GEN 3.6 SEARCH AND RESCUE

1 Purpose

The purpose of the Search and Rescue (SAR) organization is to provide assistance to aircraft in distress and to search for, provide aid to, and coordinate the rescue of survivors of aircraft accidents and forced landings.

2 Responsible Authority

The Department of Transport is the custodian and champion of Search and Rescue Services in South Africa. It has the overall responsibility for planning, establishing and organisation, staffing, equipping and managing the SAR system in South Africa in collaboration with SASAR.
Search and Rescue services in South Africa are organized in accordance with the International Standards and Recommended Practices of ICAO and operate under the coordinating direction of the South African Search and Rescue Organization (SASAR) which acts on behalf of the Department of Transport as the authority responsible for the application of Annex 12 to the Chicago Convention and to ensure a coordinated and effective Search and Rescue service within the South African Search and Rescue Region.
Any changes, deletions or insertions to any documents in the South African AIP and other regulations, policies or standards involving Search and Rescue in any way, shall be liaised with the SASAR Secretariat and/or SASAR Executive Committee, where applicable for approval before publication.
All Air Traffic Service Units (ATSU's), as delegated by the Department of Transport, are designated SAR alerting posts.
The Aeronautical Rescue Coordination Centre (ARCC) Johannesburg is responsible for the conduct of SAR for missing aircraft, forced landings and aircraft crashes within the Aeronautical SRR under South African jurisdiction.
The ARCC Johannesburg must be alerted by all designated ATSU's to all aircraft in-flight experiencing emergencies within the Aeronautical SRR under South African jurisdiction, in order to monitor the progress and action with relevant SAR response where required.

Responsible Authority	SASAR Secretariat Department of Transport
Physical Address	Department of Transport 159 Struben Street Pretoria 0001
Postal Address	SASAR Secretariat Department of Transport Private Bag X193 Pretoria 0001
Contact Details	Director: Search and Rescue +27 12 309 3520

3 Organisation

SASAR has designated an operational facility namely the Aeronautical Rescue Coordination Centre (ARCC) in the Johannesburg Area Control Centre at OR Tambo International Airport known as the ARCC Johannesburg. It is primarily responsible for coordinating the conduct of SAR Operations within the Aeronautical South African SRR which is under the control of the ARCC Chief.

4 Rescue Coordination Centre

Responsible Organization	ARCC Johannesburg OR Tambo International Airport
Physical Address	ATNS Operational Complex Gate 14 Bonaero Drive Bonaero Park Kempton Park
Postal Address:	ARCC Private Bag X1 Bonaero Park Kempton Park 1622
Contact Details:	ARCC Chief +27 11 928 6432 +27 82 823 8493 arccchief@atns.co.za
24 Hour Alerting	ARCC Duty SMC +27 63 505 4164
Additional 24 Hour Alerting	+27 11 928 6454/5
Standby Contact	ARCC Duty SMC +27 63 505 5485
Email Address	arcc@atns.co.za
Alternate E-mail	sasar.arcc@gmail.com
AFTN	FAORYCYX
GPS Coordinates	260813.0S 281501.7E

4.1 Aeronautical Rescue Sub-Centres (RSC)

Each ATSU within the RSA can be appointed as an RSC on an ad-hoc basis provided they have been trained in SMC Duties.

4.2 Permanent RSCs

All neighboring territories within the Aeronautical SRR are considered permanent RSC's. These units are tasked permanently by the appropriate RCC to carry out certain duties of the RCC or on an ad-hoc basis when required.

Permanent RSC	Location, Address and Contact
Eswatini	Sikhuphe SAR Unit (FDSK) P.O. Box D361 The Gables H126 Eswatini Tel: +268 2333 5000/5248/5249 Fax: +268 2333 5229 AFTN: FDSKZQZX / FDSKZPZX Email: info@eswacaa.co.sz
Lesotho	Maseru RSC P.O. Box 629 Maseru Lesotho Tel: +266 22 350395 Tel: +266 22 350777 Ext. 101 AFTN: FXMMYDYX
Namibia	Eros Airport Aviation Road Olympia Windhoek Tel: +264 61 702070/1 Tel: +264 62 702490 Tel: +264 81 4097684 AFTN: FYHQYCYX

5 Procedures

5.1 Alerting Posts

A designated alerting post shall immediately inform the RCC of an emergency or potential emergency once it becomes aware of it.

The following organizations or institutions are designated as dedicated alerting posts:

ATSUs

Harbor Master's Offices

Coastal Radio Stations

South African Police Service (SAPS)

The Maritime Rescue Coordination Centre (MRCC)

The Aeronautical Rescue Coordination Centre (ARCC)

Any person or element of the SAR Organization, having reason to believe or has been informed that an aircraft is in distress, shall immediately give all available information to the relevant alerting post.

No person shall provide aeronautical search and rescue services except under the authority of SASAR in accordance with the provision of the South African Maritime and Aeronautical Search and Rescue Regulations 2016.

No person must provide search and rescue coordination functions unless

appropriately designated and certificated by the Minister and Director-General respectively.

No person must provide on-scene SAR coordination functions unless appointed in that capacity by an RCC.

5.2 Emergency Phases

All ATSUs have been designated as alerting posts and are responsible for the declaration of the appropriate phase.

The relevant SAR Phase shall be declared and the ARCC notified telephonically, immediately when an ATSU is notified of an emergency irrespective of the departure or destination of the aircraft experiencing the emergency.

Three phases of emergency have been established for classifying emergency situations and are declared as follows:

5.2.1 Uncertainty Phase (INCERFA)

A situation wherein uncertainty exists as to the safety of an aircraft and its occupants. This phase will be declared when:

a) Radio contact is lost and not re-established within 15 minutes when radio contact was required.

NOTE: Where an aircraft is equipped with VHF only and continuous radio contact cannot be maintained throughout the flight, the pilot in command should state before departure the reporting point(s) at which overdue action must be taken in the event of non-receipt of the position report, or whether overdue action is required only at destination.

b) An aircraft is known or believed to be subject to irregular operation i.e. when it is:

i)Not following the correct track or maintaining the correct flight levels.

ii)Not in normal communication.

iii)Unable to use appropriate navigation aids.

iv)Experiencing navigational difficulties.

v)Experiencing hazardous weather conditions.

c) Experiencing impaired operating efficiency/technical difficulties, but not to the extent that the flight cannot be completed.

d) An aircraft operating on a flight plan stipulating alerting action after a specified time fails to arrive or is not in contact with the ATSU by the time specified in the flight plan and preliminary checks fail to reveal the whereabouts of the aircraft.

e) An aircraft which is proceeding to an unmanned aerodrome but which is operating on an “overdue action” flight plan, fails to report the arrival to the ATSU specified in the flight plan by the time specified and preliminary checks fail to reveal the whereabouts of the aircraft.

f) An aircraft is about to make or has made a landing other than a forced landing, where the position is in doubt, on an unprepared surface or on an aerodrome that is operationally unsuitable.

g) Information is received that an aircraft is missing.

NOTES:The evaluation of other circumstances, e.g. knowledge that the aircraft is experiencing difficulties, renders it advisable to declare the uncertainty phase whether the pilot declares an emergency or not.

5.2.2 Alert Phase (ALERFA)

A situation wherein apprehension exists as to the safety of an aircraft and its occupants.
This phase will be declared when:

a) The attempts made during the uncertainty phase to establish contact with the aircraft or to gain any news from other sources have failed and the aircraft is clearly overdue;
b) Information has been received which indicates that the operating efficiency of the aircraft for which the uncertainty phase was declared or that of another aircraft has become impaired, but not to the extent that a forced landing is likely;
c) There is reason to believe that the operation of an aircraft is being interfered with;
d) The transmission of a PAN-PAN-PAN!
e) An aircraft is known to be operating in other than normal circumstances, or is LOST and there is reason to believe that in consequence the safe conduct of the flight is in jeopardy.

NOTE: “Other than normal circumstances” may include all or any of the circumstances for which the declaration of INCERFA is required and any circumstances having comparable consequences. The ALERT phase shall be declared whether the pilot declares an emergency or not.

5.2.3 Distress Phase (DETRESFA)

A situation wherein there is reasonable certainty that an aircraft and its occupants are threatened by grave and imminent danger and require immediate assistance or has crashed.
This phase will be declared when:

a) Attempts made during the alert phase to establish contact with the aircraft and to gain information through more widespread enquiries have failed and the aircraft is clearly missing and probably in distress;
b) The fuel on board is considered exhausted or insufficient for the aircraft to reach safety;
c) Information is received which indicates that the operating efficiency of the aircraft has become 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, or has crashed;
e) The transmission of MAYDAY-MAYDAY-MAYDAY!
f) A downed aircraft is inadvertently located as the result of a sighting or of homing on an ELT transmission.

g) An aircraft which has been given approach or landing instructions at an aerodrome, fails to land within 5 minutes of the expected landing time, and communications cannot be re-established with the aircraft.

h) An aircraft fails to report after take-off when instructed or expected to do so and communications cannot be re-established before the expiration of 5 minutes.

Notes: Each ATSU is entrusted with the task of alerting services for all aircraft known to it, whether the aircraft is provided with air traffic services or not; and each ATSU serves as a collecting point of all information relating to the state of emergency of an aircraft operating within the FIR concerned.

As a result, an RCC will usually receive notification that an aircraft is, or is considered to be, in a state of emergency from the ATSU with which it is associated.

Time is of the essence and emergencies shall be reported to the Duty SMC immediately.

When the nature of the emergency is such that local rescue facilities are considered to be capable of dealing with the emergency, e.g. in certain incidents occurring at or near an aerodrome where the Aerodrome Emergency Management System or Emergency Response Plan is in force within the 10km radius as published, the ATSU will act as an Aeronautical Sub-Centre and direct the necessary and appropriate search and rescue units to the scene of the accident and notify the ARCC of such actions.

In respect of an aircraft for which no flight plan has been filed, when information that the aircraft is overdue or missing is received from any source, e.g. an ATSU, the aircraft operator, relatives of the pilot, or any other person in such cases the ARCC Duty SMC shall be notified, which will investigate and act according to the information gathered. Gathering of information shall be completed as per the published SAR Regulations.

5.3 Search and Rescue Measures with regards to Flight Plans

1) Search and rescue action

i) Search and rescue action shall be instituted automatically in respect of:

a)All flights between aerodromes where air traffic services are provided; and

b)All flights conducted in controlled airspace, excluding flights crossing an airway at right angles, for which flight plans are filed prior to departure.

ii) Search and rescue action shall be instituted in respect of all domestic and international flights to aerodromes where air traffic services are not provided, for which flight plans are filed prior to departure and the pilot-in-command has specifically requested such search and rescue action.

iii) Search and rescue action shall be instituted in respect of flights for which flight plans are filed in flight when such action is specifically requested by the pilot-in-command.

iv) Pilots-in-command of flights for which search, and rescue action has been requested, who fail to comply with the search and rescue requirements, shall be responsible for any costs incurred by the air traffic service unit concerned for the provision of alerting or supporting services.

2) The Search and Rescue action referred to in regulation (ii) above, will only be instituted after a specific time. Such time should not be less than one hour after the estimated time of arrival at the destination aerodrome and the air traffic services unit to which the arrival notification will be made.

3) For flights to be conducted in controlled airspace during a portion of the flight, and then landing at an unmanned aerodrome regulation (i) (b) and (ii) will apply. This means that it is essential for the pilot-in- command to ensure that the ATSU is informed when the flight is leaving or entering controlled airspace, otherwise search and rescue action will be taken on the missed position report whilst in controlled airspace.

   e.g. A flight from Cape Town to Victoria West via SLV VOR at flight level 090 requested search and rescue action at destination. This flight will be operating in controlled airspace from Cape Town to SLV VOR (i.e. Cape Town controlled airspace and airway UA405). Should the pilot fail to report at SLV VOR, air traffic control would commence preliminary search and rescue action 5 minutes after the time of the expected report at SLV VOR. Alternatively, if a position report is received at SLV VOR, search and rescue would only be commenced at the time stated in the flight plan at destination if an arrival report or closure of flight plan report has not been received by the ATSU.

   If the pilot-in-command of this flight has stated RMK/SARNIL in Field 18 of the flight plan and failed to report at SLV VOR, the responsible ATSU would nevertheless commence preliminary search and rescue action 5 minutes after the time of the expected report at SLV VOR.

4) For flights landing at aerodromes where ATSU are in operation, pilots may assume that the ATSU will close the flight plan on arrival at the aerodrome.

5) Search and rescue action in respect of missed position reports from aircraft flying in uncontrolled airspace will only be instituted in respect of aircraft which are capable of reporting positions throughout the flight. In this case the action instituted will be similar to that instituted for aircraft flying in controlled airspace. It should be noted, however, that when a flight is bound for an aerodrome where an ATSU is not in operation and the pilot-in-command states SAR/NIL in Field 18 of the flight plan, search and rescue action will not be instituted in respect of missed position reports outside controlled airspace.

6) Pilots who request search and rescue are per regulations (ii) and (iii) above assume the responsibility to ensure that an ATSU is informed on completion of, or abandoning, their flight. Search and rescue may be cancelled on R/T by using one of the following R/T phraseologies:

   cancel my search and rescue.

If the pilot does not receive acknowledgement of his/her message on R/T, he/she must telephone notice of his/her arrival to the ATSU indicated in Field 18 of his/her flight plan before the expiry of the search and rescue time stated on the flight plan.

7) In order to avoid any misunderstanding between pilots and ATSU, Field 18 of the flight plan form must be endorsed as follows: -

i) RMK/SARNML must be indicated when the flight is bound for an aerodrome where an ATSU is in operation. RMK/SARNML must NOT be indicated when the flight is bound for an aerodrome where an ATSU IS NOT in operation.

This type of SAR shall mean the following:

a)Search and rescue action will be instituted automatically in the event of a missed position report while the aircraft is flying within controlled airspace and/or in the event of non-arrival at destination.

b)Search and rescue action will not be provided while the aircraft is flying in uncontrolled airspace, except in an emergency.

ii) RMK/SARNMLENROUTE may be indicated when the flight is bound for an aerodrome where an ATSU is in operation and the whole or portion of the flight is conducted outside controlled airspace. RMK/SARNMLENROUTE MUST NOT be indicated when the flight is bound for an aerodrome where an ATSU is not in operation.

This type of SAR shall mean the following:

a) Search and rescue action will be instituted automatically in the event of a missed position report while the aircraft is flying within controlled airspace and/or in the event of a non-arrival at destination;

b) Search and rescue action will be instituted in the event of a missed position report while the aircraft is flying in uncontrolled airspace;

c) When requesting this type of SAR, the pilot-in-command of the aircraft must be reasonably certain that it will be possible to make position reports throughout the flight and that the required reports will be made.

iii) SAR after a specified time – this type of SAR may be indicated when the flight is bound for an aerodrome where an ATSU is not in operation and shall be shown as follows:

SAR/ (air traffic services unit to be notified of arrival) (time by which notification of arrival will be made).

e.g. RMK/SARFABL0930. – meaning that BRAM FISCHER International Airport will be notified of ARRIVAL by 0930 (UTC).

It shall mean the following:

a) Search and rescue action will be instituted automatically in the event of a missed position report while the aircraft is flying within controlled airspace.

b) Search and rescue action will be instituted automatically in the event of the ATSU which is to be notified of arrival not receiving the arrival notification by the time specified in the flight plan;

c) Search and rescue action will NOT be provided while the aircraft is flying in uncontrolled airspace, except in an emergency.

iv) RMK/SARNIL – used when search and rescue action is not required.

RMK/SARNIL may only be used when the flight is bound for an aerodrome where an ATSU is NOT in operation. In this case search and rescue action will be instituted automatically in the event of a missed position report while the aircraft is flying within controlled airspace. When the aircraft has reported leaving controlled airspace no further search and rescue action will be provided, except in an emergency.

v) SAR AFTER A SPECIFIED hour/s from ETA (EXPECTED TIME OF ARRIVAL) -

This type of SAR may be indicated when the flight is bound for an aerodrome where an ATSU is not in operation and shall be shown as follows:

SAR/ (air traffic services unit to be notified of arrival) (number of hours by which notification of arrival will be from the ETA).

E.g. RMK/SARFAORETA1HR

RMK/SARFALAETA2HR

It shall mean the following:

a) Search and rescue action will be instituted automatically in the event of a missed position report while the aircraft is flying within controlled airspace.

b) Search and rescue action will be instituted automatically in the event of the ATSU which is to be notified of the arrival, not receiving the arrival notification by the ETA of the aircraft plus the stipulated hour/s.

c) Search and rescue action will NOT be provided while the aircraft is flying in uncontrolled airspace, except in an emergency.

vi) SAR EN-ROUTE AFTER SPECIFIED TIME

This type of SAR may be indicated when the flight is bound for an aerodrome where an Air Traffic Service is not in operation, and will be shown as follows:

SAR/ (Air Traffic Services Unit to be notified of arrival) (time by which notification of arrival will me made en-route).

e.g. SARENROUTEFABL0930.

It shall mean the following:

a) Search and Rescue action will be instituted automatically in the event of a missed position report while flying in controlled airspace;
b) Search and Rescue action will be instituted automatically in the event of the Air Traffic Services Unit, which is to be notified of arrival not receiving the arrival notification by the time specified in the flight plan;
c) Search and Rescue action will be instituted in the event of a missed position report while the aircraft if flying in uncontrolled airspace;
d) When requesting this type of SAR, the pilot-in-command of the aircraft must be reasonable certain that it will be possible to make position reports throughout the flight and that the required reports will be made.

8) In this context an Air Traffic Services Unit shall mean a Unit manned by personnel authorized by the:

SACAA or South African National Defence Force (South African Air Force).

9) The attention of pilots is drawn to CAR 91.03.4 of the Rules of the Air, and General Operating Rules, regarding the constitution of a flight plan. It should be noted that if the data, as laid down in the CAR's, is not submitted, search and rescue action may not be provided. Pilots-in-command should therefore ensure that all relevant data is submitted to the appropriate ATSU, particularly when filing an in-flight flight plan.

10) Pilots are further reminded that a flight plan filed before departure will not be activated unless a time of departure has been received by an ATSU. When departing from an aerodrome where an ATSU is in operation it may be assumed that the flight plan will be activated by that unit. Conversely, when departing from an aerodrome where an ATSU is not in operation the pilot-in-command must ensure that an ATSU receives the time of departure.

5.3.1 Activation of Flight Plan with Search and Rescue Requirement

Search and rescue can only be instituted when a valid filed flight plan has been activated.

Activation of a valid flight plan search and rescue action will be automatic in the following instances:

a) Departure signal via AFTN and/or voice liaison between ATSU's,

b) Voice communication with ATSU's,

When the flight is of such a nature where voice communication with any ATSU will prove difficult, the following methods to activate a valid flight plan shall apply:

1)Notifying an ATSU by means of a telephone call requesting that the flight plan be activated.

2)Relay via another aircraft on frequency.

Cancellation of Flight Plan Search and Rescue

Due to the high costs and man hours involved in any Search and Rescue action, it is imperative that pilots/operators cancel Search and Rescue with the ATSU within the stipulated time as requested on the flight plan.
Any overdue SAR which turns out to be a false operation places unnecessary strain on limited resources.
This cancellation can be done by calling the ATSU which has been stipulated on the filed FPL or on Frequency or phoning an ATSU which has been stipulated on the filed FPL after landing.
The ATSU receiving this cancellation shall be responsible for:

a) Contacting the ATSU with whom SAR was filed on the flight plan (if different from the one receiving the notification) and advise them of the aircraft's safe arrival upon which the necessary Occurrence Log entry shall be made.

b) If the ATSU/ARCC is unsure if the pilot has cancelled his/her SAR: the ATSU/ARCC to contact the ATSU which has been nominated for SAR on the filed FPL.
If no cancellation was recorded, PRE-COMMS should begin.
c) If an 'ARR' message is received on the AIMU Flight planning queue, staff are to ACCEPT the ARR message. No further action is required by the AIMU.

5.4 Aircraft subject to an Emergency

An aircraft subject to an emergency should notify the appropriate ATSU without hesitation to ensure that effective action may be taken without delay. In this respect remember the "Five Golden Rules":

CONFESS your predicament to any ATSU to enable the organization to assist while there is still time.

COMMUNICATE with the ATSU, passing as much of the pertinent information in the first message.

CLIMB, if possible for improved direction-finding and radar coverage.

COMPLY with instructions and advice given and assist the ATSU to control communication on the frequency in use. Do not change frequency unless it is absolutely necessary.

CONSERVE – slow down and select power for maximum endurance.

5.5 Aircraft observing another aircraft in Distress

An aircraft observing another aircraft in distress, making a crash-landing, ditching, aircrew ejecting or bailing-out, or a dinghy, shall (where possible) take action as follows:

Keep the aircraft or personnel in distress in sight.

If at sea and a surface vessel is in sight and can be contacted without losing sight of the distressed personnel, guide it to the position;

If the aircraft in distress has not been able to transmit a distress signal, or if the captain of the aircraft observing the distress believes that further help is needed, transmit a message containing all relevant information to the controlling ground station on the frequency in use;

Obtain as accurate a position as possible by the best available means and transmit if necessary, the correct position to the controlling ground station;

Carry out instructions from the controlling ground station, or remain in position until instructed to return, or until circumstances compel departure.

If the first aircraft to reach the distress scene 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 distress scene. 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.

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.

5.6 Emergency Communication from Aircraft

Emergency communications from aircraft are divided into two categories as follows:

Distress: covers aircraft threatened by grave and imminent danger and in need of immediate assistance.

Urgency: identifies a very urgent message concerning the safety of an aircraft.

5.7 Distress Communication

The distress message sent out by an aircraft must be preceded by the distress signal MAYDAY preferably spoken three times and should:

Be transmitted on the air/ground frequency in use at that time.

Consist of as many as possible of the following elements, spoken directly and, if possible, in the following order:

The name of the station addressed (time and circumstances permitting)

The identification of the aircraft.

The nature of the distress condition.

The intention of the pilot in command.

Present position, level (flight level, altitude as appropriate) and heading.

Any other useful information.

5.7.1 Aircraft Intercepting a Distress Call

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 RCC or ATSU 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;
f) Attempt to establish communications with the person(s) in distress.
g) Listen out on the frequency used by the distress aircraft;

h) If no acknowledgement of the distress message is heard, call the aircraft in distress and acknowledge receipt.

5.7.2 Progress Reports from aircraft subject to an Emergency

Whenever a pilot monitors 121.5 MHz, and intercepts a transmission from a distress beacon, the pilot shall also:

a) record, and report as soon as possible, the position where the transmission was first received;

b) not alter any settings for squelch on the aircraft's radio; and

c) if feasible, continue to monitor the frequency until such time as the signal ceases, and inform the appropriate rescue coordination centre or air traffic services unit of such.
Note:Retaining the existing settings for squelch from the time the transmission is first received until the signal ceases provides rescue coordination centres with the most accurate potential location of the distress beacon.

5.8 Urgency Call

In addition to being preceded by the radiotelephony urgency signal PAN, preferably spoken three times, the urgency message to be sent by an aircraft reporting an urgency condition must:

Be on the air-ground frequency in use at the time.

Consist of as many as required of the elements spoken distinctly and, if possible, in the following order:

Name of the station addressed (time and circumstances permitting)

Identification of the aircraft.

Nature of the urgency condition.

Intention of the pilot in command.

Present position, level (flight level, altitude as appropriate) and heading.

Any other useful information.

5.9 Action after crashed or forced Landing

The pilot of an aircraft which has crashed or force landed shall use his own discretion on whether to remain at the aircraft or attempt to reach help.

Factors which could influence this decision:

If the aircraft was operating on an SAR action flight plan and the aircraft has crashed or force landed in a desert area, a swamp area or a very sparsely populated area, it is advisable to remain at the aircraft and take such of the following action as may be appropriate or possible.

Take steps to conserve the strength of survivors, e.g. avoid unnecessary exertion in the sun.

Conserve available water and food supplies.

If a usable radio transmitter is available, make transmissions using the distress procedure, giving the aircraft's position and any other pertinent data, at H + 15 and H + 45. These transmissions should be kept as short as possible to conserve battery power. (H + 15 and H + 45 are 15 and 45 minutes past the hour, e.g. 07:15 and 07:45, 12:15, 12:45 etc.)

If flares are carried they should be conserved for use when search aircraft, ships or ground search parties are known to be in the vicinity. The danger of falling flares starting veld and bush fires must be borne in mind before using the flares.

If possible, place aircraft in a conspicuous position. Engine cowls, doors or other removable parts of the aircraft should be removed, polished-up and placed where they will reflect the rays of the sun. Fine sand can be used to remove paint from metal surfaces.

Light smoke fires.

If the aircraft has crashed or force landed in a settled area where help is near at hand it is better to leave the aircraft to look for help. In such cases SAP stations will render such assistance as they can.

The pilot should inform the unit he has called upon for help that he is operating on an "overdue action" flight plan and ask them to advise the nearest ATSU of his whereabouts.

5.10 Pilot Notification

The efficacy of the SAR action by ATSU's, ATCC's or the ARCC is directly related to the amount and accuracy of details notified in the reporting of an emergency and to any position reported in flight. When reporting in-flight emergencies or difficulties, early advice and the degree of apprehension felt by the pilot will enhance the assistance which can be provided by the ground organization.

When a pilot lands at a place other than the aerodrome included in the flight plan, the pilot should report the fact to the nearest ATSU or the ARCC.

5.11 Participation in Searches

No person shall participate in any SAR Operation without a formal tasking from the ARCC.

Search aircraft shall conduct their flights in accordance with Search Mission Coordinators (SMC's) instructions.

All tracks flown are to be carefully recorded and any portions of the assigned area which were not effectively searched due to fog, rain, etc., shall be recorded and brought to the attention of the SMC.

All aircraft participating in a SAR Operation shall be identified by a "RESCUE" callsign allocated to them by the designated SMC.

5.12 Flights into SAR Operational Areas

Aircraft may enter an area in which SAR operations are in progress, and which has been promulgated by Class 1 NOTAM, only with the express permission of the SMC in charge of a SAR operation.

All flights into, in or through such SAR areas shall be subject to the direction of the responsible RCC.

5.13 Assistance offered for SAR Operations

Private aircraft owners/operators willing to support the ARCC during SAR operations are to send an email to the ARCC indicating their willingness to assist. The information will be entered into a volunteer database.

For active search assistance, Private aircraft owners/operators shall be notified to report to the ARCC and may only proceed when they are formally tasked by the ARCC.

6 Emergency Locator Transmitter (ELT)

6.1 General

The essence of a successful SAR operation is the speed with which it can be accomplished. In each incident the SAR organisation will always assume that there are survivors who need help and whose chances of survival diminish with time. ELTs facilitate rapid location of a distress incident by day and night.

These battery operated radio transmitters emit a radio signal modulated by a distinctive downward swept audio tone. ELT's operate on 406 MHz for detection by the COSPAS-SARSAT satellite system and have a 121.5 MHz homing signal capability.

Note: While the installation and use of automatic ELT's saves lives, improper use will lead to false alarms and a resultant strain on scarce SAR resources.

RESPONSIBLE ORGANIZATION	LOCATION, ADDRESS AND CONTACT
ASMCC	Telkom maritime services (South Africa Mission Control Centre)
	Postal Address: Private Bag X1 Milnerton 7435
24 Hour alerting	+27 21 551 2617
Additional 24 Hour alerting	+27 21 552 9752
E-mail	maritimeradio@ixmail.co.za (no attachment accepted)
Alternate Email	maritimeradio@telkom.co.za
AFTN	FACTYCYX

6.2 Monitoring 121.5MHZ

Pilots should monitor 121.5MHz before engine start and after shutdown, however aircraft on long over-water flights, or on flights over designated areas over which the carriage of an emergency locator transmitter (ELT) is required, shall continuously guard the VHF emergency frequency 121.5 MHz, except for those periods when aircraft are carrying out communications on other VHF channels or when airborne equipment limitations or cockpit duties do not permit simultaneous guarding of two channels.

Reception of 121,5Mhz transmissions must be reported to Air Traffic Services (ATS) or the ARCC immediately.

6.3 Inadvertent Activations

Inadvertent activation of ELTs has occurred on numerous occasions in South Africa. It can occur as a result of hard landing and accidental activation during aircraft servicing or mishandling.

To detect an inadvertent activation pilots should: prior to engine shut down at the end of each flight, tune the aircraft receiver to 121.5 MHz and listen for transmitted signals; and

If a signal is heard, ensure that their own aircraft's ELT is not operating. If it is found that it has been activated, switch it off and take the action described in 6.3.2.

Note: Maintenance may be required before an automatic activation unit is returned to the armed position.

6.3.1 Any person detecting the inadvertent activation of an ELT must report the activation immediately to the nearest ATS, ASMCC or the ARCC so that any SAR action that may have commenced because of the transmission may be terminated.

6.4 Testing of ELT'S

Operational testing of ELTs is not permitted unless done in a faraday cage. Testing of ELTs is to be done in beacon test mode as described in the beacon instruction manual.

Detailed ELT testing procedures can be found on the COSPAS-SARSAT website: https://cospas-sarsat.int

6.5 PLBs used in Aviation

PLBs must not be used to substitute mandatory ELT carriage requirements where applicable. Owners and operators of PLBs are to be mindful of the limitations of the PLBs when used in an aviation environment. Owners, operators or crew of an aircraft utilizing PLBs in the aviation environment are to ensure that the beacons are registered correctly and are COSPAS-SARSAT type approved.

6.6 Other Emergency Trackers

Although the ARCC does not monitor other emergency tracking devices, users shall make sure that the people or companies tracking them should know to notify the ARCC immediately when an emergency is reported.

6.7 Beacon Registration

All owners and operators shall comply with the ELT regulatory provisions as contained in the South African Beacon Emergency regulations.

NOTE: Registering of an aircraft does not automatically register the ELT and change of ownership on an aircraft does not automatically change the ELT information. ELT registrations is a separate registration that must be done in terms of the relevant registration regulations.

6.8 COSPAS-SARSAT

6.8.1 General

The COSPAS-SARSAT System provides distress alert and location information to search and rescue (SAR) services throughout the world for maritime, aviation and land users in distress.

The System is comprised of:

Satellites in low-altitude Earth orbit (LEOSAR), medium-earth orbit (MEOSAR) and geostationary orbit (GEOSAR) that process and/or relay signals transmitted by distress beacons.

Ground receiving stations, called “local user terminals” (LUTs), which process the satellite signals to locate the beacon.

Mission control centers (MCCs) that distribute the distress alert information to SAR authorities and RCC’s.

COSPAS-SARSAT operates on 406.00 MHz; location accuracy is normally better than 5 km through the polar orbiting satellites, whereas the geostationary satellites require position information to be included in the ELT alert transmission. Where this position is input from onboard navigation systems, the position accuracy is usually better than 1 km.

Satellite reception and processing of legacy analogue-technology 121.5 MHz beacon signals ended on 1 February 2009. 121.5MHz signals transmitted by ELT’s are only used for homing.

6.9 SRRs

6.9.1 Aeronautical SRR

The Aeronautical SRR covers the continental area of the sovereign territory of the Republic of South Africa, Namibia, Eswatini and Lesotho and associated flight information regions.

The South African Aeronautical area of responsibility is the area defined by the following points:

a) From a point at 200000.00S 0100000.00W along a straight line to a point at 180000.00S 0050000.00W,

b) Thence along a straight line to a point at 180000.00S 0100000.00E,

c) Thence along a straight line to the point where the international boundary between Namibia and Angola meet at the coast at 171500.00S 0114500.00E,

d) Thence East proceeding along the international boundaries between Namibia and Angola to a point at 175700.00S 0210000.00E,

e) Thence East along the international boundaries between Namibia, Angola, and Zambia to a point at where the international boundaries of Zambia, Zimbabwe and Botswana converge at 174730.00S 0251530.00E,

f) Thence West along the Botswana and Namibia international boundary to a point at 181930.00S 0210000.00E,

g) Thence South along the Botswana and Namibia international boundary to a point at 244600.00S 0200000.00E,

h) Thence South East along the South Africa and Botswana international boundaries to a point at 264927.00S 0210136.00E,

i) Thence East along the South Africa and Botswana, South Africa and Zimbabwe, South Africa and Mozambique, and Mozambique and Eswatini international boundary to a point at 265024.88S 0320805.29E,

j) Thence East along the South Africa and Mozambique international boundary to a point at 265030.00S 0325350.00E,

k) Thence along a straight line to a point at 275000.00S 0350000.00E,

l) Thence along a straight line to a point at 300000.00S 0400000.00E,

m) Thence along a straight line to a point at 300000.00S 0570000.00E,

n) Thence along a straight line to a point at 450000.00S 0570000.00E,

o) Thence along a straight line to a point at 450000.00S 0750000.00E,

p) Thence along a straight line to a point at 900000.00S 0450000.00E (South Pole),

q) Thence along a straight line back to the starting point at 200000.00S 0100000.00W.

6.9.2 MARITIME

The Maritime SRR covers the sea area bordering the continental areas above, commencing at the position where the international borders between Namibia and Angola coincide on the coast proceeding in a Westerly direction to:

18S 10W,

Then to the South Pole,

Then to 50S 75E,

Then to 50S 45E,

Then to 30S 40E,

Then to 26,5S 40E and

Then to the position where the international border between RSA and Mozambique coincide on the coast (26.5S 35E).

6.10 Special Events

Emergency response plans for aviation events involving an increase of flight activity, excluding the Airfield Emergency Management System (AEMS) outside the 10km radius of an airfield, must be forwarded to the ARCC, as these events have a greater risk of potential SAR operations.

The sharing of AEMS for all South African Airfields with the ARCC is mandatory in terms of South African Law.

7 Search and Rescue Signals

The search and Rescue Signals to be used are those prescribed in Annexure B to the Rules of the Air, Air Traffic Services, Search and Rescue and Overflight Regulations, 1975, which are identical to those contained in appendix “A” to Annex 12 to the Convention on International Civil Aviation.

Ground/Air Emergency signalling codes

The following codes are the internationally accepted codes for survivors to use to communicate with aircraft.

No.	Message	Code symbol
1	Require assistance	
2	Require medical assistance	
3	No or Negative	
4	Yes or affirmative	
5	Proceeding in this direction	

The following code will be used by rescue units to communicate with aircraft when no other means of communication exists.

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 2 groups each proceeding in direction indicated	
6	Information received that aircraft is in this direction.	
7	Nothing found. Will continue to search	

Note:
All FLT where the FLW types of SAR have been REQ:
1. SAR AFT a specified time: example (RMK/SARFAOR0930)
2. SAR AFT specified HR FM ETA: example (RMK/SARFAORETA1HR)
3. SAR AFT specified time en-route: example (RMK/SARFAOR0930ENROUTE),
Pilots will include a cellphone NR as an AFT HR CTC. This is to assist the aeronautical rescue coordination centre (ARCC) when SAR is overdue AFT office HR.