



GOVERNMENT OF INDIA
OFFICE OF DIRECTOR GENERAL OF CIVIL AVIATION
TECHNICAL CENTRE, OPP SAFDARJANG AIRPORT, NEW DELHI

CIVIL AVIATION REQUIREMENTS
SECTION 9 – AIR SPACE AND
AIR TRAFFIC MANAGEMENT
SERIES S PART I
ISSUE II, 8TH JANUARY 2010

EFFECTIVE: FORTHWITH

F. No. AV.27065/01/2016-ANSS

Subject: **Search and Rescue**

INTRODUCTION

In pursuant to Article 25 (Aircraft in distress) of the Convention on International Civil Aviation each contracting State undertakes to provide such measures of assistance to aircraft in distress in its territory as it may find practicable, and to permit, subject to control by its own authorities, the owners of the aircraft or authorities of the State in which the aircraft is registered to provide such measures of assistance as may be necessitated by the circumstances. Each contracting State, when undertaking search for missing aircraft, will collaborate in coordinated measures which may be recommended from time to time pursuant to this Convention. To this end the International Civil Aviation Organization adopts and amend from time to time, as may be necessary, international standards and recommended practices and procedures in Annex 12 dealing with search and rescue of aircraft.

This CAR is issued under the provisions of Rule 29C and Rule 133A of the Aircraft Rules, 1937 for the search and rescue of aircraft in distress over INDIA & over the regions where INDIA has accepted to assume this responsibility as promulgated by Regional Air Navigation Plan, ICAO & Global SAR plan, IMO

This CAR is issued in supersession of CAR Section 4 Series C Part I, Issue I dated 15th February 2006.

1. DEFINITIONS

When the following terms are used in this CAR, they have the following meanings:

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

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

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

Ditching. The forced landing of an aircraft on water.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

2. ORGANIZATION

2.1 Search and rescue services

2.1.1 Search & Rescue services over entire Indian Territory including territorial waters are provided to ensure that assistance is rendered to aircraft & persons in distress. Such services are provided on a 24-hour basis.

Note- *Indian Government has assumed the responsibility of providing Search and Rescue (SAR) cover in Indian Search & rescue regions (SRR). Search and rescue services are provided over land areas by the National Aeronautical Search & Rescue Coordination Committee (NASARCC) designating Secretary, Ministry of Civil Aviation as its chairman & over oceanic areas by National Maritime SAR Board (NMSARB) designating Director General, Indian Coast Guard as its Chairman*

2.1.1.1 Such services shall be provided within the entire Indian Territory including territorial waters. Such services shall also be provided over those portions of the high seas or areas of undetermined sovereignty for which responsibility of providing Search & Rescue services has

been delegated to India.

Note1 - Search & Rescue services over Indian Airspace excluding the oceanic areas are coordinated by Airports Authority of India with the SAR agencies.

Note2 - Search & Rescue services over Oceanic areas which form part of Kolkata, Mumbai & Chennai FIR are provided by Indian Coast Guard.

- 2.1.1.2 Search and rescue services shall include organized available resources, communication facilities and a workforce skilled in coordination and operational functions.
- 2.1.1.3 Search and rescue services shall establish processes to improve service provision, including the aspects of planning, domestic and international cooperative arrangements and training.
- 2.1.2 Assistance to aircraft in distress and to survivors of aircraft accidents shall be provided regardless of the nationality or status of such persons or the circumstances in which such persons are found.
- 2.1.3 Search and rescue services shall use search and rescue units and other available facilities to assist any aircraft or its occupants that are or appear to be in a state of emergency.
- 2.1.4 Coordination between the aeronautical and maritime rescue coordination centres shall be ensured.
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- 2.1.6 Joint rescue coordination centres may be established to coordinate aeronautical and maritime search and rescue operations, where practical.

2.2 Search and rescue regions

- 2.2.1 Search and rescue regions shall be delineated to provide search and rescue services. Such regions shall not overlap and neighbouring regions shall be contiguous.

Note 1.— Search and rescue regions are established to ensure the provision of adequate communication infrastructure, efficient distress alert routing and proper operational coordination to effectively support search and rescue services.

Note 2.— The delineation of search and rescue regions is determined on the basis of technical and operational considerations.

2.2.1.1 Search and rescue regions shall, in so far as practicable, be coincident with

corresponding flight information regions and, with respect to those areas over the high seas, maritime search and rescue regions.

Note 1 – The Aeronautical SAR services are provided in Indian SRR delineated & coinciding with four Flight Information Regions over land area. Airports Authority of India coordinates SAR services through four rescue Coordination Centres established at Delhi Mumbai, Kolkata & Chennai FIRs,

Note 2- The Aeronautical & Maritime SAR services over the high seas in Indian SRR are provided by Indian Coast Guard. The Maritime SRR is generally harmonized with Aeronautical SRR in most areas, however the Aeronautical SRR & the Maritime SRR extended over Arabian sea (Western SRR) do not coincide. The area being over high seas, SAR services are provided by Indian Coast Guard through three maritime Rescue coordination centres (MRCCs) located at Mumbai, Chennai & Port Blair as promulgated in National Maritime Search & rescue manual.

2.3 Rescue coordination centres and rescue sub centres

2.3.1 A rescue coordination centre shall be established in each search and rescue region.

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2.3.3 Each rescue coordination centre shall be staffed 24 hours a day by trained personnel proficient in the use of the language used for radio-telephony communications.

Note.-- The Rescue coordination Centres and Rescue Sub Centres shall develop written job descriptions for each of their technical staff and shall maintain the training records of its technical staff.

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

2.3.5 Where public telecommunications facilities does not permit persons observing an aircraft in emergency to notify the rescue coordination centre concerned directly and promptly, they should notify the nearest police station.

2.4 Search and rescue communications

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

- a) associated air traffic services units;
- b) associated rescue subcentres, where provided;
- c) where appropriate, coastal radio stations capable of alerting and communicating with surface vessels in the region;
- d) the headquarters of search and rescue units in the region;
- e) all maritime rescue coordination centres in the region and aeronautical, maritime rescue coordination centres in adjacent regions;
- f) a designated meteorological office or meteorological watch office;
- g) search and rescue units;
- h) alerting posts; and
- i) INMCC, Bengaluru

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

- a) Parent RCC & if applicable ,adjacent rescue subcentres;
- b) a meteorological office or meteorological watch office;
- c) search and rescue units; and
- d) alerting posts.

2.5 Search and rescue units

2.5.1 As part of Search and rescue units, other agencies that are suitably located and equipped for search and rescue operations shall be designated for search and rescue functions.

2.5.2 Agencies that do not qualify as search and rescue units but are nevertheless able to participate in search and rescue operations shall be designated as parts of the search and rescue plan of operation.

2.6 Search and rescue equipment

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

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

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

- 2.6.4 Each search and rescue aircraft shall be equipped with a device for homing on distress frequencies.
- 2.6.5 Each search and rescue aircraft, when used for search and rescue over maritime areas, shall be equipped to be able to communicate with vessels.
- 2.6.6 Each search and rescue aircraft, when used for search and rescue over maritime areas shall carry a copy of the International Code of Signals to enable it to overcome language
- 2.6.7 difficulties that may be experienced in communicating with ships. Search and Rescue signals are given in Appendix.
- 2.6.8 Unless it is known that there is no need to provide supplies to survivors by air, at least one of the aircraft participating in a search and rescue operation should carry droppable survival equipment.
- 2.6.9 Survival equipment suitable for dropping by aircraft should be made available.

3 COOPERATION

3.1 Cooperation between States

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- 3.1.2 Whenever necessary, Rescue and Coordination Centre (RCC) shall coordinate their search and rescue operations with those of neighbouring States RCC especially when these operations are proximate to adjacent search and rescue regions.
- 3.1.2.1 Intentionally left blank.
- 3.1.3 Subject to such conditions as may be prescribed, National Aeronautical Search & Rescue Coordination Committee (NASARCC) may permit entry into its territory of search and rescue units of other States for the purpose of searching for the site of aircraft accidents and rescuing survivors of such accidents.
- 3.1.4 For the purpose of search and rescue, the authorities of the other State who wish their search and rescue aircraft to enter the territory of India shall transmit a request, giving full details of the projected mission and the need for it, to Directorate General of Civil Aviation as per prescribed procedure in AIP India.

Note : For the purpose of Search and Rescue, authorities of other state who wish their Search and rescue unit to enter the territory of India (Land

area) shall forward request to National Aeronautical Search & Rescue Coordination Committee (NASARCC).

3.1.4.1 NASARCC or DGCA as applicable , shall:

- acknowledge the receipt of such a request, and
- as soon as possible, indicate the conditions, if any, under which the projected mission may be undertaken.

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3.1.6 Intentionally left blank

3.1.7 Intentionally left blank

3.1.8 Organizations providing search and rescue services 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.

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3.2 Cooperation with other services

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

3.2.2 Close coordination shall be maintained between the aeronautical and maritime authorities to provide for the most effective and efficient search and rescue services.

3.2.3 Search and rescue services shall cooperate with those responsible for investigating accidents and with those responsible for the care of those who suffered from the accident.

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

3.2.5 A search & Rescue point of contact shall be designated for the receipt of COSPAS- SARSAT distress data.

3.3 Dissemination of information

3.3.1 Information necessary for the entry of search and rescue units of other

States shall be contained in Aeronautical Information Publication (AIP), or alternatively, in the search and rescue service arrangements, if any.

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3.3.3 Intentionally left blank

4 PREPARATORY MEASURES

4.1 Preparatory information

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

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

4.1.2 Each rescue coordination centre need to have readily available all other information of interest to search and rescue, including information regarding:

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

4.1.3 Each rescue coordination centre whose search and rescue region includes maritime areas should have ready access to information regarding the position, course and speed of ships within such areas that may be able to provide assistance to aircraft in distress and information on how to contact them.

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

4.1.4 National Maritime Search and Rescue Unit need to, individually or in

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

Note.— Amver is a cooperative international ship reporting system with worldwide coverage that is available for interrogation by all rescue coordination centres.

4.2 Plans of operation

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

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

4.2.3 The plans of operation shall specify arrangements for the servicing and refueling, to the extent possible, of aircraft, vessels and vehicles employed in search and rescue operations.

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

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

- i) the methods for assisting distressed aircraft being compelled to ditch to rendezvous with surface craft;
- j) the methods for assisting search and rescue or other aircraft to proceed to aircraft in distress; and
- k) cooperative actions taken in conjunction with air traffic services units and other authorities concerned to assist aircraft known or believed to be subject to unlawful interference.

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

4.3 Search and rescue units

4.3.1 Each search and rescue unit shall:

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

4.3.2 Each search and rescue unit shall:

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

4.4 Training and exercises

To achieve and maintain maximum efficiency in search and rescue, regular training of the search and rescue personnel shall be provided. Appropriate search and rescue exercises shall also be arranged for such personnel.

4.5 Wreckage

Wreckage resulting from aircraft accidents within the entire Indian Territory including territorial waters or, in the case of accidents on the high seas or in areas of undetermined sovereignty, falling within the search and rescue region shall be removed, obliterated or charted following completion of the accident investigation, if its presence might constitute a hazard or confuse subsequent search and rescue operations.

5 OPERATING PROCEDURES

5.1 Information concerning emergencies

5.1.1 Any authority or any element of the search and rescue organization having

reason to believe that an aircraft is in an emergency shall give immediately all available information to the rescue coordination centre concerned.

- 5.1.2 Rescue coordination centres shall, immediately upon receipt of information concerning aircraft in emergency, evaluate such information and assess the extent of the operation required.
- 5.1.3 When information concerning aircraft in emergency is received from other sources than air traffic services units, the rescue coordination centre shall determine to which emergency phase the situation corresponds and shall apply the procedures applicable to that phase.

5.2 Procedures for rescue coordination centres during emergency phases

5.2.1 Uncertainty phase

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

5.2.2 Alert phase

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

5.2.3 Distress phase

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

- a) immediately initiate action by search and rescue units in accordance with the appropriate plan of operation;
- b) ascertain the position of the aircraft, estimate the degree of uncertainty of this position, and, on the basis of this information and the circumstances, determine the extent of the area to be searched;
- c) notify the operator, where possible, and keep the operator informed of developments;
- d) notify other rescue coordination centres, the help of which seems likely to be required, or which may be concerned in the operation;
- e) notify the associated air traffic services unit, when the information on the emergency has been received from another source;
- f) request at an early stage such aircraft, vessels, coastal stations and other

services not specifically included in the appropriate plan of operation and able to assist to:

- 1) maintain a listening watch for transmissions from the aircraft in distress, survival radio equipment or an Emergency Locator Transmitter (ELT);

Note.— The frequencies for ELTs are 121.5 MHz and 406 MHz

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

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

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

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

- a) When a rescue coordination centre is notified of the existence of an emergency phase and is unaware of other centres taking appropriate action, it shall assume responsibility for initiating suitable action in accordance with 5.2 and confer with neighbouring rescue coordination centres with the objective of designating one rescue coordination centre to assume responsibility forthwith.
- b) Unless otherwise decided by common agreement of the rescue coordination centres concerned, the rescue coordination centre to coordinate search and rescue action shall be the centre responsible for:
 - the region in which the aircraft last reported its position; or
 - the region to which the aircraft was proceeding when its last reported position was on the line separating two search and rescue regions; or
 - the region to which the aircraft was destined when it was not equipped with

- suitable two-way radio communication or not under obligation to maintain radio communication; or
- the region in which the distress site is located as identified by the COSPAS-SARSAT system.

- c) After declaration of the distress phase, the rescue coordination centre with overall coordination responsibility shall inform all rescue coordination centres that may become involved in the operation of all the circumstances of the emergency and subsequent developments. Likewise, all rescue coordination centres becoming aware of any information pertaining to the emergency shall inform the rescue coordination centre that has overall responsibility.

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

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

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

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

5.4 Procedures for agencies in the field

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

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

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

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

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

5.5.3 When a search and rescue operation has been successful or when a rescue coordination centre considers, or is informed, that an emergency no

longer exists, the emergency phase shall be cancelled, the search and rescue operation shall be terminated and any agency, facility or service that has been activated or notified shall be promptly informed.

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

5.6 Procedures at the scene of an accident

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

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

- a) keep the craft in distress in sight until compelled to leave the scene or advised by the rescue coordination centre that it is no longer necessary;
- b) determine the position of the craft in distress;
- c) as appropriate, report to the rescue coordination centre or air traffic services unit as much of the following information as possible:

- type of craft in distress, its identification and condition;
- its position, expressed in geographical or grid coordinates or in distance and true bearing from a distinctive landmark or from a radio navigation aid;
- time of observation expressed in hours and minutes Coordinated Universal Time (UTC);
- number of persons observed;
- whether persons have been seen to abandon the craft in distress;
- on-scene weather conditions;
- apparent physical condition of survivors;
- apparent best ground access route to the distress site; and

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

5.6.2.1 If the first aircraft to reach the scene of an accident is not a search and rescue aircraft, it shall take charge of on-scene activities of all other aircraft subsequently arriving until the first search and rescue aircraft reaches the scene of the accident. If, in the meantime, such aircraft is unable to establish

communication with the appropriate rescue coordination centre or air traffic services unit, it shall, by mutual agreement, hand over to an aircraft capable of establishing and maintaining such communications until the arrival of the first search and rescue aircraft.

- 5.6.3 When it is necessary for an aircraft to convey information to survivors or surface rescue units, and two-way communication is not available, it shall, if practicable, drop communication equipment that would enable direct contact to be established, or convey the information by dropping a hard copy message.
- 5.6.4 When a ground signal has been displayed, the aircraft shall indicate whether the signal has been understood or not by the means described in 5.6.3 or, if this is not practicable, by making the appropriate visual signal.
- 5.6.5 When it is necessary for an aircraft to direct a surface craft to the place where an aircraft or surface craft is in distress, the aircraft shall do so by transmitting precise instructions by any means at its disposal. If no radio communication can be established, the aircraft shall make the appropriate visual signal.

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

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

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

5.8 Search and rescue signals

- 5.8.1 The air-to-surface and surface-to-air visual signals in the Appendix shall, when used, have the meaning indicated therein. They shall be used only for the purpose indicated and no other signals likely to be confused with them shall be used.
- 5.8.2 Upon observing any of the signals in the Appendix, aircraft shall take such action as may be required by the interpretation of the signal given in that Appendix.

5.9 Maintenance of records

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

5.9.2 Each rescue coordination centre shall prepare appraisals of actual search and rescue operations in its region. These appraisals shall comprise any pertinent

remarks on the procedures used and on the emergency and survival equipment, and any suggestions for improvement of those procedures and equipment. Those appraisals, which are likely to be of interest to other States, should be submitted to ICAO for information and dissemination, as appropriate.



(B. S. Bhullar)
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APPENDIX

SEARCH AND RESCUE SIGNALS

(Note.— See Para 5, 5.8 of the CAR)

1. Signals with surface craft
 - 1.1 The following manoeuvres performed in sequence by an aircraft mean that the aircraft wishes to direct a surface craft towards an aircraft or a surface craft in distress:
 - a) circling the surface craft at least once;
 - b) crossing the projected course of the surface craft close ahead at low altitude and:
 - 1) rocking the wings; or
 - 2) opening and closing the throttle; or
 - 3) changing the propeller pitch.

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

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

Repetition of such manoeuvres has the same meaning.

- 1.2 The following manoeuvres by an aircraft means that the assistance of the surface craft to which the signal is directed is no longer required:
 - crossing the wake of the surface craft close astern at a low altitude and:
 - 1) rocking the wings; or
 - 2) opening and closing the throttle; or
 - 3) changing the propeller pitch.

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

– for acknowledging receipt of signals:

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

– for indicating inability to comply:

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

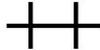
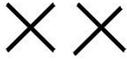
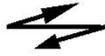
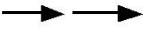
Note.— See Note following 1.1 b), 3).

2. Ground-air visual signal code

2.1 Ground-air visual signal code for use by survivors

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

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

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

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

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

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

3. Air-to-ground signals

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

a) during the hours of daylight:

- by rocking the aircraft's wings;
 - b) during the hours of darkness:
 - flashing on and off twice the aircraft's landing lights or, if not so equipped, by switching on and off twice its navigation lights.
- 3.2 Lack of the above signal indicates that the ground signal is not understood.

* * *