people are no longer in distress. In areas not under the responsibility of an RCC, or where the responsible center is not able to coordinate the operations, the OSC may need to take responsibility for deciding when to suspend or close the search.

4.11.1.2 Most SAR operations typically conclude when those in distress are no longer in distress or are rescued and rescue personnel and facilities are returning to normal duties. The basic steps to closing this type of case are:

a) notify immediately all authorities, centers, services, or facilities that have been activated; and

b) complete a record of the case.

4.11.2 Suspending SAR operations

4.11.2.1 Some cases may require extended searching. At some point, the proper authority must make the difficult decision to suspend active search operations pending the receipt of additional information. That is, the authority must decide that additional search effort will not result in success. In making this decision, each SAR incident must be considered on its own merits, and care should be taken not to end the search prematurely. The decision to suspend a search involves humanitarian considerations, but there is a limit to the time and effort that can be devoted to each SAR case.

4.11.2.2 Prior to suspending search operations, a thorough case review should be made. The decision to suspend operations should be based on an evaluation of the probability that there were survivors from the initial incident, the probability of survival after the incident, the probability that any survivors were within the computed search area, and the effectiveness of the search effort as measured by the cumulative probability of success. The reasons for search suspension should be clearly recorded. The case review should also examine:

a) search decisions for proper assumptions and reasonable planning scenarios;

b) certainty of initial position and any drift factors used in determining the search area;

c) significant clues and leads re-evaluated;

d) data computations;

e) the search plan, to ensure that:

i) all assigned areas were searched;

ii) the probability of detection is as high as desired; and

iii) compensation was made for search degradation caused by weather, navigational, mechanical, or other difficulties; and

f) the determination about the survivability of survivors, considering:

i) time elapsed since the incident;

ii) environmental conditions (Appendix N of ICAO Document 9731 Vol. II provides information on some of the environmental factors);

iii) age, experience, and physical condition of potential survivors;

iv) survival equipment available; and

v) studies or information relating to survival in similar situations.

4.12 Reopening a suspended case

4.12.1 If significant new information or clues are developed, reopening of a suspended case should be considered. Reopening without good reason may lead to unwarranted use of resources, risk of injury to searchers, possible inability to respond to other emergencies, and false hopes among relatives.

4.13 Final reports

4.13.1 When a SAR case is closed or search efforts are suspended, every authority, center, service, or facility activated should be notified. This is normally done via radio or telephone, and then followed by a final SITREP from the RCC. To ensure that search facilities remain under some type of flight or vessel following system, the RCC should not stand down its efforts until all resources have established alternate following plans, where appropriate. Other RCCs involved should be notified of the conclusion of SAR operations, especially if responsibility for the case was assumed from another RCC, such as the first RCC to receive the distress alert.

4.13.2 If the RCC Chief and the responsible managers were not involved in a search suspension decision, they should be informed about the lack of success and the reasons for halting operations.

4.13.3 A record of SAR operations is required to improve methods, evaluate mistakes, if any, and provide statistics for SAR managers to justify SAR system support. This record should include information from the debriefing of survivors as discussed in section 4.16. If the SAR service maintains computer files of SAR cases, appropriate information from this case file should be extracted and entered into the database for future analysis.

4.14 Case studies

4.14.1 Sometimes a SAR case has a surprise ending, as when the survivors are found by someone not involved in the search effort in a location outside the search area, or they are found, alive and well, in the search area after the search effort has been suspended. There are also occasions when there seems to have been an unusual number of problems in spite of the best efforts of the SAR personnel. Finally, there may be important and valuable lessons to learn from a SAR incident and the subsequent response of the SAR system that would be revealed only by a careful after-the-fact review.

a) A SAR case study is an appropriate method for addressing those aspects of an incident that are of particular interest. Individual aspects of interest could include problems with communications, assumptions made, scenario development, search planning, or international coordination. SAR case studies or incident reviews also provide opportunities to analyze survivor experiences and life-saving equipment performance. Survival in hostile environments is affected by many variables, including the physical condition of the survivors, survivor actions, reinforcement given by rescue forces prior to rescue, and the effectiveness of safety or survival equipment. Knowing more about these factors can help the SAR system become more effective.

b) When used to review and evaluate all aspects of a response to an incident, SAR case studies are one of the most valuable and effective tools for improving SAR system performance. Therefore, SAR case studies or reviews should be performed periodically even when no problems are apparent. There is almost always room for improvement, especially in large, complex cases. The most important outcome, however, is that early detection and correction of apparently small problems or potential problems will prevent them from growing into serious deficiencies later.

4.15 Archiving case files

4.15.1 All information pertaining to a specific SAR incident should be placed in an easily identified and labelled file folder and then placed in storage. Length of time to retain these records in storage is the decision of the SAR managers. Some States retain all records for a few years and then place files dealing with significant, historically important, or sensitive incidents into permanent secure storage, discarding those involved only with routine situations. Defining which files belong in the “routine” category is, again, a SAR manager matter. Files pertaining to incidents that become the subject of legal proceedings must be retained until those proceedings are complete, including all appeals and legal reviews. Files that are to be permanently retained should be prominently marked so that they are not inadvertently thrown out when the routine files are discarded.

4.15.2 Each rescue coordination center 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.

4.16 Incident debriefings

4.16.1 Debriefings, feedback sessions and experience sharing opportunities between the crews of SAR facilities, SMCs and SCs are methods of quality control and continuous improvement to a SAR system. To benefit from this process, SAR authorities should establish a structured and systematic approach to debriefing. Of particular significance would be the following matters:

a) extent of the debriefings (what experiences need to be shared);

b) focus of the debriefing (strive to focus on the most important issues);

c) level of participation at the debriefing;

d) definition of participants' needs; and

e) process of information flow from the debriefing (normally from the bottom up).

4.16.2 Although each level of debriefing targets a specific audience, significant benefits can be derived from conducting simultaneous/joint debriefings in which all parties participate. It is important to note that improvements to a SAR system will not be obtained unless recommendations identified by debriefings are reviewed and implemented.

4.16.3 Types of debriefing can be grouped into three categories: operations, liaison and administration. Each category deals with specific segments of an operation that normally includes the following aspects:

a) Operations:

  i) operations/response;

  ii) coordination;

  iii) communications;

  iv) reporting;

  v) debriefing; and

  vi) logs and documents.

b) Liaison:

  i) participation in briefings/courses held by various SAR providers;

  ii) seminars/workshops/working groups;

  iii) RCC staff visits to sub-units/agencies/groups;

  iv) joint exercises;

  v) visits to neighboring countries; and

  vi) participation in international events.

c) Administration:

i) command, communication and control structure;

ii) policy and regulations;

iii) personnel; and

iv) administrative support.

4.16.4 The following methods of debriefings could be used to assist SAR authorities to improve their system:

a) Situation report (SITREP). As described in chapter 2, this method provides the quickest means to forward issues of concern to the responsible authorities;

b) SAR debrief (Search Operation Debriefing Form). As described in Chapter 5 of ICAO Document 9731, Vol. II, this debriefing form is intended to report actual actions and observations of SAR facilities after each tasking. It provides the opportunity to report areas of concern in a more formal way;

c) SAR mission report. This method requires the primary rescue facilities to prepare a quick description of the tasks and actions taken (see Appendix H of ICAO Document 9731, Vol. II). This report would provide another avenue for responsible authorities to capture previously undisclosed issues of concern. Concerns may involve issues of broader scope not necessarily apparent at the time of the event;

d) Formal debriefing session. This debriefing method could be initiated by a participating SAR facility, RCC, or a high-level authority and would normally involve an in-depth review of issues of concern. Attendance by representatives of all SAR-participating units would be highly desirable. Findings and proposed changes/amendments to local procedures would be validated and approved by those concerned and promulgated to the responsible authorities for implementation. There would be no requirement for a specific format as the results of this debriefing would be intended for internal use only (distributed among the various emergency service providers); and

e) SAR operation report. This method of debriefing would be required after a significant SAR incident and/or when issues identified in the operation need to be addressed. The report would be prepared by the responsible authority in line with the process described in section 9.7 of ICAO Document 9731, Vol. II. The report would be intended for a wider audience, which could include government departments, outside agencies, interested groups, owners and operators. Consequently, an established format would be needed to ensure adequacy and consistency of the reports (see Appendix H of ICAO Document 9731, Vol. II).

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CHAPTER 5 – MOBILE FACILITIES

5.1 Aircraft emergencies

5.1.1 Initial action by assisting aircraft

5.1.1.1 Distress call and message received

a) Aircraft may receive a distress call or message from craft directly or by relay via an ATS unit.

b) Aircraft over the sea may receive a distress call or other emergency information from a vessel. This usually occurs by relay from an RCC.

c) Aircraft may receive a distress signal aurally from an EPIRB, ELT or PLB on 121.5 MHz.

d) Aircraft near a distressed craft may receive visual signals.

5.1.1.2 Immediate action

a) Reports should be evaluated to determine their validity and degree of urgency.

b) Any aeronautical station or aircraft knowing of an emergency incident should relay the MAYDAY or transmit a distress message whenever such action is necessary to obtain assistance for the person, aircraft, or vessel in distress.

c) In such circumstances, it should be made clear that the aircraft transmitting the message is not itself the distressed craft.

5.1.1.3 Proceeding to area of distress

5.1.1.3.1 In proceeding to an area of distress, prepare to assist the distressed craft. Categories to consider include:

a) Navigation equipment

Aircraft designated for SAR operations should be equipped to receive and home in on:

i) radio transmissions

ii) 406/121.5 MHz distress beacons (ELTs, EPIRBs and PLBs)

iii) SARTs

iv) AIS transmitters.

Precise navigation equipment such as GNSS/GADSS can be helpful in covering a search area carefully or locating a datum.

b) Communications equipment

i) All aircraft should be equipped to maintain good communications with the RCC and other aeronautical SAR facilities.

ii) Designated SAR aircraft engaged in SAR operations at sea should be equipped to communicate with vessels and survival craft.

iii) Designated SAR aircraft should be able to communicate with survivors on VHF-FM on channel 121.5Mhz and VHF-AM on 121.5 MHz as a minimum.

iv) Carriage of droppable radios operating on 123.1 MHz and/or 118.1Mhz can be used for communications with survivors.

v) Carriage of portable radios may be appropriate for aircraft SAR units to communicate with maritime or land SAR facilities and OSCs.

c) Miscellaneous equipment

The following equipment, as appropriate, should be readily available for SAR operations:

i) binoculars

ii) a copy of the International Code of Signals

iii) signaling equipment, such as pyrotechnics

iv) buoyant VHF/UHF marker beacons, floating lights

v) fire-fighting equipment

vi) cameras for photographing wreckage and the location of survivors

vii) first-aid supplies

viii) loud hailers

ix) containers for dropping written messages

x) inflatable life rafts

xi) lifejackets and lifebuoys

xii) portable hand-held battery-powered droppable radio for communicating with survivors

xiii) any equipment which may assist with rescue operations.

5.2 Multiple aircraft SAR operations

5.2.1 The RCC/OSC/ACO responsible for the SAR operation should aim to achieve the most effective blend of aircraft and surface unit capabilities and efficient use of aircraft on the scene when needed.

a) Minimize situations in which aircraft are airborne without a mission.

b) Where more aircraft than needed are available for a SAR operation, some can be held in reserve. These aircraft can provide additional resources if needed, or relieve other aircraft involved in the operation for reasons related to aircrew fatigue or maintenance requirements.

5.2.2 The RCC/OSC/ACO should define the number of aircraft to be used in a mission considering weather, distance from scene, nature of distress, available facilities and other operational issues.

5.2.3 Given tasks should not rely on aircraft and aircrew conducting flying activities beyond their abilities, or their approved types of operations. In case such a task is given, the pilot-in-command shall inform the RCC/OSC/ACO immediately.

5.2.4 Refueling facilities

5.2.4.1 The RCC/ACO/OSC is responsible for arranging refueling facilities in a SAR operation. The pilot-in-command is responsible for ensuring that the facilities available are suitable, taking into account endurance and all operational needs. The pilot-in-command should take appropriate actions to ensure required refueling and keep the RCC/ACO/OSC informed of changes to on-scene and overall endurance.

5.2.5 Area of SAR action

5.2.5.1 An area of SAR action is an area of defined dimensions that is established, notified or agreed for the purposes of protecting aircraft during SAR operations and within which SAR operations take place.

5.2.6 Entering areas of SAR action

5.2.6.1 SAR aircraft intending to enter an area of SAR action should normally first contact the relevant unit (RCC, ACO, OSC or responsible ATS unit). They should not enter the area until this unit gives them approval and provides them with sufficient information to safely join the flow of SAR aircraft involved in the operation (see also section 8 of ICAO Document 9731 Vol. III).

a) Aircraft should contact the ACO when at least ten minutes' flying time from the edge of an area of SAR action and pass entry information using the format in Appendix 4.

b) In the event that an area of SAR action has been established but an ACO is not yet available, SAR aircraft should receive information that they require primarily from the coordinating RCC or OSC.

5.2.7 Leaving areas of SAR action

5.2.7.1 Aircraft leaving areas of SAR action should contact the relevant unit before the area boundary and before changing to another frequency. Aircraft leaving should use the format described in Appendix 4 of this manual.

5.2.8 Flights in areas of SAR action by other aircraft

5.2.8.1 Aircraft that are not involved in a SAR operation should normally not fly within areas of SAR action. If such aircraft need to enter an area of SAR action, they should do so only with the approval of an SMC, ACO, OSC or coordinating ATS unit and are subject to the rules of the area or the relevant class of airspace. If an SMC or coordinating ATS unit is giving approval, the ACO or OSC should first be consulted.

5.2.9 Safety flow procedures

5.2.9.1 The main aim of on-scene procedures for SAR aircraft should be safety. In general, there are two methods that can be used to ensure a safe flow of multiple aircraft:

a) Horizontal spacing of aircraft operating visually should be the basic method used by SAR authorities and ACOs. It can be achieved by establishing coordinated specific routes to be flown by SAR aircraft to, from and within the area of SAR action.

b) Vertical spacing of aircraft can be used in combination with horizontal spacing for aircraft operating visually but is a key consideration for safety during poor weather conditions when more segregated operations are likely to be required.

5.2.9.2 In general, altitudes for RPAs should be kept apart from altitudes allocated for other SAR aircraft.

5.2.9.3 An effective method to ensure a safe flow of aircraft is by using a combination of both horizontal and vertical spacing. The best way to achieve this is through planning by the ACO, OSC or RCC and a clear understanding of procedures by all of the units and authorities involved.

5.2.9.4 The procedures used by SAR aircraft within an area of SAR action should be determined by the ACO in consultation with the SMC/OSC and pilots-in-command of the SAR aircraft. The use of assigned flight paths, coordinated timings and designated entry and exit procedures will help to ensure a safe flow of SAR aircraft. These can be determined by using bearings and distances from features such as the casualty location, or described using coordinates such as latitude and longitude. An effective way to organize multiple SAR aircraft engaged in an evacuation operation is to use procedures based on a central reference position (for example a vessel in distress).

5.2.10 Aircraft approach and departure flight paths

5.2.10.1 Approach and departure flight paths are usually influenced by the prevailing wind direction. Factors which might also have to be taken into account are:

a) Fumes directly downwind from burning structures may be unsafe – the direction of approach for aircraft might have to be off-set from the wind direction.

b) Geographic features or the design of the casualty location might compel aircraft to approach only from certain directions. Structures such as cranes, towers or vertical obstructions in line with the wind direction, might be dangerous as physical obstacles or due to mechanical turbulence created downwind.

5.2.11 Instrument-based procedures

5.2.11.1 When weather conditions are so poor that flying operations cannot effectively be carried out according to visual procedures and the procedures described earlier in this section, then it might be possible for an aircraft to operate under instrument-based procedures in an effort to establish visual conditions in the area of SAR action.

5.2.11.2 Unless operations are carried out in controlled airspace under the control of an ATS unit, aircraft pilots-in-command have full responsibility for avoiding other air traffic and surface obstructions in accordance with established regulations of their State for operations in instrument conditions and transitioning to visual conditions.

5.2.12 Approach fallback procedures

5.2.12.1 If on-scene conditions in an area of SAR action prevent a SAR aircraft from successfully completing an approach to the distress location, then an approach fallback procedure should be flown in order to safely rejoin the flow or depart from the area. Approach fallback procedures must be briefed to all SAR aircraft by an ACO.

5.3 Training

5.3.1 Search and rescue personnel

a) Training of search and rescue personnel can include:

i) study of the application of SAR procedures, techniques, and equipment through lectures, practical demonstrations, films, SAR manuals, and journals

ii) assisting in or observing actual operations

iii) exercises in which personnel are trained to coordinate individual techniques and procedures in a simulated operation.

5.3.2 Air rescue and rescue facilities

a) In addition to normal flying programs, each crew member should be given specialized experience in SAR techniques for that member's particular function and the type of aircraft.

b) All crew members assigned to SAR duties should be familiar with the following:

i) air–surface coordination in SAR operations;

ii) signal codes and signaling methods used by surface craft and survivors;

iii) scanning and spotting techniques;

iv) action to be taken when sighting a distress scene; and

v) first aid.

5.3.3 Pilots

a) Pilot training programs should be aimed at developing one or more of the following techniques as appropriate to the type of operation involved:

i) precision in flying search patterns, maintaining tracks and height

ii) flying at low levels as applicable to normal searches or to contour searches

iii) dropping of supplies (selection of approach heading and height, judgement of release point)

iv) intercepting and escorting aircraft

b) assistance to ditching aircraft

c) landing and take-off from confined areas

d) winching by helicopters.

5.3.4 Observers

5.3.4.1 The observer (or look-out) performs a very important function and should preferably have aircrew experience; an untrained observer seriously reduces the efficiency of an air search.

5.3.4.2 In addition to continued flight experience, personnel with observer duties should be given training on the following:

a) sufficient flying time for:

i) aircraft familiarization

ii) familiarity with the terrain of likely search areas

iii) knowledge of day and night scanning procedures

iv) acquiring the ability to detect objects from the air under monotonous conditions for prolonged periods of time

b) knowledge of the appearance from the air of:

i) aircraft wreckage and associated marks (e.g. slash marks in standing timber, burnt-out areas, skid marks, or scattered pieces of wreckage)

ii) life raft, lifeboat, dye marker trails, a person in the water

c) knowledge of supply-dropping procedures.

5.3.4.2.1 If extensive flying training is not practicable, the use of films, photographs and information circulars describing general procedures for observers may prepare observers for their task.

Note: - Appendix C of ICAO Document 9731 Vol. III discusses factors affecting observer effectiveness.

5.3.5 Radio operators

a) All radio operators must be qualified in accordance with Article 55 of the ITU Radio Regulations for operating the specific equipment with which individual SAR craft are fitted.

b) Additional training should include:

i) SAR communications procedures and regional communications plans

ii) knowledge of communications facilities existing within the SRR and adjacent SRRs

iii) an understanding of the practical difficulties which may be associated with the ship–aircraft communications and possible methods of overcoming these conditions

iv) knowledge of procedures for the exchange of information with SAR surface craft and with the shore

v) knowledge of available operating frequencies for the SRR.

5.3.6 Training of RCC and RSC personnel

5.3.6.1 The RCC and RSC have particularly important duties. Their personnel usually need formal SAR training. If unable to immediately attend formal training, they must receive a period of on-the-job training. Upon completion of training, the prospective RCC personnel should undergo qualification procedures. RCC staff should be fully qualified in SAR incident analysis, search planning, and SAR operations management.

5.3.6.2 One advantage of combining aeronautical and maritime RCCs into a joint RCC, and staffing the facility with both aviation and maritime specialists, is a synergistic approach to the solution of SAR incidents.

RCC staff can share subject matter expertise and determine a more balanced and complete evaluation of each incident.

5.3.6.3 The formal training of RCC personnel should include:

a) organization:

i) knowledge of the SAR organization and its relationship to the air traffic services;

ii) knowledge of the SAR organization and its relationship to maritime safety and communication services;

iii) knowledge of agreements made with facilities, neighbouring SAR services, etc

iv) knowledge of capabilities and limitations of available facilities; and

v) knowledge of legal aspects, e.g. in a maritime incident, policies on towing and salvage;

b) procedures:

i) how to obtain and evaluate information and reports;

ii) alerting of facilities and commencement of SAR operations;

iii) interpretation of different systems of position reporting;

iv) determination of a search area;

v) search techniques and patterns for air, maritime and land facilities;

vi) plotting of search information;

vii) communications procedures;

viii) rescue procedures;

ix) supply-dropping procedures;

x) ditching assistance, interception and escort procedures; and

xi) briefing and questioning of SAR personnel;

c) administration:

i. routine administrative functions; and

d) information:

i) visits to SAR facilities and supply depots, and participation in exercises, including packing and loading of survival stores; and

ii) instruction through films, relevant journals, etc., on recent developments in the field of SAR.

5.3.6.4 *Other SAR facilities.* Training for mobile facilities is discussed in Appendix 5 of this manual. This would include aspects of training for support facilities for mobile units, such as depots.

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CHAPTER 6 – FACILITY OPERATIONS MANUAL

6.1 Facility Manual of Operations

6.1.1 Detailed procedures to be employed by the SAR and RCC facility shall be set out in the facility's manual of operations. This manual shall contain procedures and instructions of a local nature which are either subject to frequent change or limited in application.

6.1.2 The facility manual of operations may be prepared under the direction of the facility chief and must be issued under the authority of the service chief.

6.1.3 The facility manual of operations shall contain the following:

a) the primary function of the facility;

b) facility's organization, functions and description of its staff and working positions;

c) information required regarding hours of service and any transitional arrangements including shift management and shift turn-over procedures;

d) unit-specific details of the procedures required regarding the maintenance and control of documentation; including but not limited to reference materials, personnel training records and data. (maintenance refers to record-keeping while control refers to dissemination);

e) operational procedures and standards being implemented in the provision of SAR and/or rescue coordinating service being provided by the facility/unit;

f) procedures regarding incident and accident reporting;

g) details of procedures for communications and coordination with other entities being applied by the facility;

h) detailed procedures to be implemented in the event of emergencies;

i) details regarding the facility's training program and procedures to implement the program; and

j) any information and procedure which may only be specifically applicable to the facility.

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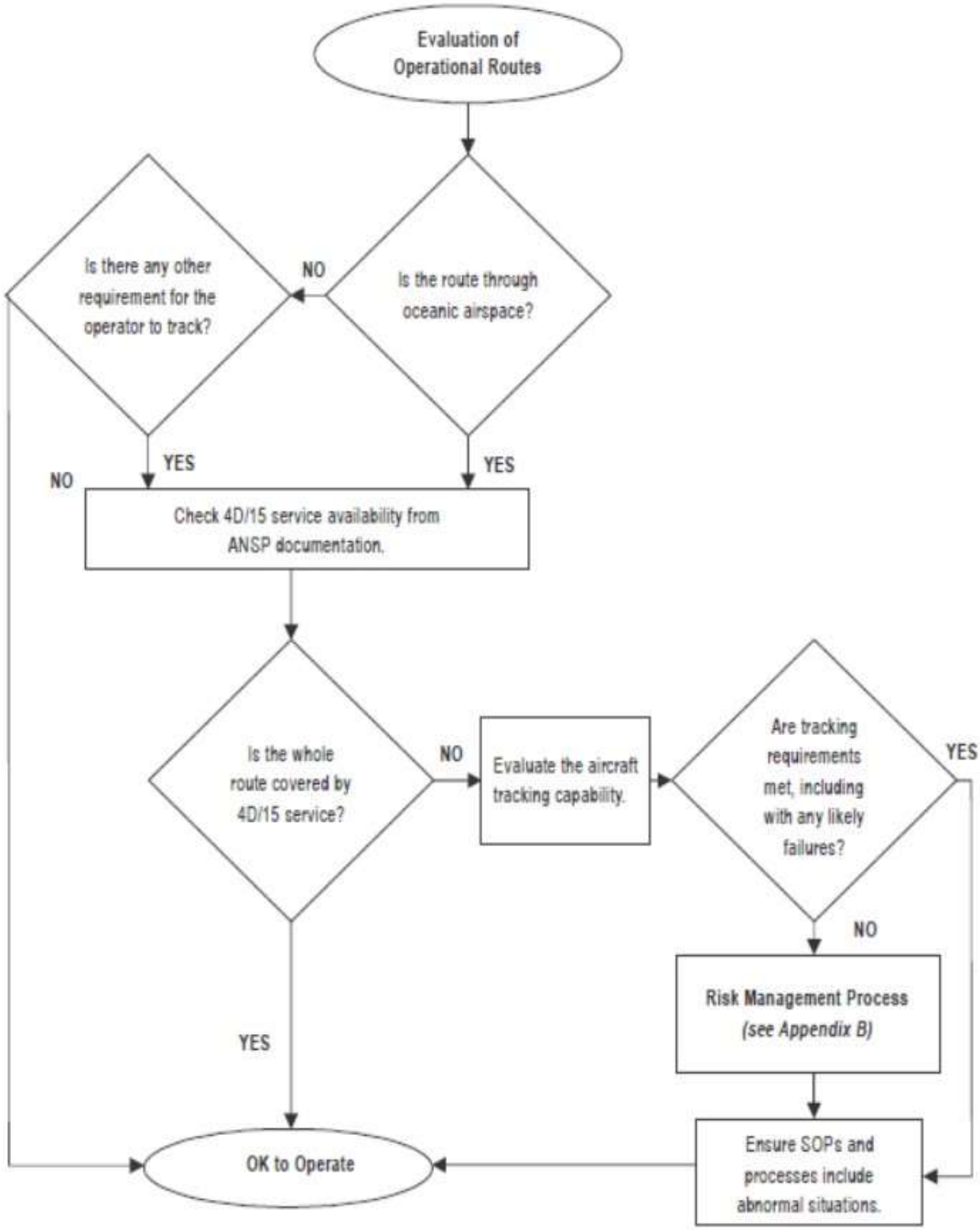
Appendix 1

OPERATOR 4D/15 TRACKING PROCESS FLOWCHART



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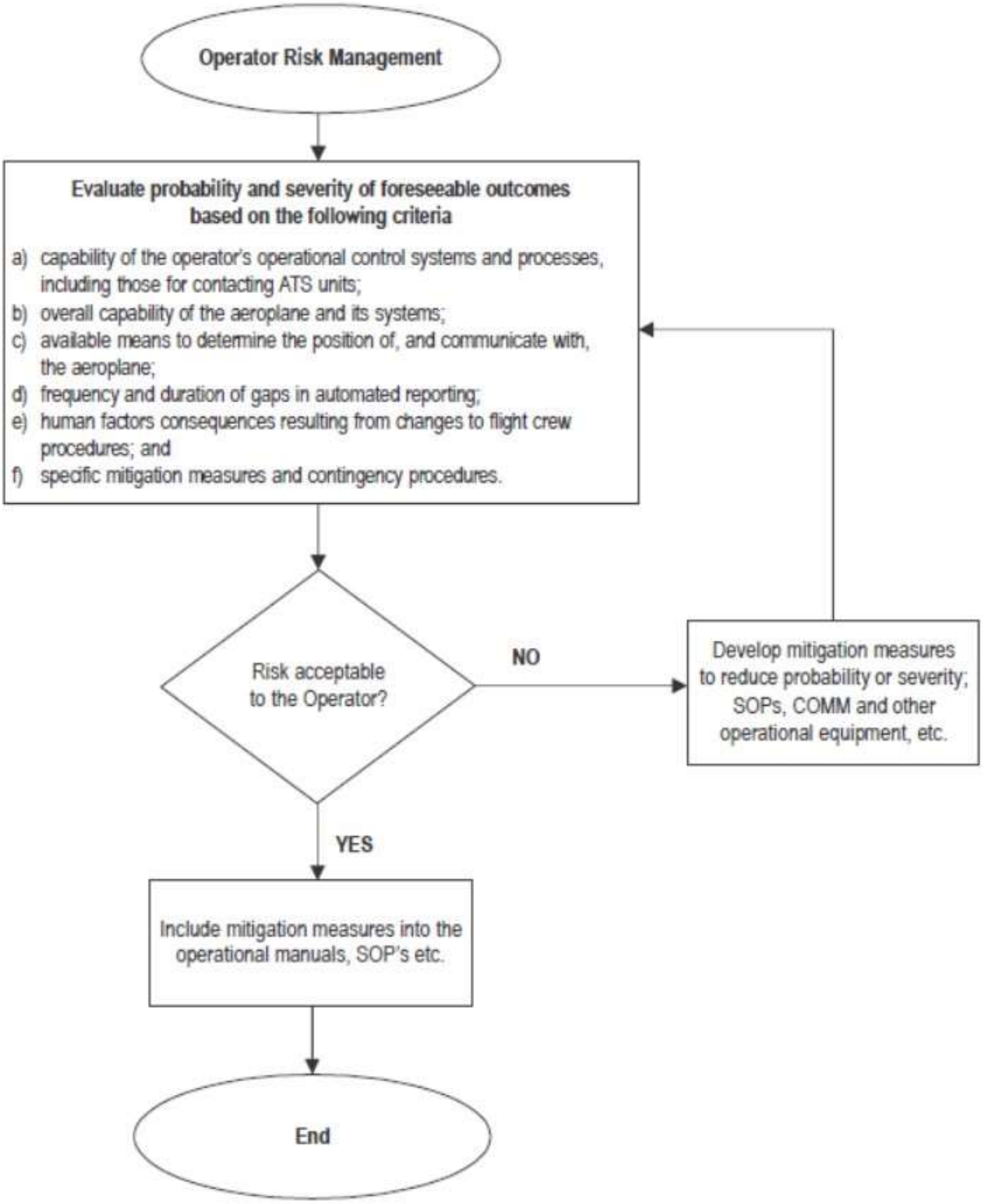
Appendix 2

AIRCRAFT TRACKING RISK ASSESSMENT FLOWCHART



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Appendix 3

MISSED 4D/15 POSITION REPORT FORM FOR OPERATOR

	Required information	
1.	Initial or subsequent notification indication	
2.	Flight number and call-sign	
3.	Aircraft type	
4.	Last known position (place, time)	
5.	Time of last communication	
6.	Last known altitude or flight level	
7.	Next expected 4D/15 position (if known), and estimate	
8.	Name of ATSU notified	
9.	Name of operator	
10.	Contact details of operator primary point of contact for this event	
	Supplementary information, if available	
11.	Contact actions attempted	
12.	Registration	
13.	SAR info: colour and distinctive marking	
14.	Fuel endurance or fuel endurance remaining at last known position	
15.	Total persons on board	
16.	Alternate or possible alternates	
17.	Any other relevant information (e.g. dangerous goods on board, etc.)	

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Appendix 4

SAR AIRCRAFT ENTRY AND EXIT REPORTS

1. Aircraft entry report

1.1 The entry report should be given to ACO/RCC before entering the area of SAR action (at least 20 NM/10 minutes' flight time to casualty).

1. Call sign
2. Nationality
3. Type (specify fixed-wing or helicopter and type)
4. Position
5. Altitude and altimeter setting
6. Estimated Time of Arrival
7. Endurance on scene
8. Remarks (specific equipment or limitations)
9. POB (crew, other personnel)

Example of entry report: *"Air coordinator, Lifeguard 901; one Swedish S-76 rescue helicopter; position 25 NM south of Ronneby; 1500 ft. on QNH 1013; ETA holding point North 1015Z; Endurance on scene 2 hours; no limitations, 4 crew on board"*

2. Aircraft exit report

2.1 The exit report should be given to the ACO/RCC before leaving the area of SAR action.

1. Call sign
2. Persons on Board (crew, other personnel, rescued)
3. Estimated Time of Arrival at destination
4. Requirements at destination (fuel, medical care, food, etc.)
5. Estimated Time of Arrival back in operations area
6. Remarks (e.g. Hoist position, weather, etc.)

Example of exit report: *"Air coordinator, Lifeguard 901; total POB 9, 4 crew and 5 rescued; ETA to EVAC 1230Z; Require fuel after landing; ETA back in area 1430Z; hoist position 5535.9N 01659E"*

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Appendix 5

TRAINING

1. Search and rescue personnel

1.1 Training of search and rescue personnel can include:

a) study of the application of SAR procedures, techniques, and equipment through lectures, practical demonstrations, films, SAR manuals, and journals

b) assisting in or observing actual operations

c) exercises in which personnel are trained to coordinate individual techniques and procedures in a simulated operation.

2. Air search and rescue facilities

2.1.1 In addition to normal flying programs, each crew member should be given specialized experience in SAR techniques for that member's particular function and the type of aircraft

2.1.2 All crew members assigned to SAR duties should be familiar with the following:

a) air–surface coordination in SAR operations;

b) signal codes and signaling methods used by surface craft and survivors;

c) scanning and spotting techniques;

d) action to be taken when sighting a distress scene; and

e) first aid.

2.2 Pilots

2.2.1 Pilot training programs should be aimed at developing one or more of the following techniques as appropriate to the type of operation involved:

a) precision in flying search patterns, maintaining tracks and height;

b) flying at low levels as applicable to normal searches or to contour searches;

c) dropping of supplies (selection of approach heading and height, judgement of release point);

d) intercepting and escorting aircraft;

e) assistance to ditching aircraft;

f) landing and take-off from confined areas; and

g) winching by helicopters.

2.3 Navigators

2.3.1 Accurate navigation and continued knowledge of position within narrow limits is required, often in areas with no or few navigation aids.

2.4 Observers

2.4.1 The observer (or look-out) performs a very important function and should preferably have aircrew experience; an untrained observer seriously reduces the efficiency of an air search.

2.4.2 In addition to continued flight experience, personnel with observer duties should be given training on the following:

a) sufficient flying time for:
   i) aircraft familiarization
   ii) familiarity with the terrain of likely search areas
   iii) knowledge of day and night scanning procedures
   iv) acquiring the ability to detect objects from the air under monotonous conditions for prolonged periods of time

b) knowledge of the appearance from the air of:
   i) aircraft wreckage and associated marks (e.g. slash marks in standing timber, burnt-out areas, skid marks, or scattered pieces of wreckage)
   ii) life raft, lifeboat, dye marker trails, a person in the water

c) knowledge of supply dropping procedures.

2.4.3 If extensive flying training is not practicable, the use of films, photographs and information circulars describing general procedures for observers may prepare observers for their task.

2.4.4 Appendix C of ICAO Document 9371 Vol. III discusses factors affecting observer effectiveness.

2.5 Supply droppers

2.5.1 Personnel responsible for the dropping of supplies from aircraft should be familiar with:

a) stowage and handling of supply containers and parachutes;
b) safety precautions during dropping operations; and
c) dropping techniques.

3. Maritime search and rescue facilities

3.1 Crew members

3.1.1 Every opportunity should be taken to supplement training with SAR exercises as follows:

a) coordinated air–surface SAR operations;
b) provision of assistance to aircraft (homing, communication, ditching);
c) knowledge of signaling methods and codes;

d) handling of all types of survival craft and equipment;

e) storage and maintenance of special equipment;

f) removal of survivors from ships, other craft, survival craft, and the sea;

g) first aid, artificial respiration, general care of survivors and the injured; and

h) fire-fighting methods and associated equipment.

3.2 Deck officers

3.2.1 Training of deck officers should include all training required for crew members plus:

a) *Organization*

i) knowledge of the SAR organization

ii) knowledge of available SAR facilities, including those of adjacent SRRs

iii) knowledge of legal aspects, particularly as regards to towing and salvage, etc.

b) *Procedures*

i) search patterns and techniques for air and surface facilities

ii) communication procedures

iii) rescue procedures

iv) supply dropping procedures

v) ditching assistance, stand-by and escort procedures

vi) debriefing of survivors

c) *Seamanship*

i) navigation in difficult conditions close inshore or at sea and in close proximity to disabled vessels

ii) use and understanding of all electronic navigational equipment used on SAR craft, including their accuracy and limitations

iii) proper use of radar

iv) knowledge of charts, sailing directions, buoys, lights, and aids to navigation in the SRR

v) use of publications on tides and currents relating to the SRR and the calculations of tidal conditions, as applicable

vi) use of weather and wave charts, pilot charts

vii) estimating the drift of survival craft

viii) methods of calculating the point of interception

ix) methods of recovery of survivors both close inshore and in the open sea from all kinds of craft in adverse weather conditions

x) good seamanship

xi) methods of calculating search patterns.

3.3 Radio operators

3.3.1 All radio operators must be qualified in accordance with Article 55 of the ITU Radio Regulations for operating the specific equipment with which individual SAR craft are fitted.

3.3.2 Additional training should include:

a) SAR communications procedures and regional communications plans;

b) knowledge of communications facilities existing within the SRR and adjacent SRRs;

c) an understanding of the practical difficulties which may be associated with ship–aircraft communications and possible methods of overcoming these conditions;

d) knowledge of procedures for exchange of information with SAR surface craft and with the shore; and

e) knowledge of available operating frequencies for the SRR.

3.4 Look-outs

3.4.1 Keeping a good look-out is a most important function, given the limited range of vision from surface craft and difficulty in locating objects and persons in the sea.

3.4.2 Masters, commanding officers, and watch standing officers must be trained in properly briefing look-outs in their duties and the harmful effects of fatigue on the look-out.

3.4.3 Training should include:

a) knowledge of distress signals;

b) scanning methods and reporting sightings;

c) signs of sunken ship or aircraft; for example, oil slicks or wreckage; and

d) relative range of detection for various types of search objects.

3.4.4 Appendix C of ICAO Document 9731 Vol. III discusses factors affecting observer (look-out) effectiveness.

3.5 Crews of rescue boats

3.5.1 Rescue boat crews should be trained in all duties that they could be called upon to perform.

3.6 First aid

3.6.1 Regular training in first aid should consist of formal instruction, demonstration, and exercises, given by qualified emergency medical personnel.

3.6.2 Appropriate training aids should be used and copies of a first aid manual should be issued. The syllabus should include, as appropriate, depending on equipment available:

a) use of rescue lifting systems and other devices for removing survivors from water

b) fundamental first aid, with emphasis on revival of the partially drowned and treatment for shock, prolonged immersion, hypothermia, and burns

c) cardiopulmonary resuscitation (CPR)

d) use of automated external defibrillators (AEDs)

e) administration of oxygen.

3.6.3 Attention is also drawn to the guidance on first aid given in IMO's *Pocket Guide for Cold Water Survival.*

4. Masters and officers of merchant ships

4.1 The mandatory minimum requirements for the training of masters of merchant ships in SAR operations are contained in the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978.

5. Land search and rescue facilities

5.1 Land facilities are normally established from groups whose members have special qualifications for operating in the type of terrain prevalent in their area.

5.2 Additional training may be needed (such as search techniques, first aid, and radio communication procedures).

5.3 When staffed by volunteers whose only qualification is physical fitness, then training should be provided on:

a) familiarity with the terrain in which operations will be conducted and SAR methods and techniques to be employed;

b) map reading and the use of a magnetic compass;

c) ability to operate by day and night in all weather conditions with little outside help;

d) knowledge of supply-dropping techniques;

e) preparation of airstrips or clearings for helicopters;

f) air–surface coordination in SAR operations;

g) knowledge of fire prevention and fire-fighting methods in aircraft and aircraft wrecks;

h) knowledge of safety requirements for working around and within aircraft wreck sites;

i) knowledge of signaling methods and codes;

j) operation and maintenance of special equipment;

k) evacuation of survivors and injured; and

l) first aid and general care of survivors.

5.4 Land rescue personnel should be specially instructed concerning the removal of survivors and human remains from crashed aircraft.

a) knowledge of the position in the wreckage of both survivors and bodies may be of vital importance to the accident investigation; and

b) rescue personnel should be taught to make every effort to preserve such evidence to the maximum extent possible (such as photography).

5.5 Training in medical aspects should consist of formal instruction, demonstrations and exercises, given and supervised by a competent instructor, e.g. a doctor or qualified emergency medical personnel. Manuals on initial medical assistance should be issued to the trainees. Training should include fundamental first aid and general care of survivors, including treatment for exposure. It should be stressed that medical advice should be obtained before the evacuation of seriously injured survivors.

6. Pararescue and paramedical personnel

6.1 In addition to training in parachute-jumping techniques and procedures, pararescue and paramedical personnel should also be trained as members of a land facility.

6.2 Pararescue and paramedical units should be able to make precision landings with minimum dispersal of the group and without injuring themselves or damaging or losing equipment. They should develop skills in:

a) accurate estimation of exit points from various altitudes;

b) execution of jumps into various types of land and water areas in different weather conditions;

c) descent from trees with or without the aid of ropes or other let-down devices;

d) swimming and the use of one-person life rafts; and

e) diving equipment.

6.3 Practice jumps should be supervised by an experienced parachutist and the pilot of the aircraft should have experience as a pilot of an aircraft carrying parachutists. The following precautions should be observed:

a) the aircraft used should be approved for the carrying of parachutists

b) the supervisor should check that each person is correctly dressed and equipped:

i) proper parachute suits, jump-boots, and helmets are worn

ii) harnesses, parachutes, and (if carried) rescue packs are correctly fitted

iii) reserve chutes are worn

iv) rigid face guards are worn for jumps in timber or bush-land and sufficient rope is carried to permit descent from trees

v) lifejackets are worn for jumps near or into water

c) wind speed or wind gusts must not exceed the limits specified for the parachute

d) the jumping point should be determined by the supervisor after dropping a pilot chute or a streamer to determine drift

e) jumps should not be made in close proximity to runways or other hard surfaces

f) the jump height should not be less than the altitude required to effect a safe landing under a reserve parachute in the event the main parachute fails to properly open.

7. Depot personnel

a) At each depot, adequately trained personnel should be assigned to maintain, inspect, pack, and repack life rafts, parachutes, containers, and packs of survival stores and to carry out periodic inspections.

b) Depot personnel training should include, where necessary:

i) fitting parachutes to containers, life rafts, etc.

ii) joining containers and life rafts for combined drops

iii) loading and securing supplies on board aircraft and surface craft

iv) stocktaking and replenishing supplies

v) inspections.

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Attachment 1

SAMPLE TEMPLATE FOR A JOINT SEARCH AND RESCUE EXERCISE

1. Objectives

State the objectives of the joint SAREX and what participants want to achieve from it. SAREX can be in different formats; for example, Table Top SAREX which involves discussion and assists in understanding and testing of a plan, Simulation SAREX where simulators are used to create realism without physically deploying assets, Live or Full Scale SAREX where there is actual deployment of assets to create realism in the testing of the plan, and Command Post SAREX where the decision-making process is tested.

For example:

1.1 The objectives of the joint SAREX are:

a) To provide improved search and rescue (SAR) cooperation between …… *(participating agencies or State RCC)* and …… *(participating agencies or State RCC)*.

b) To provide continuation training for personnel of SAR organizations from …… *(participating agencies or State RCC)* and …… *(participating agencies or State RCC)*.

c) To test the communication facilities and procedures between …… *(participating agencies or State RCC)* and …… *(participating agencies or State RCC)*.

d) To test and determine the effectiveness of the Search and Rescue Units (SRUs) of …… (*participating agencies*).

2. Date and timing of SAREX

State the agreed date and time for the joint SAREX. Have alternate or contingency plans in the event that a full scale SAREX cannot be conducted due to bad weather or any unforeseen circumstances. It is recommended that a pre-SAREX brief be conducted to ensure all participants understand their roles and the required actions to be taken. State the agreed time for a pre-SAREX brief to be carried out for all participants. States may conduct simultaneous pre-SAREX briefings at their own locations for their local participants. For standardization and to avoid confusion, it is recommended that all timing and dates used should be in UTC as there may be a difference in time and day for different States. After the SAREX, it is also recommended to conduct a de-brief for all participants.

For example:

2.1 Table Top SAREX or A Full Scale Exercise will be held between …… *(participating agencies or State)* and …… *(participating agencies or State)* on …… *(day of the week, date/month/ year)* from …… *(time in UTC)* to …… *(time in UTC)*.

2.2 In the event of bad weather, the Full Scale SAREX will be converted into a Table Top SAREX. The cut off time will be at …… *(time in UTC)*.

2.3 A Pre-SAREX brief will be held on ……. *(day of the week, day/month/year)* in ……. *(location of the pre-SAREX brief)* commencing at ……. *(time in UTC)*.

2.4 A Post-SAREX de-Brief will be held on ……. *(day of the week, day/month/year)* in ……. *(location of the de-brief)* commencing at …….. *(time in UTC)*.

3. Scenario

Discussion and development of exercise scenario with participating State or States and agencies involved. Scenario created should be as realistic as possible to simulate a real incident. A fictitious flight plan or ship's passage plan can be included to provide additional information pertaining to the distressed aircraft/ship. Using fictitious names and/or call signs for the distressed aircraft/ship and its airline/operator will avoid confusion on, for example, social media. Provide a fictitious manifest to indicate the number of people at risk.

For example:

3.1 At ……. *(time in UTC)*, a ……. *(type of aircraft/ship)*, ……. *(name/call sign of distressed aircraft/ship)*, departed from ……. *(point of departure)* to ……. *(destination)* with ……. *(persons on board)*. At ……. *(time in UTC)*, aircraft/ship declared "MAYDAY" due to ……. *(nature of emergency)* at …….. *(location in Lat and Long or with reference to a prominent location known to all)*. ……. *(further details of the scenario, as required)*.

3.2 Other information, for example Pilot-in-command/Master's actions, ……. equipment carried on board ……., description of aircraft/ship, etc.

4. Participating Organizations

Identify and list all participating agencies. As many responding agencies as possible should be included, both government and private. Air Navigation Service Provider, Aircraft Investigation Bureau, airlines, shipping companies, harbor authorities, etc. should be involved in a SAREX, as they would be directly involved in any real incident.

For example:

4.1 From ……. *(State: list participating local agencies, for example, RCC, Civil Aviation Authority, Air Force, Navy, etc.)*

a) …….

b) …….

c) …….

d) …….

e) …….

From ……. *(State: list participating local agencies)*

a) ……

b) ……

c) ……

d) ……

e) ……

5. Deployment of exercise search and rescue facilities and call signs

State all the SAR facilities that will take part in the SAREX. It is recommended that SRU call signs should be pre-fixed with the word "SAREX" to indicate that it is an exercise aircraft or surface vessel. This will help avoid confusion between a SAREX and a real incident. A call sign assigned to a particular SAR facility should not be changed and should be used throughout the exercise. Each SRU should have a unique call sign.

For example:

5.1 SRUs from …… *(participating State)* and their call signs are as follows:

Type of SRUs	Call sign	Remarks
Fokker 50	SAREX 01	Search
C130	SAREX 02	Search
Dolphin Helicopter	SAREX 03	Search and Rescue
……	SAREX……	……
……	SAREX……	……
……	SAREX……	……

5.2 SRUs from …… *(participating State)* and their call signs are as follows:

Type of SRUs	Call sign	Remarks
(Helicopter)	SAREX 04	Search and Rescue
(Ship)	SAREX 05	Search and Rescue
……	SAREX……	……

6. Communications

State the agreed radio frequencies and other communications facilities to be used in the SAREX. List communication arrangements between the RCCs involved and between the RCCs and the SRUs and other mobile SAR facilities. It is recommended that a communication check be conducted between all parties before the SAREX to ensure serviceability of communication

equipment. A standby day may be necessary if the communication check is not satisfactory.

For example:

6.1 The communications arrangement will be as follows:

a) Between ……. *(participating agency or State RCC)* and ……. *(other agencies or participating State RCC)*

Primary communication *(radio frequencies, telephone numbers, etc.)*

Secondary communication – …….

Standby communication – …….

b) Between ……. *(State RCC and SRUs)*

Primary communication – …..... kHz or …..... MHz

Secondary communication – …..... kHz or …..... MHz

Standby communication – …..... kHz or …..... MHz

6.2 A communication test between ……. *(participating agency or State RCC)* and ……. *(the other participating agencies or State RCC)* will be conducted prior to the SAREX. The test will be conducted on ……. *(day of the week, date/month/year)* from ……. *(time in UTC)* to ……. *(time in UTC)*.

6.3 In the case of an unsatisfactory communication test, another test will be conducted on …….. *(day of the week, date/month/year)* from ……. *(time in UTC)* to ……. *(time in UTC)*.

6.4 All messages pertaining to the exercise shall be prefixed and ended with the words “EXERCISE EXERCISE EXERCISE”. Exercise participants **must not** use any internationally recognized Distress or Urgency Procedure words (for example, “MAYDAY”, “PAN-PAN”) on radio or telephone systems. Radio communications procedure words should be replaced as follows

MAYDAY – replace with “Mike Delta”

PAN-PAN – replace with “Papa, Papa”

SÉCURITÉ – replace with “Sierra, Sierra”

This will help to avoid confusion between a SAREX and an actual SAR incident.

7. Search object

In a Full Scale SAREX, States should consider the deployment of a search object (including a locator beacon) to add realism to the exercise. This will

enable participating SRUs to practice visual and/or electronic search techniques. The search object can be deployed at the proposed distress location at the SAREX start time. Search objects should be clearly marked as being deployed for exercise purposes.

For example:

7.1 A …… *(description of the search object)* will be provided by …… *(one of the participating agencies)* and will be deployed at …… *(time in UTC)* on …… *(date of the SAREX)* at the distress position.

7.2 The search target is marked with …… (*for example, the word "SAREX"*).

8. Alerting and activation

State clearly the alert and activation processes for the SAREX, including which agency will initiate the distress phase and how the other participating agencies will be notified. In a joint SAREX, if the distress location is within the area of responsibility of a particular State, the State concerned should initiate the alerting and activation phase.

For example:

8.1 Since the distress location is within the area of responsibility of …… *(State)*, …… *(name)* RCC will notify …… *(participating agencies)* to initiate joint SAR operations.

9. Search area

Discuss how to determine the search area and which RCC will do so. In a joint SAR effort, the RCCs involved can determine their own search areas and agree an overall area.

For example:

9.1 The respective SAR mission coordinators (SMCs) will work out a search area upon receipt of the distress location.

9.2 The SMCs shall discuss with each other and agree on a common search area.

9.3 If there is a great difference between the two search areas, the coordinating RCC shall decide on the most probable area and take the necessary action to promulgate the area as a restricted area for SAR operations accordingly.

10. Diplomatic clearance

In a joint SAREX, make necessary arrangements for applying for diplomatic clearance if State assets may be or are required to enter another State's territorial airspace or waters. The application process should be made known to all relevant participating agencies. If there is an agreement in place between participating States, then the agreed procedure should be followed. Provide information regarding the SRUs and particulars of the personnel on board. It is recommended that particulars of the SRUs be provided to the State(s) concerned prior to the SAREX. This will assist in the diplomatic clearance process.

For example:

10.1 ……. *(State)* RCC will send a request to ……. *(State)* for diplomatic clearance to allow ……. *(State's)* SRUs to enter ……. *(State's)* territorial airspace/waters.

10.2 To obtain diplomatic clearance the RCC shall provide the following particulars:

a) unique identifier of the SRU as required by local authorities;

b) type of aircraft or vessel;

c) name of Pilot in Command/Master;

d) names of crew on board (not required for sea asset);

e) area of operation; and

f) date and time of operation.

10.3 The details of the SRUs concerned shall be provided ……. *(days/weeks)* before the exercise. Application for diplomatic clearances should be made through the normal channels in order to accelerate the diplomatic clearance process.

11. Search operations

Ensure the safe conduct of the SAREX, especially as regards the air assets. It is recommended that there should be one coordinating RCC providing instructions to SRUs prior to entering the search area. It is also recommended that an aircraft coordinator be deployed to provide instructions to aircraft during transit to and from the search area as well as within the search area. Assign one of the SRUs as the on-scene coordinator, coordinating all the SAR facilities in the search area as well as providing an important communication link with the distressed aircraft/ship.

For example:

11.1 All SRUs shall report to the coordinating RCC or on-scene coordinator prior to entering the search area and while conducting SAR operations in the search area to ensure safety and efficiency in the joint SAR effort. All aircraft involved must adhere to ATC instructions.

11.2 Non-exercise aircraft/surface vessels shall keep clear of the search area unless clearance has been obtained for them to transit through.

12. Rescue operations

Discuss how the rescue operation is to be executed. Live rescue operations provide training and testing opportunities. If personnel are deployed at the scene to simulate a rescue operation, it is recommended to have a safety boat in the vicinity to ensure that the operation is closely monitored and all safety procedures are adhered to. Each SRU will report to the coordinating RCC or on-scene coordinator the number of survivors rescued and the state the survivors are in. This will assist in accounting for all at risk and whether immediate evacuation is required. If possible, recover the search object after

the exercise: this will help avoid unnecessary subsequent SAR action. If recovery is not possible, make general broadcasts to warn of the object's location.

For example:

12.1 When the search object is sighted, the SRU shall inform the coordinating RCC. The RCC will disseminate the information to all other participants.

12.2 Recovery of the search object after the exercise will be undertaken by …… *(agency responsible for recovering the search object)*.

12.3 If the search object cannot be recovered, urgent safety information broadcast action will be taken by …… *(agency responsible)*.

13. Emergency landing of participating aircraft

In a joint SAREX, make arrangements for participating aircraft to land in the event of an emergency.

For example:

13.1 …… *(State's)* aircraft participating in the SAREX will be given permission to land at …… *(name of airport or airfield)* if an emergency landing is required.

14. Termination or suspension of SAREX

State how and under what circumstances the SAREX will terminate. Make response arrangements in the event of a real incident occurring during the SAREX. Agree a code word or words which will be understood by all participating agencies and units. Once the code word is broadcast the SAREX will be converted into real SAR operations, at least for the duration of the real emergency.

For example:

14.1 The SAREX will be terminated when:

a) all the Search and Rescue Units have returned to base; or

b) the time for the SAREX has expired and no search object has been sighted.

The SAREX may be terminated or temporarily suspended when there is an actual emergency

14.2 In the case of a real emergency, the exercise will be converted into a real SAR operation. The code words "NO DUFF NO DUFF" will be broadcast. All participating agencies and units will cease the exercise immediately and await instructions from the coordinating RCC.

14.3 The exercise may be resumed when the real emergency has been resolved, if the participating agencies agree. Resumption of the exercise will be notified to

all participants by the coordinating RCC. Alternatively, the real emergency may require the exercise to be terminated.

15. SAREX de-brief

Conduct of a SAREX de-brief is important as this is where the evaluation process of the exercise is presented by evaluation experts who observed the exercise, together with observations by people who actually participated in the exercise scenarios. This is the final step to identify weaknesses and good practices and development of recommendations for improvement. Agree on a date and venue to conduct a SAREX de-brief including all exercise participants.

For example:

15.1 SAREX de-brief will be held on …… *(day of the week, date/month/year)* commencing at …… *(time in UTC)*.

15.2 The venue for the SAREX de-brief will be …… *(name the venue and give its address)*.

16. SAREX Controllers/Evaluators/Observers

Name the personnel who will be involved in the SAREX as observers, evaluators and exercise controllers. Evaluators and controllers in particular must have SAR expertise so that they will understand what is to be evaluated and how to control the exercise to maximize its value.

For example:

16.1 Personnel involved in the SAREX as exercise controllers, evaluators and observers will be as follows:

…… *(Agency)* …… *(name and role in the exercise*

…… *(Agency)* …… *(name and role in the exercise)*

…… *(Agency)* …… *(name and role in the exercise)*

17. Invitation to Observers

Agencies or States may consider inviting observers from other agencies or foreign countries or international organizations to attend and observe the SAREX. These personnel can provide valuable feedback for improvement to the system. Agree which State will do the invitations and who should be invited to attend.

For example:

17.1 Invitations to observers to observe the SAREX will be provided by …… *(agency providing the invitation)*. Observers will be positioned at …… *(venue(s) for observation of the SAREX)* and will be escorted by officers of …… *(agency or agencies providing escorts)*.

a) …… *(name of country or organization)*

b) …… *(name of country or organization)*

c) …… *(name of country or organization)*

d) …… *(name of country or organization)*

18. News media coverage

If there is provision for news media coverage of the SAREX, agree the necessary arrangements (spokespeople, drafting of press releases, etc.). During a SAREX, it is recommended that a joint information center be set up as this will ease the burden on RCCs. Updates by RCCs are provided to one source thus ensuring the provision of timely, clear, accurate and consistent reports to the news media. This will provide a training opportunity in dissemination of **information in a real incident**.

For example:

18.1 Information updates will be provided by the RCC(s) to a Joint Information Centre for reports/updates/ press releases to the news media.

18.2 The Joint Information Centre will be established and staffed by the following agencies:

…… *(name of agency)*

…… *(name of agency)*

…… *(name of agency)*

18.3 If there is a requirement for a joint press release on the SAREX to be issued, …… (agency that will produce the draft) will draft the press release and forward it to …… (other participating agencies, as agreed) for concurrence before it is issued.

19. SAREX report

A SAREX report is important as it will serve as a permanent record of the exercise. Each element of the exercise should be recorded and lessons learnt during the exercise captured. Agree who should produce the SAREX report for dissemination to all participating agencies and other interested parties.

For example:

19.1 *(Insert Agency or State)* will produce the SAREX report with assistance from …… *(the other participating agencies or State(s))*. Photographs will be made available for the SAREX report.

19.2 A copy of the report will be sent to each of the following participating agencies, countries and international organizations.

a) …… *(agency or country or international organization)*

b) …… *(agency or country or international organization)*

c) …… *(agency or country or international organization)*

20. Venue for the next SAREX

It is good to plan for an annual joint SAREX with relevant agencies and/or neighboring States. State the date and venue if possible for the next SAREX coordination meeting and the proposed SAREX type and date.

For example:

20.1 The next SAREX Coordination Meeting will be held at …… *(venue)* on …… *(date/ month/year)*.

20.2 The next SAREX is scheduled to be held on …… *(date/month/year)*. It is proposed that this SAREX will be a …… *(type)* exercise.

Attachment 2

CHECKLIST FOR MULTIPLE AIRCRAFT SAR OPERATIONS

The checklist below is for example purposes and for general guidance only. Each SAR operation is different therefore not all of the items below might be needed and additional ones might be required. Some items might also be carried out by different facilities and units from those indicated below.

Serial	Task	ACO	SMC	ATS	SRU
1	Declare emergency phase		X		
2	Identify requirement for ACO		X		X
3	Designate and notify ACO	X	X		
4	Inform ATS units and establish area of SAR action		X	X	
5	Identify aircraft and capabilities	X	X		
6	Develop and promulgate plan	X	X		X
7	Establish cooperation with OSC	X	X		
8	Coordination with ATS	X	X	X	X
9	Manage aircraft activities	X	X	X	
10	Call ACO before entering area	X			X
11	Call ACO when leaving area	X			X
12	Monitor and update on-scene plan	X	X		
13	Provide regular situation reports	X	X		
14	Manage fuel and numbers of airborne SRUs	X	X	X	X
15	Stand down or relieve the ACO	X	X		
16	Cancel/terminate the SAR operation	X	X	X	X
17	Cancel area of SAR action	X	X	X	X

Notes:

1. *"X" signifies action required or the receipt of information.*
2. *For the purposes of this checklist, "SRU" refers to aircraft involved in the SAR operation.*

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Attachment 3

STANDARD FORMAT FOR SEARCH AND RESCUE SITUATION REPORT (SITREP)

3.1 Short form

To pass urgent essential details when requesting assistance, or to provide the earliest notice of a casualty.

Transmission priority (distress/urgency, etc.) _____

Date and time (UTC or local date time group) _____

From (originating RCC) _____

To _____

SAR SITREP (number) (to indicate nature of message and completeness of sequence of SITREPs concerning the casualty) _____

Identity of casualty (name, call sign, flag State) _____

Position (latitude/longitude) _____

Situation (type of message, distress or urgency; date/time; nature of distress/ urgency, for example, fire, collision, medical) _____

Number of persons at risk _____

Assistance required _____

Coordinating RCC
_____

3.2 Full form

To pass amplifying or updating information during SAR operations, the following additional sections should be used as required:

Description of casualty (physical description, owner/charterer, cargo carried, passage from/to, life-saving appliances carried, etc.) _____

Weather on scene (wind, sea/swell state, air/sea temperature, visibility, cloud cover/ceiling, barometric pressure)
_____

Initial actions taken (by distressed craft and RCC) _____

Search area (as planned by RCC)
_____

Coordinating instructions (OSC designated, units participating, communications, etc.) __
_____

Future plans _____

Additional information/conclusion (include time SAR operation terminated) _____

Note 1: Each SITREP concerning the same casualty should be numbered sequentially.

Note 2: If help is required from the addressee, the first SITREP should be issued in short form if remaining information is not readily available.

Note 3: When time permits, the full form may be used for the first SITREP or to amplify it.

Note 4: Further SITREPs should be issued as soon as other relevant information has been obtained, particularly changes to on-scene weather. Information already passed should not need repetition.

Note 5: During prolonged operations "no change" SITREPs, when appropriate, should be issued at intervals of about three hours to reassure the recipients that nothing has been missed.

Note 6: When the incident has been concluded, a final SITREP should be issued as confirmation.