GEN 3.6   SEARCH AND RESCUE

1   RESPONSIBLE SERVICE

1.1   Organisation

1.1.1   The New Zealand Search and Rescue (SAR) organisation is established to provide assistance to persons in distress in compliance with normal humanitarian standards and, more particularly, where aircraft or ships are involved, in accordance with international Conventions which require New Zealand to provide a 24-hour SAR service throughout the New Zealand Search and Rescue Region (SRR).

1.2   Classes of SAR

1.2.1   SAR operations in New Zealand are divided into two classes. Category I are limited operations controlled by New Zealand Police utilising police and some civil resources; Category II are SAR operations controlled by the Rescue Coordination Centre New Zealand (RCCNZ), Wellington, utilising all necessary available military and civil resources.

1.3   Rescue Coordination Centre (RCC)

1.3.1   Section 14B(1)(a) of the Civil Aviation Act 1990 requires the Minister of Transport to establish, maintain, and operate a search and rescue coordination centre (RCC) to coordinate and conduct aviation, maritime, and other search and rescue operations that the Minister considers appropriate. Section 14C empowers the Minister to direct the Civil Aviation Authority, Maritime New Zealand or any other appropriate Crown entity or government agency for which the Minister is responsible, to operate and maintain the RCC established under S14B(1)(a).

1.3.2   The Rescue Coordination Centre New Zealand (RCCNZ) is operated by Maritime New Zealand and is located in Avalon, Lower Hutt. RCCNZ is staffed H24, and is responsible for initiating and directing Category II SAR operations in the New Zealand SRR.

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406 MHz Beacon registration
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24-hour emergency numbers are:
New Zealand: 0508 4 RCCNZ (0508 472 269)
International: +64 4 577 8030

Note: for reporting aircraft accidents see GEN 1.1 para 2.1.1(i).

2   AREA OF RESPONSIBILITY

2.1   New Zealand SRR

2.1.1   The New Zealand SRR is depicted in Figure GEN 3.6-1.

Figure GEN 3.6-1
New Zealand Search and Rescue Region

3   RESCUE UNITS

3.1   Search and Rescue Units (SRU): Capability and Availability

3.1.1 While there are no dedicated SRU in New Zealand, a range of military, commercial, and volunteer aircraft and vessels are available to carry out search and/or rescue activities within the SRR when requested by RCCNZ.

Air Rescue Units

3.1.2 Air units, aircraft capabilities and equipment are shown in Table GEN 3.6-1. These resources are augmented by civil aircraft sited throughout the country. Civil SAR unit details are maintained on a SAR Operator database, and can be selected on a location/capability basis, and engaged by RCCNZ as required.

Marine Rescue Units

3.1.3 Marine rescue units are available as follows:

(a)   One Royal New Zealand Navy vessel for oceanic SAR available at eight hours' notice; and

(b)   One Naval inshore vessel for coastal SAR available at eight hours' notice.

3.1.4 The following civil maritime craft may also be used for SAR:

(a)   New Zealand Volunteer Coastguard crews and craft for close-to-shore operations; and

(b)   Merchant vessels in the vicinity of a distress incident at sea.

Table GEN 3.6-1
Air Rescue Units

Base	Aircraft Type	Radius of action/time on station	Cruise speed/Patrol speed	Equipment	Availability
Auckland	Orion (P3K)	1200 NM/ 5.40 HR	350 kt/ 180–220 kt	Lindholme Supply units Variable	One of type at 2 HR
	Hercules (C130H)	1200 NM/ 5.00 HR	300 kt/ 150–170 kt	Lindholme Supply units Variable	
Ohakea	NH90	180 NM/ 20 MIN	140 kt/90 kt	Winch rescue capability	2 HR
McMurdo (Antarctica)	Oct–Feb (incl) Hercules (LC-130) NH90	1000 NM/ 4.00 HR 100 NM/ 2.00 HR	280 kt/150 kt 110 kt/90 kt variable	Mark 20 Liferafts Winch, air deployable para-rescue teams	3 HR
	Mar–Sep (incl) Nil				

4   SAR AGREEMENTS

4.1   General

4.1.1   New Zealand has SAR agreements with Australia, New Caledonia, Samoa, Tonga and the United States. Agreements with the Cook Islands, Tahiti and Fiji are being developed.

5　PROCEDURES AND SIGNALS USED

5.1　Procedure for an Aircraft Requiring SAR Escort

5.1.1　If the pilot of an aircraft, whilst flying over water or a sparsely inhabited area, has any reason to believe that the operating efficiency of the aircraft is impaired, the appropriate ATS unit should be notified so that the RCC is forewarned should the situation deteriorate. If, at this stage or later, the pilot considers it advisable, interception and escort by a SAR aircraft may be requested. Consideration should also be given to activating the aircraft ELT if ditching is likely.

5.1.2　Disparity in speeds and normal altitudes between some aircraft and SAR aircraft may not permit continuous escort in the accepted sense. The SAR aircraft may turn back along the intended track of the aircraft requiring escort before the interception, so that the latter is catching up with the former. It is most important that radiotelephony (RTF) contact is established between the two aircraft as early as possible and maintained throughout the operation.

5.2　Procedures for a Pilot Observing a Distress Incident

5.2.1　A pilot observing that either another aircraft or a surface craft is in distress, unless unable or in the circumstances of the case considers it unreasonable or unnecessary, must:

(a)　keep the craft in distress in sight until no longer necessary or until no longer able to remain in the vicinity of the distressed craft;

(b)　if position is not known with certainty, take such action as will facilitate the determination of it;

(c)　report to the RCC or aeronautical station as much of the following information as possible:

　　(i)　type of craft in distress, its identification and condition;

　　(ii)　its position, expressed in geographical coordinates or in distance and true bearing from a distinctive landmark;

　　(iii)　time of observation (in UTC);

　　(iv)　number of persons observed;

　　(v)　whether persons have been seen to abandon the craft in distress;

　　(vi)　number of persons observed to be afloat; and

　　(vii)　apparent physical condition of survivors.

(d)　act as instructed by the RCC.

5.2.2　If the pilot of the first aircraft to reach the place of the incident is unable to establish communication with an aeronautical station, that pilot should take charge of activities of all other aircraft that arrive until handing control over to the aircraft best able to provide communication.

5.3   Procedures for a Pilot Intercepting a Distress Message

5.3.1   Whenever a distress message is intercepted on radio by a pilot of an aircraft, other than a search aircraft, the pilot is required to:

(a)   if possible take a bearing on the transmission;

(b)   listen out and if no acknowledgement is heard, acknowledge receipt and relay the message to the appropriate aeronautical station by any means available;

(c)   if necessary, exercise control of communications until the aeronautical station is able to take control;

(d)   plot the position of the craft in distress if given; and

(e)   at the pilot's discretion, while awaiting instructions, proceed to the position given in the distress message.

5.4   Non-radio Distress and Urgency Signals

5.4.1   In a distress situation, if radio is not available, any of the following distress signals may be used as an alternate means of obtaining assistance:

(a)   rockets or shells throwing red lights, fired one at a time or at short intervals; and/or

(b)   a parachute flare showing a red light; and/or

(c)   activate an emergency locator beacon.

5.4.2   In an urgency situation, if radio is not available, the following urgency signals may be used as an alternative:

(a)   a succession of green pyrotechnic lights;

(b)   a succession of green flashes with signal apparatus.

5.4.3   In addition to the above, the following signals used either together or separately, mean that the pilot of an aircraft wishes to notify difficulties which compel it to land without requiring immediate assistance:

(a)   the repeated switching on and off of the landing lights;

(b)   the repeated switching on and off of the navigation lights;

(c)   a succession of white pyrotechnic lights.

5.4.4   If a forced landing has been made, every effort should be made to attract attention using the "Ground–Air visual signal code".

5.5   Procedure for Directing a Surface Craft to a Distress Incident

5.5.1   When it is necessary for a pilot to direct a surface craft to the place where an aircraft or surface craft is in distress, the pilot should do so by transmitting precise instructions by any means available. If such precise instructions cannot be transmitted, they should be given by carrying out the following procedure:

(a)   circle the surface craft at least once;

(b)   cross the projected course of the surface craft close ahead at low altitude:

     (i)   rocking the aircraft; or

     (ii)   opening and closing the throttle; or

     (iii)   changing the propeller pitch.

(c)   then heading in the direction in which the surface craft is to be directed and

(d)   repeat these procedures until the surface craft acknowledges.

5.5.2   Because of the high noise levels on board surface craft the sound of changes in throttle settings and propeller pitch may be less effective than rocking the aircraft, and are regarded as an alternative means of attracting attention.

5.5.3   Current maritime signalling procedures are:

(a)   for acknowledging receipt of signals:

     (i)   hoisting of the "Code pennant" (vertical red and white stripes) close up (meaning understood);

     (ii)   flashing a succession of morse code "T"s (T -) by signal lamp;

     (iii)   changing of heading.

(b)   for indicating inability to comply:

     (i)   hoisting of the international flag "N" (blue/white checks, 16 squares);

     (ii)   flashing a succession of morse code "N"s (N -•) by signal lamp.

5.6   Procedure to Signify that Assistance from a Surface Craft is no Longer Required

5.6.1   When assistance of a surface craft is no longer required an aircraft should cross the wake of the surface craft close astern at low altitude:

(a)   rocking the aircraft; or

(b)   opening and closing the throttle; or

(c)   changing the propeller pitch.

5.6.2   As noted previously, because of the high noise levels on board surface craft, rocking the aircraft may be more effective than changing throttle settings or propeller pitch in attracting attention.

**5.7   Long-distance Telephone Calls — Emergencies**

5.7.1   Within New Zealand, telephone calls in cases of extreme emergency should be made using the "111" system. In cases where a telephone company or Defence telephone operator is involved, the priority "FLASH" may be used. This priority is only to be used in cases of extreme operational urgency when safety of life is involved e.g. aircraft in distress, aircraft crash, forest fire, etc.

5.8   Ground–Air Emergency Visual Signalling Code

5.8.1   The standard ground–to–air visual emergency signalling code and the standard visual signalling code for communication from ground search parties to search aircraft are detailed in Table GEN 3.6-2.

Table GEN 3.6-2
Ground–air visual signal code

No.	Message	Code Symbol
Ground–air visual signal code for use by survivors		
1	Require assistance.	**V**
2	Require medical assistance.	**X**
3	No or Negative.	**N**
4	Yes or Affirmative.	**Y**
5	Proceeding in this direction.	↑
Additional signal for use in New Zealand only		
6	All well.	**LL**
Ground–air visual signal code for use by rescue units		
No.	Message	Code Symbol
1	Operation completed.	**LLL**
2	We have found all personnel.	**LL**
3	We have found only some personnel.	++
4	We are not able to continue. Returning to base.	**XX**
5	Have divided into two groups. Each proceeding in direction indicated.	⇄
6	Information received that aircraft is in this direction.	⟶ ⟶
7	Nothing found. Will continue to search.	**NN**

5.8.2 Symbols should be formed by using strips of fabric, parachute material, pieces of wood, stones or any other available material, taking the following into account:

(a)   Make symbols not less than 2.5 m high (larger if possible) and exactly as depicted.

(b)   Provide maximum colour contrast.

(c)   When ground is covered with snow, signals can be made by digging, shovelling, or trampling the snow. From the air the symbols will appear to be black.

5.8.3 Endeavour to attract attention by other available means such as:

(a)   radio, signal light, flares, heliograph, smoke or flames;

(b)   a signal consisting of a square flag with above or below it a ball or anything resembling a ball;

(c)   the two flag signal corresponding to the letters NC of the international Code of Signals
N — blue/white checks, 16 squares;
C — blue/white/red/white/blue horizontal bars; and

(d)   sea marker dye.

5.9   Aid to Aircraft in Detecting Distressed Small Craft

5.9.1   To aid aircraft in detecting small craft in distress, such craft are advised to carry a 1.8 m x 1.2 m, or larger, fluorescent sheet for use in an emergency. These sheets should be coloured orange/red and bear a black letter "V" not less than 750 mm high. Although use of these sheets is not yet accepted internationally, the letter "V" in the international code has the meaning "I require assistance". Therefore, pilots observing such a signal displayed in a prominent position on a small craft should interpret it as a distress signal and act accordingly.

5.10   Acknowledgement by Search Aircraft

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

(a)   during the hours of daylight — rocking the aircraft;

(b)   during the hours of darkness — flashing on and off twice the aircraft landing lights, or, if not so equipped, switching on and off twice the navigation lights.

5.10.2 Lack of the above signal means that the ground signal is not understood.

6 EMERGENCY LOCATOR TRANSMITTER (ELT)

6.1 General

6.1.1 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. ELT facilitate rapid location of a distress incident by day and night and their carriage is now compulsory in most New Zealand registered aircraft (see GEN 1.5) and surface vessels. These battery operated radio transmitters emit a radio signal modulated by a distinctive downward swept audio tone. ELT operate on 121.5 MHz (for homing purposes), and a formatted digital data burst at 50-second intervals on 406 MHz (for detection by satellite).

6.2 ELT Activation

6.2.1 To prevent valuable search time being wasted it is imperative that:

(a) All ELTs are registered with RCCNZ.

(b) Any ELT that is not automatically activated is switched on as soon as possible before or after any emergency and left on until rescued.

(c) If the emergency situation is recovered, ATS or RCCNZ is notified first then the ELT is switched off.

(d) If the ELT is switched off and ATS or RCCNZ have not been notified as soon as possible, it will be assumed that the aircraft has crashed and search planning and a SAR response will have commenced.

6.2.2 The pilot of an aircraft in a distress situation **should** activate the ELT while still in flight.

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6.3   Inadvertent Activation

6.3.1   Inadvertent activation of ELT has occurred on numerous occasions in New Zealand. It can occur as a result of aerobatics, hard landing, or accidental activation during aircraft servicing. To detect an inadvertent activation pilots should:

(a)   prior to engine shut down at the end of each flight, tune the aircraft receiver to 121.5 MHz and listen for ELT signals; and

(b)   if an ELT 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 then switch it off.

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

6.3.2   Any person detecting the inadvertent activation of an ELT must report the activation immediately to the nearest ATS unit in order that any RCCNZ action commenced as a result of the transmission may be terminated.

6.4   ELT Testing

6.4.1   Live testing of 406 MHz is **NOT** permitted unless coordinated with RCCNZ at least two working days prior to the test, and with notification of the ELT HexID/UiN, time and location of the test, and the person to contact during the test.

6.4.2   ELT transmitter test is authorised ONLY on 121.5 MHz as follows:

(a)   tests should be no longer than three audio sweeps and NOT exceed 20 seconds; and

(b)   tests may be conducted on 121.5 MHz only within the time period made up of the first five minutes after each hour. Emergency tests outside this time must be coordinated with both the nearest ATS unit and RCCNZ. Airborne ELT tests are **NOT** permitted.

6.5   ELT Reporting Procedures

6.5.1   On receiving an ELT signal, pilots must report the following information to the nearest ATS unit:

(a)   aircraft position and time when the signal was first heard;

(b)   aircraft position and time when the signal was last heard;

(c)   aircraft position at maximum signal strength; and

(d)   aircraft level, strength and frequency of emergency signal on 121.5 MHz.