Merchant Ship Search and Rescue Manual (MERSAR)

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Foreword

In 1969 IMO considered search and rescue matters, and as a first step prepared the *Merchant Ship Search and Rescue Manual (MERSAR).* This manual was adopted by the seventh IMO Assembly in 1971.

The purpose of this Manual is to provide guidance to those who, during emergencies at sea, may require assistance or may be able to render assistance. In particular, it was designed to help the master of any ship who might be called upon to participate in search and rescue operations.

Following the adoption of the International Convention on Maritime Search and Rescue, 1979 and approval of the *IMO Search and Rescue Manual (IMOSAR Manual)* by the thirty-eighth session of the Maritime Safety Committee, the *MERSAR Manual* was revised to take account of the provisions of the Convention and also to align it, where appropriate, with the *IMOSAR Manual.* Since that time the *MERSAR Manual* has been amended by the Maritime Safety Committee on a number of occasions to take account of technological changes and related amendments to international conventions, resolutions and recommendations affecting SAR operations and procedures.

The present fifth edition (I 993) of the manual incorporates all amendments adopted by the Maritime Safety Committee up to and including those adopted at its sixtieth session (6-10 April 1992), which became applicable on 8 April 1993.

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Introduction

0.1 Purpose

0.1.1 The purpose of this Manual is to provide guidance for those who during emergencies at sea may require assistance from others or who may be able to render such assistance themselves. In particular, it is designed to aid the master of any vessel who might be called upon to conduct search and rescue (SAR) operations at sea for persons in distress.

0.2 Categories of distress incidents

0.2.1 In general, distress incidents fall into two main categories:

.1 **coastal** - in which some or all of the following may be available to assist: ships, aircraft, helicopters and shore-based life-saving facilities; -

.2 **ocean** - in which ships and long-range aircraft may be available although, in the more remote ocean areas, only ships may be available.

0.3 Obligations and responsibilities

0.3.1 The basis for this Manual is the international conventions which set out responsibilities for assistance at sea. It is accepted as the normal practice of seamen, indeed there is an obligation upon masters, that they render every assistance within their power in cases where a person or persons are in distress at sea. These obligations are set out in regulation V/10 of the International Convention for the Safety of Life at Sea, 1974 (SOLAS 1974), which is quoted in annex 3.

0.4 Position-reporting systems

0.4.1 Position-reporting is an instrument for search and rescue. Therefore, masters are encouraged to make full use of position-reporting arrangements and facilities wherever they exist.

0.5 Abbreviations

CES	coast earth station
CRS	coast radio station
Cs	call sign
CSP	commence search point
css	coordinator surface search
D/F	direction-finding
ELT	emergency locator transmitter
EPIRB	emergency position-indicating radio beacon
ETA	expected time of arrival
HF	high frequency
INTERCO	*International Code of Signals*
MERSAR	*Merchant Ship Search and Rescue Manual*
MF	medium frequency
osc	on-scene commander
RCC	rescue co-ordination centre
RSC	rescue sub-centre
RU	rescue unit
SAR	search and rescue
SITREP	situation report
SRR	search and rescue region
UTC	Universal Time (Co-ordinated)
VHF	very high frequency

0.6 Terms and definitions

The terms listed below are taken from the International Convention on Maritime Search and Rescue, 1979, and have the following meanings:

.1 *search and rescue region.* An area of defined dimensions within which search and rescue services are provided.

.2 *rescue co-ordination centre.* 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.

.3 *rescue sub-centre.* A unit subordinate to a rescue co-ordination centre established to complement the latter within a specified area within a search and rescue region.

.4 *rescue unit.* A unit composed of trained personnel and provided with equipment suitable for the expeditious conduct of search and rescue operations.

.5 *on-scene commander.* The commander of a rescue unit designated to co-ordinate search and rescue operations within a specified search area.

.6 *coordinator surface search.* A vessel, other than a rescue unit, designated to co-ordinate surface search and rescue operations within a specified search area.

Chapter I Co-ordination of search and rescue operations

1.1 Requirements for co-ordination

1.1.1 The effective conduct of search and rescue operations essentially requires co-ordination between the organizations and units concerned which can comprise aircraft, ships and shore-based life-saving facilities. The method by which this co-ordination is achieved varies, depending on the detailed organization in each area. The following general description illustrates the main considerations and emphasizes the particular role of merchant ships.

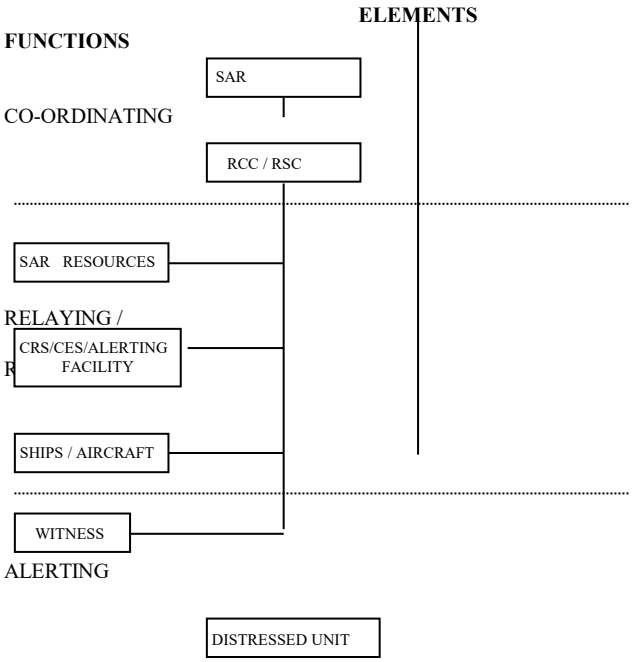
1.2 Co-ordination by land-based authorities

1.2.1 Certain governments vest responsibility in designated land-based authorities to exercise general co-ordination and to supervise, as appropriate, the conduct of search and rescue operations. This task is usually carried out by units established for coordinating search and rescue in designated areas. The units are usually -referred to as rescue co-ordination centres (RCC) or rescue sub-centres (RSC) and the areas as search and rescue regions (SRR).

1.2.2 In some regions these authorities have specialized ships and aircraft (SAR units) available to participate in these tasks. Other aircraft and ships, military and naval or otherwise, which have a SAR capability are also employed as available. When incidents occur in remote regions, SAR aircraft may not always be able to participate.

1.2.3 In the majority of regions, merchant ships will normally be able to participate although the degree will depend on shipping density. In this context the role of coast radio stations (CRS) is of special importance because they are in close contact with land-based SAR authorities.

1.2.4 An example of national distress alerting and search and rescue organization:



1.3 On-scene co-ordination

1.3.1 In all circumstances merchant ships are liable to be involved in search and rescue operations either in conjunction with specialized SAR units or independently. In the former case merchant ships may receive information additional to that obtainable from distress traffic or specific requests from land-based SAR authorities. However, and in view of the general practice of co-operation by merchant ships, it must be emphasized that no order or advice received from these authorities can set aside the obligation or the rights of any master as set out in regulation V/10 of SOLAS 1974.

1.3.2 On-scene co-ordination between the units concerned will be required and the role of merchant ships in this context will be governed by the following considerations:

.1 If specialized SAR ships (including warships) are not available to assume the duties of on-scene commander (OSC) but a number of merchant ships are participating in the operation, it will be necessary that one of these assume the duty of coordinator surface search (CSS). Detailed guidance concerning the selection of the CSS and its task is contained in paragraph 3.6.

.2 If specialized SAR ships (including warships) and/or SAR aircraft are on-scene simultaneously with merchant ships, it can normally be expected that one specialized unit will assume the duties of on-scene commander (OSC). Merchant ships can then expect to receive specific instructions from the OSC (normally via the specialized ships if the OSC is airborne). The OSC is the commander of that specialized unit which is in charge of on-scene SAR operations.

.3 It is important that the CSS and any SAR aircraft present should co-ordinate their operations. Direct communication between units on 2,182 kHz or, if available, 156.8 MHz (VHF channel 16) would be most desirable. However, although many ships and SAR aircraft have one or both of these facilities, this does not apply universally. In the latter case intercommunication and co-ordination can be effected via the CRS and land-based SAR authority.

.4 Owing to the potential hazard of collision and the noise problem associated with helicopters operating in a confined space during rescue operations, it is essential that their operations be coordinated by the unit in best communication with them. This may be the RCC, the OSC, the CSS, one of the helicopters or a fixed-wing aircraft. This unit should provide operating areas and altitudes for the helicopters and be responsive to the requirements of helicopters as well as the requirements of surface rescue units whose operations may be hampered by helicopter noise and rotor wash.

1.4 Designation of OSC and his responsibilities

1.4.1 When rescue units are about to engage in SAR operations, one of should be designated OSC as early as practicable and preferably ore arrival within the specified search area.

1.4.2 The appropriate RCC or RSC should designate an OSC. If this is practicable, units involved should designate by mutual agreement an OSC.

1.4.3 Until such time as an OSC has been designated, the first rescue unit ing at the scene of action should automatically assume the duties and onsibilities of an OSC.

1.4.4 The OSC shall be responsible for the following tasks when these e not been performed by the responsible RCC or RSC, as appropriate:

.1 determining the probable position of the object of search, the probable margin of error in this position, and the search area;

.2 making arrangements for the separation for safety purposes of units engaged in the search;

.3 designated appropriate search patterns for the units participating in the search and assigning search areas to unit or groups of units;

.4 designated appropriate units to effect rescue when the object of the search is located;

.5 coordinating on-scene search and rescue communications.

1.4.5 An OSC shall also be responsible for:

.1 carrying out the plan for the conduct of the operation as directed by the RCC or RSC which is coordinating the search and rescue operation;

.2 modifying the plan for the conduct of the operation as facilities and on-scene conditions dictate and informing the RCC or RSC of any such modification;

.3 making periodic reports to the RCC or RSC which is coordinating the search and rescue operations. These reports should include but not be limited to, weather and sea conditions, the results of search to date, any actions taken, and any future plans or recommendations;

.4 maintaining a detailed record of the operation, including onscene arrival and departure times of SAR units and other vessels and aircraft engaged in the operation, areas searched, track spacing used, sightings and leads reported, actions taken and results obtained;

.5 advising the RCC or RSC to release units when they are no longer required;

.6 reporting the number and names of survivors to the RCC or RSC which is coordinating search and rescue operations, providing the centre with the names and designations of units with survivors aboard, reporting which survivors are in each unit and requesting additional assistance from the centre when necessary, for example, medical evacuation of seriously injured survivors.

1.5 Designation of CSS and his responsibilities

1.5.1 If rescue units (including warships) are not available to assume the duties of an OSC but a number of merchant ships or other vessels are participating in the search and rescue operation, one of them should be designated by the coordinating RCC as the CSS. If this is not practicable, units involved should designate a CSS by mutual agreement and keep the RCC informed.

1.5.2 The CSS should be designated as early as practicable and preferably before arrival within the specified search areas.

1.5.3 The CSS should be responsible for as many of the tasks listed in paragraph 1.4 as the vessel is capable of performing (see also paragraph 3.6).

1.6 RCC/RSC communications with OSC/CSS

1.6.1 In addition to communications set out in chapter 7, an RCC or RSC may pass information to an OSC or CSS using the SITREP format given at annex 1.

Chapter 2 Action by a ship in distress

2.1 Transmission of the distress message

2.1.1 A ship in distress should transmit the distress call and message on any one or more of the following international maritime distress frequencies as may be available:

.1 500 kHz (radiotelegraphy);

.2 2,182 kHz (radiotelephony); and

.3 156.8 MHz (VHF channel 16) (radiotelephony).

2.1.2 It is further urgently recommended that any distress transmissions on the frequency 500 kHz or 2,182 kHz be preceded by the appropriate alarm signal.

2.1.3 It is also recommended, in remote ocean areas, to transmit the distress call and message in addition on a ship/shore H/F circuit to a CRS (see paragraph 7.1.2). This should be done in all cases where distress calls on 500 kHz, 2,182 kHz or 156.8 MHz (VHF channel 16) are not replied to by other stations.

2.1.4 Should there be any doubt concerning the reception of the distress message, it should also be transmitted on any frequency available on which attention might be attracted, such as an inter-ship frequency which may be in use in local areas. Before changing frequency, however, adequate time should be allowed for reply.

2.1.5 In the event of failure of the ship's radio station, it may be possible to transmit a message using the portable equipment, provided for use in survival craft, connected to the ship's main aerial system.

2.1.6 The use of an emergency position-indicating radio beacon (EPIRB) may be a further means of alerting ships in the vicinity.

2.2 Components of the distress message

2.2.1 Important components of the distress message include:

.1 identification of the ship;

.2 position;

.3 nature of the distress and kind of assistance required;

.4 any other information which might facilitate the rescue (e.g. course and speed if under way; the master's intention, including the number of persons, if any, leaving the ship; type of cargo, if dangerous).

2.2.2 It will also be important to furnish relevant information such as:

.1 weather in immediate vicinity, direction and force of wind, sea and swell, visibility, presence of navigational dangers (e.g. icebergs);

.2 time of abandoning ship;

.3 number of crew remaining on board;

.4 number of seriously injured;

.5 number and type of survival craft launched;

.6 emergency location aids in survival craft or in the sea;

.7 (for casualties under way, particularly where these retain the use or partial use of engines and steering) course and speed, and any alterations thereto.

2.2.3 When requesting medical assistance for an ill or injured person, additional relative information, as indicated below, should be furnished. Other information may also be necessary in certain cases. Codes from chapter 3 of the *International Code of Signals* may be used if necessary to help overcome language barriers. If medical evacuations are being considered, the benefits of such an evacuation must be weighed against the inherent dangers of such operations to both the person needing assistance and to rescue personnel;

.1 patient's name, age, gender, nationality and language;

.2 patient's respiration, pulse rate, temperature and blood pressure;

.3 location of pain;

.4 nature of illness or injury, including apparent cause and related history;

.5 symptoms;

.6 type, time, form and amounts of all medications given;

.7 time of last food consumption;

.8 ability of patient to eat, drink, walk or be moved;

.9 whether the vessel has a medical chest, and whether a physician or other medically trained person is aboard;

.10 whether a suitable clear area is available for helicopter hoist operations or landing;

.11 name, address and phone number of vessel's agent;

.12 last port of call, next port of call, and ETA of next port of call; and

.13 additional pertinent remarks.

2.2.4 It will normally be impracticable to include all information in the initial distress message. The timing of subsequent transmissions will be governed by circumstances. In general, if time allows, a series of short messages will be preferable to one or two long ones.

2.3 Direction-finding and homing

2.3.1 Subsequent to the transmission of the distress message on 500 kHz, two dashes of 10 to 15 seconds duration shall be transmitted, each followed by the ship's call sign, to enable coast direction-finding stations and ships to take a D/F bearing. This transmission should be repeated at regular intervals.

2.3.2 In cases where 2,182 kHz is used similar action should be taken, using a continued repetition of the call sign or name of ship or a long numerical count in place of the two dashes mentioned in paragraph 2.3.1 above.

2.4 Cancellation of distress messages

2.4.1 Distress messages should always be cancelled as soon as saving of life is no longer required or search is terminated.

2.5 Training

2.5.1 It is important that all means for indicating the position of ships in distress or survival craft should be properly used. Radio transmissions should be made as soon as possible but other means, e.g. rockets and hand flares, should be conserved until it is known that they may attract the attention of aircraft or ships in the vicinity. The attention of masters is directed to the great advantage of prior training, so that as many of the ship's crew as possible are familiar with the proper use of all the appliances provided for their safety.

Chapter 3 Action by assistillg ships

3.1 Distress call and message

3.1.1 Ships may receive:

.1 the alarm signal and/or d istress call and message from a ship, directly or by relay;

.2 the distress call and message from an air craft, usually by relay from a CRS;

.3 signals emitted by EPIRB, considered to be distress signals;

.4 visual or sound signals from ships or aircraft in distress.

3.2 Immediate action

3.2.1 The following immediate action should be taken by each ship on receipt of a distress message;

.1 acknowledge receipt and, if appropriate, retransmit the distress message;

.2 try to take immediately D/F bearings during the transmission of the distress message and maintain a D/F watch on 500 kHz and/or 2,182 kHz;

.3 communicate the following information to the ship in distress:

(i) identity;

(ii) position;

(iii) speed and expected time of arrival (ETA);

(iv) when available, true bearing of the ship in distress;

.4 maintain a continuous listening watch on the following international distress frequencies:

(i) 500 kHz (radiotelegraphy);

(ii) 2,182 kHz (radiotelephony); and

(iii) 156.8 MHz (VHF channel 16) (radiotelephony);

.5 operate radar continuously;

.6 if in the vicinity of the distress, post extra lookouts.

3.2.2 The ship or coast station in control of distress traffic should establish contact with the responsible area RCC through a CRS and pass on all available information, up-dating as necessary.

3.2.3 Ships which are able to communicate on the distress frequencies 500 kHz, 2,182 kHz and 156.8 MHz (VHF channel 16) shall, if appropriate, repeat the distress message on these frequencies.

3.3 Proceeding to the area of distress

3.3.1 Ships proceeding to the area of the distress should plot the position, course, speed and ETA of other assisting ships.

3.3.2 The communication equipment with which ships are fitted may be obtained from the International Telecommunication Union's "List of Ship Stations".

3.3.3 Ships should attempt to construct an accurate "picture" of the circumstances attending the casualty. The important information needed, which should be included in the distress message, is listed in paragraph 2.2. Shoulcl the ship in distress fail to transmit this information, a ship proceeding to assist should request what information is needed.

3.4 On-board preparation

3.4.1 While proceeding, it will be important to make adequate preparations. Certain of the measures that might be considered are:

.1 a rope (guest warp) running from bow to quarter at the waterline on each side and secured by lizards to the ship's side to assist boats and rafts to secure alongside;

.2 a derrick rigged ready for hoisting on each side of the ship with a platform cargo sling, or rope net, secured to the runner to assist the speedy recovery of exhausted or injured survivors in the water;

.3 heaving lines, ladders and scramble net placed ready for use along both sides of the ship on the lowest open deck and possibly crew members suitably equipped to enter the water and assist survivors;

.4 a ship's liferaft made ready for possible use as a boarding station. Inflatable liferafts should not be activated unless required;

.5 preparations to receive survivors who require medical assistance including the provision of stretchers;

.6 when own lifeboat is to be launched, any means to provide communications between it and the parent ship will prove to be of very great help;

.7 a line-throwing appliance with a light line and a heavy rope, ready to be used for making connection either with the ship in distress or with survival craft.

3.5 Aircraft casualties

3.5.1 If the casualty is an aircraft, supplementary information is contained in chapter 8.

3.6 Establishment of the CSS

3.6.1 The duties of the CSS are to organize and co-ordinate search and rescue operations by merchant ships. This is liable to be a complex task and this consideration has a bearing on the selection of the CSS (see paragraph 13).

3.6.2 It is most desirable that the CSS should be established as early as practicable and preferably before arrival "on-scene".

3.6.3 The CSS must be established by mutual agreement between the ship concerned and the coordinating RCC, having due regard to the ship's capabilities and ETA. However, the unit which arrives first should take such immediate action as may be required.

3.6.4 It is important that the CSS should have good radiocommunication facilities.

3.6.5 In case of language difficulties the *International Code of Signals and Standard Marine Navigational Vocabulary* should be used (see also paragraph 5.16).

3.6.6 On assuming the duty, the CSS should immediately inform a CRS. It should also keep it informed of developments at regular intervals.

3.6.7 The CSS should keep the RCC/RSC coordinating search and rescue operations informed at regular intervals and whenever the situation has changed.

3.7 Visual identification of the CSS

3.7.1 The CSS should display continuously the following visual signals:

.1 BY DAY - International Code Group "FR",

.2 BY NIGHT - A distinctive signal which the CSS will promulgate.

3.8 Control of inter-ship radiocommunications

3.8.1 It will be necessary for the CSS to control the available inter-ship communication channels. The strictest radio discipline and procedure should be exercised.

3.9 Approaching the scene

3.9.1 When approaching the scene, ships should make full use of any radio direction-finding facilities to "home" and similarly to locate any transmissions from EPIRB. Characteristics of an EPIRB are contained in chapter 7.

3.9.2 The radar should be operated and effective lookouts maintained (see chapter 5, figure 5-5 for typical radar detection ranges).

3.9.3 At night, searchlights should be used or some form of surface illumination should be contrived.

3.9.4 The CSS should be kept informed of any contacts made by D/F, radar or visual sightings. If the CSS has not been established, this information should be transmitted to all stations on the distress frequency or frequencies.

3.9.5 Ships should take measures to make themselves highly visible to survivors, such as making smoke during the daytime and keeping the ship well lit at night. However, caution should be taken as it is vitally important not to impair the vision of lookouts by the excessive use of lights.

3.9.6 When searching for survivors, who might possibly be in canopied liferafts, ships should sound whistle signals while searching to attract the attention of the survivors so that they can use visual signalling devices.

3.9.7 Extra lookouts should be posted so as to search a 360' arc around the ship for the duration of the search. This will provide for sighting signals set off by survivors even after the ship has passed them.

3.9.8 The ship's crew should be prohibited from dumping debris over the side for the duration of the search to prevent the debris from causing false sightings.

3.10 Arrival on-scene - Search procedures

3.10.1 If the casualty has not been located, a search should be initiated without delay using an appropriate search pattern (see chapter 5).

3.10.2 To co-ordinate the search effectively, the CSS should maintain a general plot of the area under search and assisting ships should do the same. In search planning, the CSS should make full use of all electronic navigational devices.

Chapter 4 Assistance by SAR aircraft

4.1 General

4.1.1 Ships in distress or survivors at sea may be supplied by SAR aircraft with special items of droppable equipment, which may come in containers or packages of different types and dimensions.
The contents of each container or package should be clearly indicated in print in at least three languages, by self-explanatory symbols, and also by streamers coloured according to the following code:

Red -medical supplies and first-aid equipment;
Blue - food and water;
Yellow -blankets and protective clothing;
Black -miscellaneous equipment such as stoves, axes, compasses, cooking utensils, etc.;
Combination of colours -mixed contents.

Miscellaneous equipment may include, in particular:

.1 individual liferafts or several liferafts linked by a buoyant rope;

.2 buoyant radio beacons and/or transceivers;

.3 dye and smoke markers and flame floats;

.4 parachute flares for illumination;

.5 salvage pumps.

4.2 Assistance by helicopters

4.2.1 A helicopter may be used to supply equipment and/or rescue or evacuate persons.

4.2.2 The radius of helicopter action usually varies between 50 and 200 nautical miles from base and lifting capacity between one and more than 15 persons depending on the size and type of aircraft.

4.2.3 Certain rescue.;operations will involve risks for the helicopter crew. Therefore it is essential in each case to evaluate the seriousness of the situation and to ascertain the need for helicopter assistance.

4.2.4 In **supplying equipment** a helicopter normally comes to a hover over a cleared space and lowers the equipment by means of its winch cable. Personnel on deck need only unhook the cable.

4.2.5 During rescue operations a helicopter normally uses a special device for hoisting or lowering persons. Large helicopters frequently lower a member of their own crew aboard the ship for assisting in the disembarkation procedure and in the use of the equipment. For the evacuation of persons, the end of the hoisting cable may be provided with one of the following means:

.1 a rescue sling;
.2 a rescue basket;
.3 a rescue net;
.4 a rescue litter;
.5 a rescue seat.

4.2.5.1 The most widely used means for evacuating persons is the rescue sling. The rescue sling is suited for the purpose of quickly picking up persons, but it is unsuitable for patients. Rescue slings are known by several names and come in slightly different shapes and configurations (see figure 4-1). Sliiigs may be made of webbed, belted material similar to that used in parachute harnesses. The sling is put on in much the same way as one puts on a coat, ensuring that the loop of the sling is passed **behind the back and under both armpits. The person using the sling must face the hook.** Hands should be clasped in front as shown. One must not sit in the sling, nor should the sling be unhooked.

4.2.5.2 Some SAR helicopter units use the **double lift method** which consists of a normal rescue sling, and a seating belt manned by a helicopter crew member. This method is suitable for pick-up from the water or the deck of incapacitated persons, not wounded badly enough so that a litter has to be used. The helicopter crew member puts the person into the sling and conducts the hoist operation.

4.2.5.3 The use of the **rescue basket** does not require any special measures. The person to use the basket merely climbs in, remains seated and holds on.

4.2.5.4 The **rescue net** has a conical "bird cage" appearance and is open on one side. The person to use the net merely enters the opening, sits in the net and holds on.

4.2.5.5 Patients will in most cases be disembarked by means of a **rescue litter.** Notwithstanding a ship's litter may be available in most cases, the evacuation of patients should normally be done in a special litter provided by the helicopter . To this litter bridles are fitted, and it can quickly and safety be hooked on and off, for for which purpose a suitable hook is attached to the hoisting cable. Even if the transfer of the patient from the ship's own stretcher to the litter provided by the helicopter is painful, it should be preferd to a risky evacuation in a litter which is not suited for the purpoes.

4.2.5.6 The **rescue seat** looks like a three-pronged anchor with flat flukes or seats. The person to be hoisted merely sits astride one or two of the the seats and wraps his arms around the shank. This device can be used to hoist two persons at once..

4.2.6 A direct radio link should be established between ship and helicopter. However, an exchange of information and instructions about rendezvous positions, etc. may be established through shore-based radio staions . When the helicopter is equipped with a suitable direction-finder, there is also the possibility of identifying a ship and of homing on it by making use of the ship's radio transmission on an agreed frequency. A list of available frequencies for communication with assisting aircraft is contained in paragraph 7.3.

4.2.7 Means of communication between ship and helicopter are further indicated in the *International Code of Signals* - General section, I DISTRESS - EMERGENCY under "Aircraft - helicopter".

4.2.8 The position of the ship, as well as the course and speed to the rendezvous position, should be given in the fullest possible detail, and further, the local weather situation and particulars about how to identify the ship from the air. Also, information should be submitted of the identification means to be used, such as flags, orange smoke signals, spotlights, daylight signalling lamps or heliograph.

4.2.9 As large a clear stretch of deck as possible should be made available as a pick-up area . The area of deck which is clear of obstructions should be marked with a yellow painted circular shape about 5 m in diameter which is appropriate to the clear area available. During the night, winching area floodlighting should be provided and the floodlights should be located so as to avoid glare to pilots in flight or to personnel working on the area. The arrangement and aiming of floodlights should be such that shadows are kept to a minimum. The spectral distribution of the floodlights should be such that the surface and obstacle markings can be correctly identified. obstacles should be clearly identified by obstacle lights. Where winching area floodlighting and obstacle lighting cannot be provided, the ship should in consultation with the pilot, be illuminated as brightly as possible particularly the pick-up area and any obstructions, e.g. masts, funnels, etc. Care should be taken that such illumination will not blind the helicopter pilot.

4.2.10 In addition to the removal of obstacles one should bear in mind the strong air-current caused by the helicopter. Clothing or other objects lying about should be cleared away or secured.

4.2.11 Under certain circumstances the helicopter pilot may prefer a deck space other than the one prepared for disembarkation. If the decks of the ship do not offer a suitable place, the helicopter may be able to lift a person from a lifeboat or a liferaft, secured on a long painter. Cases have occurred of liferafts being overturned by the down draught from the helicopter. It is therefore advisable for all persons in a raft to remain in the centre of the raft until they are about to be lifted.

4.2.12 Portable fire-fighting equipment for oil fires should be stationed near the disembarkation space. Also, if possible, the fire-fighting pump should be started and hoses should be connected and kept in readiness.

4.2.13 For better identification from the air, and also for showing the direction of the wind to the helicopter pilot, flags and pennants should be flown.

4.2.14 All crew members concerned, as well as the person to be evacuated, should wear lifejackets. This precaution may be abandoned only when it would cause unjustifiable deterioration of the condition of the patient to be transferred.

4.2.15 Care should be taken that the patient does not wear loose clothing or headgear.

4.2.16 On no account should the lifting device on the end of the winch cable be secured to any part of the ship or become entangled in the rigging or fixtures. Ship's personnel should not attempt to grasp the lifting device unless requested to do so by the helicopter. Even in this case, a metal part of the lifting device should first be allowed to touch the deck in order to avoid possible shock due to static electricity.

4.2.17 When helicopter hoisting is to be done from carriers of flammable/explosive cargo or in the vicinity of a flammable mixture spillage, the hoisting must be grounded clear of spillage or the carrier's

tank venting area in order to preclude a possible fire or explosion from an electrostatic discharge.

4.2.18 The helicopter pilot will want to approach the ship in such a way that the helicopter will hover into the relative wind and with the pilot's side (starboard) closest to the ship during the approach. If the hemliaciontpatienr is to approach in the usual manner, from the stern, the ship should a constant speed through the water and keep the wind 30^0 on the port bow. Where the hoisting area is not at the stern, the ship should keep the wind 30^O on the port bow or on either beam if the area is amidships, or 30^0 on the starboard quarter if the area is forward. A flow of air, as free of turbulence as possible, clear of smoke and other visibility restrictions, over the hoisting area is very important to permit a smooth and safe pickup or delivery. These procedures may be modified on instructions from the pilot if communications exist.

4.2.19 Generally, personal belongings should not be taken along. Loose gear can become entangled in the hoist cable or, worse yet, become sucked up into the helicopter rotors with disastrous effects.

4.2.20 The following hoisting signals may be used:

DO NOT HOIST Arms extended horizontally, fingers clenched, thumbs down.

HOIST Arms raised above the horizontal, thumbs up.

(If a survivor has to give the hoisting signal himself, he should raise only one arm to prevent slipping out of the sling.)

(Note.- If it is desired to include marshalling signals, standard signals can be selected from annex 2 of the Convention on International Civil Aviation.)

Chapter 5 Planning and conducting the search

5.1 General

5.1.1 In order that surface units, and especially merchant ships on-scene,

will be able to search effectively, in conjunction with SAR aircraft when available, it is essential that search patterns and procedures should be preplanned to enable merchant ships of all flags to co-operate **in** coordinated operations with the minimum difficulty and delay. To achieve this aim, a number of search patterns to meet varying circumstances have been established.

5.1.2 Typical man overboard manoeuvres are given in annex 2 to this manual.

5.2 Responsibility of CSS

5.2.1 As indicated in paragraph 3. 10, it is the responsibility of the CSS

to select and then to initiate in conjunction with assisting ships the most suitable search pattern.

5.2.2 It is equally the responsibility of the CSS to adjust the search pattern in view of the subsequent developments which may include:

.1 additional assisting ships arriving;

.2 additional information;

.3 weather conditions, visibility and daylight.

5.3 Definitions

5.3.1 The following definitions relate to the conduct and execution of search patterns:

.1 **Datum**

The most probable position of the search target at a given time, taking into account the expected effect of drift since the initial position of the incident was established.

.2 Drift

The estimated composite resultant of wind, current and/or tidal stream which may cause a change in the position of the search target.

.3 Expanding square search pattern

A type of search pattern suitable for a single ship which should search outward in expanding squares from the datum (see pattern 1).

.4 Leeway

The movement of an object caused by its being pushed through the water by local winds blowing against the exposed surface of such object.

.5 Sea current

The current prevailing in the open sea that is caused by factors other than local winds.

.6 Sector search pattern

A type of search pattern suitable for a single ship in special circumstances (e.g. man overboard) in which the ship searches radially from datum using a system of sectors 6f a circle (see pattern la).

.7 Parallel track search patterns

Search patterns suitable for two or more ships in which all ships maintain parallel courses (see patterns 2, 3, 4 and 5).

.8 Ship/aircraft coordinated search pattern

A search pattern in which a ship and an aircraft conduct a coordinated search (see pattern 6).

.9 Wind current

The surface current prevailing in the open sea generated by winds pushing the water along.

.10 **Additional terms used**

An explanation of the terms *track, commence search point, and track spacing* is given in figure 5-1.

5.4 Planning the search

5.4.1 It will be necessary to establish a datum taking into account the following factors:

.1 reported position and time of casualty;

.2 time interval between ships proceeding to assist and the ir arrival on the scene;

.3 estimated surface movcments of the casualty and/or survival craft during the period mentioned in (b). These will depend primarily on drift. Figure 5-3 provides estimates of leeway;

.4 the likelihood of SAR aircraft arriving on-scene before assisting ships;

.5 any supplementary information such as D/F bearings or sightings.

Terms used with search patterns: parallel track patterns

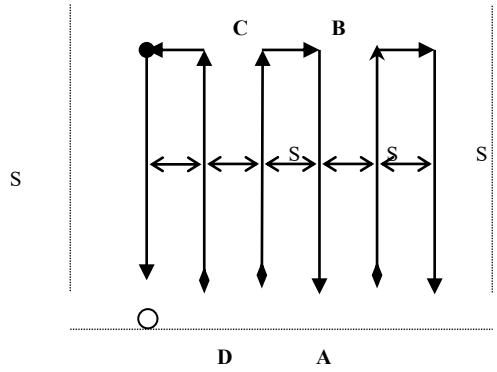
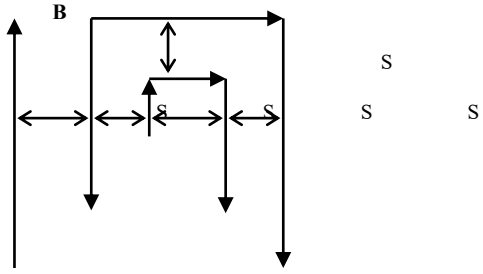


FIGURE 5.1

Track - The path followed by a single ship (i.e. fromA, which is the commence search point (CSP), to D through B and C).

Track spacing - The distance between adjacent search tracks indicated by the dimension S.

Terms used with search patterns: expanding square patterns



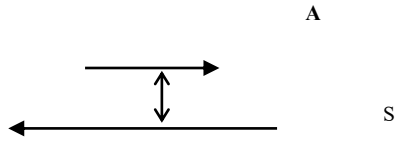


FIGURE 5-2

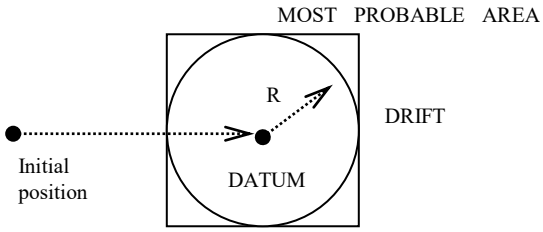
Track The path along the line from point A to point B.
Track spacing Indicated by dimension S.

5.4.2 Unless land-based, authorities supply a datum it will be the responsibility of the CSS to do so and to communicate this information to assisting ships and appropriate CRS.

5.4.3 It will be at the discretion of the CSS to communicate revised datum as necessary.

5.4.4 When planning the search, the CSS will first need to plot the datum and the initial most probable area. Normally the RCC coordinating search and rescue operations will forward to the CSS all relevant data on search areas and search procedures. The most probable area is the area centred on the datum, within which the search target is most likely to be, after allowance is made for probable errors in datum due to inaccuracy in the reported position of the casualty and/or the estimate of drift. For the initial stage it is suggested that this area be established by drawing a circle of radius 10 miles with centre at datum for the time of starting the search, and then squaring it off with tangents. The area may be enlarged when sufficient search units arrive (see figure 5-4).

Determing the initial most probable area for search



Use R = 10 miles for initial area

FIGURE 5-4

Note: In view of the variation in construction and size of liferafts, the uncertainty of the number of people on board and whether a canopy or drogue has been deployed, the drift of individual types of liferaft may vary considerably. Figure 5-3 represents approximate drift characteristics for all types of fully occupied inflatable liferafts of various capacities:

1 without drogue;
2· with an improved ballast system;
3 with drogue;
4 with drogue but with canopy not deployed.

Because of the possible variations of liferaft configurations, the boundaries of the above drift values given by I and 4 in the figure represent approximate limits for liferaft drift. However, it should be noted that for an unoccupied, partially occupied or waterlogged liferaft, the drift may fall outside of the parameters shown.

5.4.5 There may be occasions, with small craft in particular, when large errors may adversely affect the computation of the datum. It is nevertheless important to search a smaller area thoroughly rather than attempt to cover a larger one less effectively.

5.4.6 With parallel track search patterns, the CSS will need to decide the initial course to be steered by searching ships. This should normally be in the direction of drift. Where, however, the line of approach to the scene of assisting ships would enable a search to be initiated more rapidly, there would be advantages in making the initial course the reciprocal of the line of drift.

5.5 Visual search

5.5.1 Individual search patterns have been designed with the aim of providing a ready-made framework to enable a search by one or more ships to be initiated rapidly by the CSS.

5.5.2 Inevitably, there will be a number of variables that cannot be foreseen. Search patterns based on visual search have been established which should, however, meet many circumstances. They have been selected for simplicity of execution.

5.6 Radar search

5.6.1 When several assisting ships are available there may, at times, be advantages in carrying out a radar, especially in circumstances when the position of the casualty is not known reliably and the prospects of SAR aircraft participating are remote. No prescribed pattern has been provided in "loose line abreast" maintaining an interval between ships of the expected detection range multiplied by 1 ½ (see figure 5-5).

Radar detection ranges for end-on contacts

Target	Radar scanner height 15m 30 m
	(nautical miles)
10,000 gt ship	**13,0** **18,0**
1,000 gt ship	**6,0** **8,4**
200 gt ship	**5,5** **7,7**
9 m boat	**1,9** **2,7**

FIGURE 5-5

The above ranges relate to normal atmospheric conditions. As the radar echo strength will fluctuate considerably with aspect, the figures are only to be used as a guide.

5.7 Interval between ships

5.7.1 At the start of a parallel track search, the interval shown in this manual should be used. Circumstances may occur when the CSS considers it prudent to alter the intervals. All searching ships should endeavour to maintain station accurately.

5.8 Searching speed

5.8.1 To carry out a parallel track search in a coordinated manner, all units should proceed at the same speed as directed by the CSS. This should normally be the maximum speed of the slowest ship present. In restricted visibility, the CSS will normally order a reduction in searching speed (see paragraph 5.1 *1).*

5.9 Search patterns

5.9.1 Available search patterns are as follows:

.1 expanding square search: for use by one ship - see pattern 1;

.2 sector search: for use by one ship (special cases - man overboard, etc.) - see pattern la;

.3 parallel track: for use by two ships - see pattern 2;

.4 parallel track: for use by three ships - see pattern 3;
.5 parallel track: for use by four ships - see pattern 4;
.6 parallel track: for use by five or more ships - see pattern 5;
.7 ship/aircraft coordinated search: for use by ship and aircraft - see pattern 6.

5.9.2 In the event of the arrival of assisting aircraft during the execution of one of the above search patterns, it is usually desirable for the surface nits to continue and to complete the existing search. The aircraft should earch independently using the surface units as a navigational reference oint if desired. At the completion of the current search, the CSS or OSC hould decide the most effective method of employing units at his disposal.

5.9.3 These search patterns give, in general, good visual coverage of the rea. However, in circumstances in which the searching speed is slow, the formation on which the datum is based is incomplete or unreliable, or hen high drift rates are encountered, they have inevitable limitations. o an extent, these can be compensated for by the arrival of additional arch units, recomputing datum and the most probable area periodically, d expanding the search area more in one direction than in another.

5.9.4 The track spacings (S) shown in figure 5-6 are recommended for e with all the search patterns shown in this Manual except for the sector arch (pattern la). Figure 5-6 takes into account the type of search object d the meteorological visibility. Track spacings may be decreased slightly, wever, to increase the probability of detection, or may be increased htly to increase the area covered in a given time. Other factors may o be considered, including sea condition, time of day, position of the I effectiveness of observers, etc.

Track spacing (S) for merchant vessels

	Meteorological visibility (mautical miles)				
	3	*5*	10	*15*	20
Search object					
Person in water	0.4	*0.5*	0.6	0.7	0.7
4-person liferaft	2.3	3.2	4.2	4.9	*5.5*
6-person liferaft	2.5	3.6	*5.0*	6.2	6.9
15-person liferaft	2.6	4.0	*5.1*	6.4	7.3
25-person liferaft	2.7	4.2	5.2	6.5	7.5
Boat 5 m (15ft)	1.1	1.4	1.9	2.1	2.3
Boat 7 m(23 ft)	2.0	2.9	4.3	5.2	5.8
Boat 12 m(40 ft)	2.8	4.5	7.6	9.4	11.6
Boat 24 m(79 ft)	3.2	5.6	10.7	14.7	18.1

FIGURE 5-6

5.10 Initiation of search

5.10.1 When one ship arrives on-scene well in advance of the others, it should proceed directly to datum and commence an expanding square search.
5.10.2 If possible, datum may be marked by putting over for example a liferaft or other floating marker as a check on drift. This can then be used as a datum marker throughout the search.
5.10.3 As other ships arrive, the CSS should select one of the search patterns 2,3,4 or 5 as appropriate and allocate track numbers to individual ships. In Periods of good visibility and with sufficient search units on hand, the CSS may consider it advisable to let the first ship continue its expanding square search while the others conduct a parallel track search through the same area. In periods of restricted visibility, or if sufficient search units are not available, it will probably be better to have the first ship break off the expanding square search and so be available for initiation of a track search.

5.11 Restricted visibility

5.11.1 Thecarryingoutofaparalleltracksearchinrestrictedvisibilityposes problems on account of the following considerations:
.1 the desirability of reducing the interval between ships as far as possible consistent with safety;
.2 the resulting loss of coverage;
.3 the potential risk of collison.
5.11.2 During periods of restricted visibility, the CSS should direct a reduction of speed as necessary. in such circumstances any ship not fitted with radar, or whose radar has become defective, should consider dropping astern of other ships informing the CSS of its action. This ship should continue the search when it judges its position, relative to other searching ships, safe to do so.
5.11.3 If and when the situation improves sufficiently, the ship should endeavour tp resume its proper station, again advising the CSS.

5.11.4 If there is a reduction in visibility and ships have already started to carry out a search pattern, the CSS may decide that the safest action would be to continue the pattern in force despite the resulting loss of coverage.

5.11.5 Should it be necessary for the CSS to consider initiating any of the search patterns during conditions of restricted visibility, the following factors should be borne in mind:
.1 ships will be proceeding at reduced speed and searches will therefore take longer;
2 to search thoroughly the area in such conditions must mean a reduction in track spacing as provided for in figure 5-6;
.3 reduction in track spacing would require either a reduction in the interval between ships and, thus, the carrying out of more sweeps.

Bearing all these factors in mind, the csS may therefore decide to accept a reduction in the area searched and should have regard to the direction and rate of estimated drift in deciding whether to accept a reduction in one or both of the length and width of the search area.

5.11.6 In all circumstances should there be a subsequent improvement in visibility, the CSS should initiate su ch actions as will best make good the lost coverage which has taken place.

5.12 Further action on completion of initial phase

5.12.1 The CSS will normally consider the initial phase to have been completed when, in the absence of further information, searching ships have completed one search of the most probable area. if at that stage nothing has been located, it will be necessary for the CSS to consider the most effective method of continuing the search.
5.12.2 Failure to locate the search target may be due to one or more of the following causes:
.1 errors in position owing to navigational inaccuracies and/or inaccuracy in the distress communications reporting the position. This is especially likely to apply if the position of datum was based on an estimate using incomplete information;
.2 an error in drift estimation;
.3 failure to sight the targ et during the search although it was in the search area. This is most likely to occur if the target is a small craft, survival craft or survivors in the water;
.4 the casualty having sunk without trace . Other than the case of a small ship or craft in rough weather, experience suggests that there is always likely to be some trace, even if only debris and/or oil patches;
.5 navigational inaccuracies of the searching ships. This is most likely to apply when navigational fixes cannot be obtained.

5.12.3 Three courses of action are open to the CSS:
.1 re-search the same area allowing for added drift during the time elapsed since calculating last datum;

.2 expand the most probable area, after allowing for added drift and search the expanded area. Depending on circumstances and information available, it may be advisable to expand the area more in one direction than another;

.3 determine an entirely new probable area based upon additional information received.

Except in cases where a large ship is the target and small track spacinghas been used, (a) or (b) above are indicated, depe ding on the number of search units that have arrived. Where informationlils received to indica that the original datum was grossly inaccurate, (c) would be advisable.

5.12.4 A small target, which is easily missed in the daytime, may becom visible at night if it shows lights, flares or other Pyrotechnics. The CSS should, therefore, consider using surface craft at night to re-search area covered by day. It is good practice, when searching for survivors in smal craft, in survival craft, or in the water, to stop occasionally the en me at night or in restricted visibility by day to listen for cries of help.

5.13 Use of ship/aircraft coordinated pattern

5.13.1 The ship/aircraft coordinated attern (see pattern 6) would normally only be used if there is an OSCppresent to give direction to and provide communications with the participating ship. The objective of this type of search is for the aircraft to do most of the searching, while the ship steams along a course at a speed as directed by the OSC, so that the aircraft can use it as a navigational checkpoint. The aircraft, as it passes over the ship, can easily make corrections to stay on the track of its search pattern. Such a coordinated search gives a higher probability of detection than can normally be attained by an aircraft searching alone. Ship speed varies according to the speed of the aircraft and the size of the pattern.

5.14 Evidence of casualty found

5.14.1 In some cases, the search may provide evidence of the casualty thout survivors being found. This evidence may provide information r a recalculation of datum and revision of the search area.

5.14.2 When an abandoned ship is located, it may have drifted before the nd faster than survival craft. In such a case, concentration of search wind is recommended. However, a low-lying, half-sunken loaded ship ay drift more slowly than a floating survival craft, even if a drogue is used. derelict may drift at a consider-able angle off the prevailing wind direction.

5.14.3 When wreckage is located it usually consists of debris and/or an I slick. Should this have come from the distressed ship, survival craft 11 usually be found downwind from the debris . In some cases, however, ship may have been abandoned some time before sinking, in which e survival craft may be upwind. Both possibilities should be considered. t is known, or suspected, that survivors are in the water, the area into ch they may have been forced by the buffeting of the seas should also checked since they may be affected more by this than by the wind.

5.15 Manoeuvring instructions

5.15.1 The International Regulations for Preventing collisions at Sea continue to apply fully while carrying out searches. The manoeuvring and warning signals will be of particular importance in the circumstances.

5.15.2 The master of any ship taking part in a search should endeavour to carry out all directions he may receive, but he must at all times have regard to the safety of his own ship and crew.

5.15.3 To initiate and conduct coordinated search patterns, it will be necessary for the CSS to transmit a limited number of manoeuvring instructions by the most appropriate means.

5.15.4 When practicable, the CSS should use plain language for these purposes. It is, however, important that the actual text of the message for the initiation of a pattern and that of subsequent messages relating to its conduct or adjustment should be in a standard form. A list of standard texts for this purpose is contained in paragraph 5.16.1.

5.15.5 Unless a time is specified in the text, individu al ships should proceed as necessary to execute the purport of the message on receipts

5.15.6 Should circumstances require the CSS to direct the ships alteration of course (e.g.participating in a pattern to carry out a major a new area, it would be over 901), as, for example, before proceeding to desirable for the CSS to direct this in two steps.

5.15.7 Where language difficulties exist, the *Tnternational Code of Signals* or the *Standard Marine Navigational Vocabulary* should be used as far as possible. Many useful signals will be found in the General Section,, especially parts I and VII, of the Code. This applies both to informatory messages from assisting ships and to directions by the CSS.

5.16 Standard texts of messages

5.16.1 The following signals are to be used in conjunction with the conduct of standard search patterns.

Reference Text or meaning ……Code groups

(a) Carry out search pattern …….starting FRI
at ……..hours. Initial course…….
Search speed ……..knots.

(b) Carry out radar search, ships proceeding in FR2
loose line abreast at intervals between ships of ……. miles . Initial course ……
Search speed ……. knots.

(c) Vessel indicated (call sign or identity signal) FR3
is allocated track number ……..

(d) Vessel/s indicated adjust interval between FR4
ships to ……..miles.

(e) Adjust track spacing to ……. ..... miles. FR5

(f) Search speed will now be……..... knots. FR6

(g) You should alter course to……(at MH
time indicated).

(h) You should steer course …….. MG

(i) Alter course as necessary to next leg of FR7
track now (or at time indicated).

5.16.2 Some other useful signals in the International Code of Signals:

Reference Text or meaning

(a) I am (or vessel indicated is) in charge of co- FR
ordinating search.

(b) My maximum speed is…….(number) SJ
knots.

(c) I have no radar. OI

(d) I have an echo on my radar on bearing ON
.....……, distance ……..miles.

(e) I am altering course to …….. MI

(f) I have sighted survival craft in lat……. GH
long…….. (or bearing ……..distance ..... from me).

(g) I have located (or found) wreckage from GL
the vessel/aircraft in distress (position to be indicated if necessary by lat……..
and long……...or bearing ……..
from specified place and distance …….).

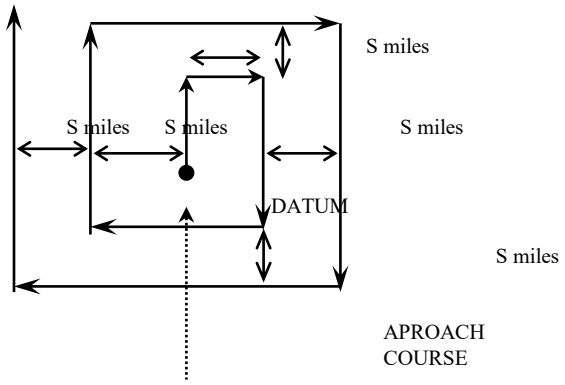
(h) Estimated set and drift of survival craft is FP
..... degrees and ……. knots.

(i) I wish to communicate by VHF radio-YY
telephony on channel indicated.

(j) Repeat the distress position.

(k) Position given with SOS/MAYDAY is FH
wrong. The correct position is lat.....
long . ...

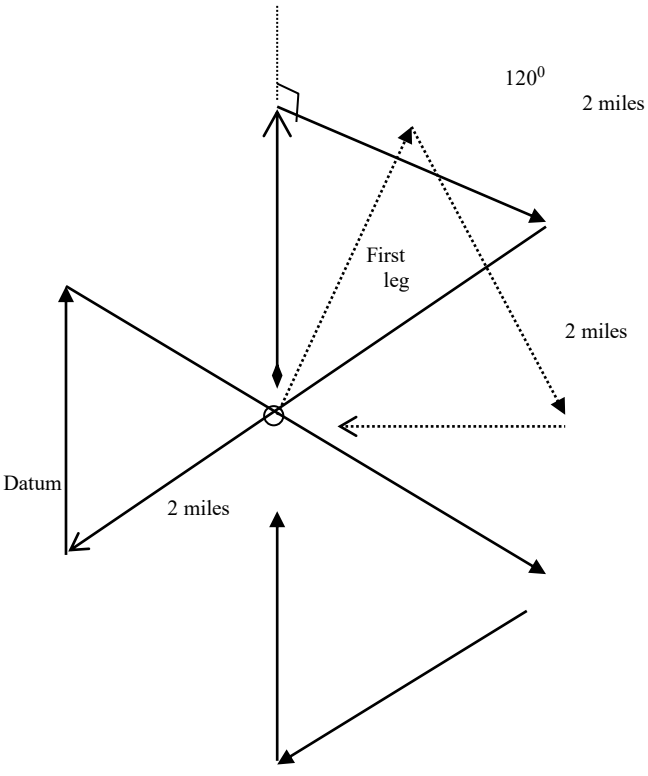
PATTERN 1
Expanding square search – 1 ship



PATTERN 1a
Sector- search -- 1 ship

For use when position of search target is known within close limits, with a small probable area.

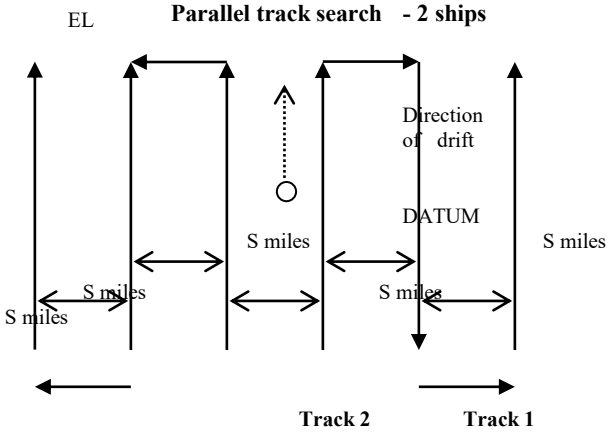
Examples.- (a) man overboard - ship returns immediately to datum;
(b) search target is once sighted and then lost - ship heads for datum.



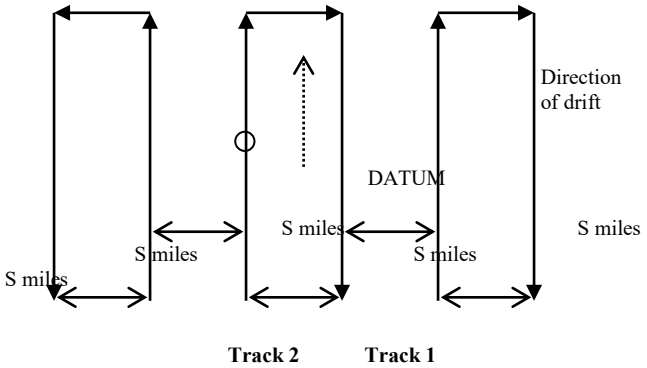
All turns are 120^0 to starboard. Start pattern at datum. This pattern gives very high probability of detection close to datum and spreads the search ver the probable area quickly.

Upon completion of first search, re-orient the pattern 30^0 to the right and search as shown by the dashed line.

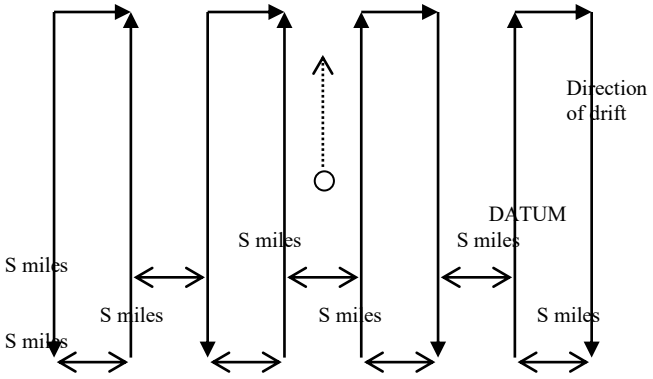
PATTERN 2
Parallel track search - 2 ships



PATERN – 3
Parallel track search - 3 ships

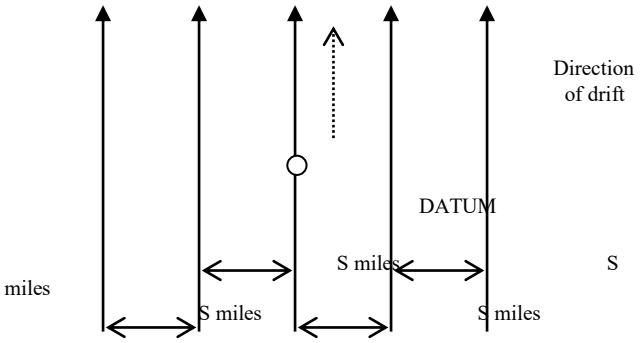


PATTERN 4
Parallel track search -- 4 ships



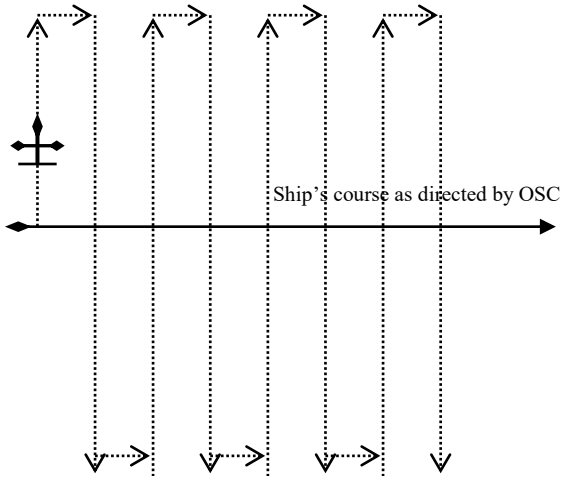
Track 4 **Track 2** **Track 1**
Track 3

PATTERN 5
Parallel track search -- 5 or more ships



6 etc. ← Track 4 **Track 2** **Track 1** **Track 3** **Track 5 →7 etc.**

PATTERN 6
Co-ordinated creeping line search – 1 ship and 1 aircraft



Chapter 6 Conclusion of search

6.1 Search successful - Rescue

6.l.1 The following paragraphs outline procedures which may be adopted when rescuing survivors.

6.1-2 Once the casualty or survivor has been sighted, the CSS should assess the best method of rescue and direct the most suitably equipped ship or ships to the scene.

6-1.3 In the case of survivors in the water, the rescuing ship may find it necessary to rig scramble nets, or launch lifeboats or liferafts and have crew members suitably equipped to enter the water to assist survivors. Great care should be exercised in the handling of such survivors.

6.1.4 In the case of fire or extremely heavy weather, or where it is impossible for the rescue ship to come alongside, it may be found expedient to tow a lifeboat or liferaft to a closer position.

6.1.5 In heavy weather, the use of oil for reducing the effect of the sea should be considered. Experience has shown that vegetable oils and animal oils, including fish oils, are most suitable for quelling waves. If these are not available, lubricating oils should be used. Fuel oil should not be used, except as a last resort, as it is harmful to persons in the water. Lubricating oil is less harmful and tests have shown that 200 litres discharged slowly through a rubber hose with an outlet just above the sea, while the ship proceeds at slow speed, can effectively quell a sea area of some 5,000 square metres.

6.1.6 In heavy weather, a ship with a low freeboard may be better suited to effect rescue.

6.1.7 A boarding station may be rigged by mooring a liferaft alongside. It is particularly useful when lifeboats are used. Survivors can be quickly unloaded into the boarding station, releasing the boat for another trip.

6.1.8 For cases involving evacuation by helicopter, see chapter 4.

6.1.9 The direction of approach to the casualty (orsurvivors) will depend upon circumstances. Some casualties, such as ship on fire, may have to be approached from windward and others, such as rubber liferafts, from leeward. The two key factors are whether a tee side protection is necessary during the rescue operation and the comparative rates of drift of the casualty and the rescuing ship. If time permits, it may well be to the rescuing ship's advantage to assess the relative rates of drift. This precaution may prevent serious mishaps during the rescue operations. In general, survivors in the water are best approached from the windward side.

6.1.10 lf practicable ,arrangements should be made for injured personnel requiring the attention of a medical officer to be transferred to a ship carrying one.

6.1.11 In an ocean incident, if there is no ship available with a medical officer on board, the CSS should consider transmitting an urgency message requesting such a ship to rendezvous. If necessary, the CSS should contact a CRS. Where position-reporting systems are available , information from a CRS on the availability of ships which have a medical officer should be requested.

6.1.12 In a coastal incident, the local RCC should arrange for medical assistance to be sent from ashore. The local CRS may act as an intermediary in the proceedings.

6.1.13 Survivors should be questioned concerning the ship or aircraft in distress, its complement, casualties and whether any other survivors or survival craft have been seen. This information should be promptly relayed to the CSS.

6.1.14 When all rescuing action has been effected, the CSS should immediately inform all ships that the search has been terminated.

6.1.15 The CSS should inform the nearest CRS of the conclusion of the search and give the following details:

- .1 names and destinations of ships with survivors and number of survivors in each;
- **.2** physical condition of survivors;
- **.3** whether medical aid is needed;
- **.4** the state of the casualty and whether it is a hazard to navigation.

6.2 Search unsuccessful

6.2.1 The CSS should continue the search until all hope of rescuing survivors has passed. However, the condition may arise when the

CSS must make a decision to terminate an unsuccessful search. When making this determination he should keep the following factors in mind:

.1 the probability that survivors, if alive, were in the search area;

.2 the probability of detection of the search target, if it were in the areas searched;

.3 the availability of time remaining that search units can remain on scene;

.4 the probability that survivors might still be alive given the temperature, wind and sea conditions at the time (see figures 6-1 and 6-2).

Guide to survival time for persons in water of various temperatures

Temperature (^{0}C)	Expected time of survival
Less than 2	Less than ¾ hour
2 to 4	Less than 1 ½ hours
4 to 10	Less than 3 hours
10 to *15*	Less than 6 hours
15 to 20	Less than 12 hours
Over 20	Indefinite (depends on fatigue)

FIGURE 6-1

Warning: The guidelines set forth above are meant to emphasize the need for fast action and not as a means of setting an arbitrary limit on search effort. Cases have been experienced where individuals far exceeded the expected survival times, and this possibility should always be taken into consideration when deciding upon termination of a search.

It should be borne in mind that the expected times of survival given above only apply to persons immersed in water without any protective clothing and that they can be longer for persons wearing any sort of survival suit or thermal protective aid.

Effect of wind on exposed persons

Estimated wind speed (knots)	Actual temperature (C)					
	10	0	-- 12	-- 23	-- 35	45
0					Increased	
10	Little danger for			Danger		Great
20	Properly			Of		Danger
30	Dressed		Freezing of		Of freezing of	
40 or more	Persons		Exposed flesh		Exposed flesh	

INCREASED WIND VELOCITIES GREATLY INCREASE DENGER OF FREEZING OF EXPOSED FLESH.
PROTECTIVE MEASURES SHOULD BE TAKEN.

FIGURE 6-2

6.2.2 At his discretion, the CSS after consultation with other assisting ships and land-based authorities, as appropriate, should take the following action:

.1 ocean incident - terminate active search, advise assisting ships to proceed on passage and inform the land-based authority accordingly. A message should be sent to all ships in the area asking them to continue to keep a lookout;

.2 coastal incident - consult with land-based authorities through the local CRS as regards termination of search.

Chapter 7 Commnications

7.1 Marine radiocommunication facilities available for distress purposes

7.1-1 The following frequencies are available world-wide for distress purpoes :

.1 500 kHz (radiotelegraphy);

.2 2,182 kHz (radiotelephony);

.3 156.8 MHz (VHF channel 16) (radiotelephony);

.4 8,364 kHz for survival craft.

7.1.2 Additional frequencies available world-wide to supplement 2,182 kHz include 4,125 kHz and 6,212.5 kHz.

7-1.3 Ships transmitting a distress message on any of the above frequencies should, whenever possible, use the appropriate alarm signal before transmitting the distress message until contact is established with rescue facilities.

7.1.4 The aeronautical frequencies 3,023 kHz and 5,680 kHz may be used for communications by ships and participating coast radio stations engaged in coordinated SAR operations.

7.1.5 Emergency position-indicating radio beacons (EPIRBs) operate on 2,192 kHz and/or the aeronautical frequencies* 121.5 MHz and/or 243 MHz. Merchant ships will not normally be able to receive 121.5 MHz and 243 MHz. Those devices may be self-activated when floating in the sea or manually operated. The characteristics of the signals on 2,182 kHz are as follows

.1 **low-power beacons:**
a single tone of between one and five seconds interrupted by periods of silence of similar duration, transmitted continuously; (*Some Japanese ships carry EPIRBS which transmit the distress signal and identification on frequencies between 2,089.5 kHz and 2,092.5 kHz.)

.2 high-power beacons:
as in (a); or
the radiotelephone alarm signal followed by the Morse letter **B** and/or the call sign to which the radio beacon belongs;

.3 the signals specified in (b) may be transmitted with a continuous cycle which consists of the tone signals for between 30 and 50 seconds followed by a period of silence of approximately similar duration;

.4 certain types of beacons, both low and high power, may incorporate a facility enabling the cycle to be interrupted for speech transmission.

7.1.6 GMDSS operating guidance for masters of ships in distress situations is shown in figure 7-1.

7.2 Visual communication facilities

7.2.1 The following visual means of communication should be used when appropriate:

.1 signalling lamp;

.2 international code flags;

.3 Distress signals prescribed in annex IV to the 1972 Collision Regul ations.

.4 The following signals describe the life-saving signals referred to in regulation V/16 of SOLAS 1974, as amended, and are intended for use by life-saving stations and maritime rescue units engaged in SAR operations when communicating with ships or persons in distress and by ships or persons in distress when communicating with life-saving stations and maritime rescue units:

(i) Replies from life-saving stations or maritime rescue units to distress signals made by a ship or person:

Signal	Signification
By day - Orange smoke signal or combined light and sound signal (thunderlight) consisting of three single signals which are fired at intervals of approximately one minute.	"You are seen - assistance will be given as soon as possible." (Repetition of such signals has the same meaning.)
By night - White star rocket consisting of three single signals which are fired at intervals of approximately one minute.	"You are seen - assistance will be given as soon as possible." (Repetition of such signals has the same meaning.)

If necessary the day signals may be given at night or the night signals by day.

(ii) Landing signals for guidance of small boats with crews or persons in distress:

Signal	Signification
By day – Vertical motion of a white flag or the arms or firing of a green star signal or signalling the code letter **K (-- · --)** given by light or soundsignal apparatus. ***By night*** - Vertical motion of a white light or flare, or firing of a green star signal or signalling the code letter **K (-- · --)** given by light or soundsignal apparatus. A range (indication of direction) may be given by placing a steady white light or flare at a lower level and in line with the observer.	"This is the best place to land."
By day - Horizontal motion of a white flag or arms extended horizontally or firing of a red star signal or signalling the code letter **S *(⋯)*** given by light or sound-signal apparatus. ***By night*** – Horizontal motion of a white light or flare of a red star signal or signalling the code letter **S *(⋯)*** given by light or sound-signal apparatus.	"Landing here highly dangerous."
Horizontal motion followed by white flag in ground and the carrying of another white flag in the direction to be indicated or firing of a red star signal vertically and a white star signal in the direction towards the better landing Place or signalling the codeletter **S *(⋯)*** followed by the code letter **R (· -- ·)** if a better landing Place for the craft in distress is located more to the right in the direction of approach or the code letter L **(· -- · ·)** if a better landing Place for the craft in distress is located more to the left in the direction of approach. ***By night*** – Horizontal motion of a white light or flare, followed by the Placing of the white light or flare on the ground and the carrying of another white light or flare in the direction to be indicated or firing of a red star signal vertically and a white star signal in the direction towards the better landing place or signalling the code letter **S *(⋯)*** followed by code letter **R (· -- ·)** if a better landing place for the craft in distress is located more to the right in the direction of approach or the code letter L **(· -- · ·)** if a better landing Place for the craft in distress is located more to the left in the direction of approach.	"Landing here highly dangerous. A more favourable location for landing is in the direction indicated."

(iii) Signals to be employed in connection with the use of shore life-saving apparatus:

Signal	Signification
By day - Vertical motion of a white flag or the arms or firing of a green star signal. ***By night*** - Vertical motion of a white light or flare or firing of a green star signal.	In general - " Affirmative. " Specifically: "Rocket line is held." "Tail block is made fast. " "Hawser is made fast." , " Man is in the breeches buoy. " "Haul away."
By day - Horizontal motion of a white flag or arms extended horizontally or firing of a red star signal. ***By night*** - Horizontal motion of a white light or flare or firing of a red star signal.	In general - "Negative." Specifically: "Slack away." "Avast hauling."

7.3 Communications with assisting aircraft

7.3.1 Radiocommunication with designated SAR aircraft should normally be possible on 2,182 kHz or the VHF frequencies 156.8 MHz and 156.3 MHz.

7.3.2 Ships may communicate With aircraft for safety purposes, including SAR communications, on 3,023 kHz, 5,680 kHz, 121.5 MHz, 123.1 MHz, 156.3 MHz, 156.8 MHz and 243 MHz.

7.3.3 Radiocommunication between ships and aircraft on SAR operations can be effected through the coast radio station to the RCC. This system should be used when direct communication cannot be established on 2,182 kHz, 3,023.5 kHz, 5,680 kHz, 121.5 MHz, 123.1 MHz, 156.3 MHz and 156.8 MHz.

7.3.4 Visual signals as described in 7.2.1 may be used.

Aircraft in distress

7.3.5 An aircraft in distress over an ocean should, in accordance with ICAO procedures, advise the air traffic control (ATC) authority of the distress situation on the frequency being used for ATC purposes.

7.3.6 If ditching at sea is likely, the ATC authority will immediately advise the appropriate RCC. The RCC will alert ships which are in a position to provide assistance.

7.3.7 When alerted, ships will be requested to establish, if possible, a listening watch on the frequency 4,125 kHz. If unable to use the frequency 4,125 kHz, ships will be requested to establish a watch on the frequency 3,023 kHz.

7.3.8 The aircraft will initially attempt to establish communications on the frequency 4,125 kHz and, if this is not successful, will then attempt to establish communications on the frequency 3,023 kHz.

7.3.9 In the event that ditching becomes unnecessary, the aircraft will initiate notification to cancel the distress situation in accordance with ITU/ICAO provisions.

Ship in an emergency or in distress

7.3.10 A ship in an emergency or in distress should send an urgency signal or distress alert on the appropriate GMDSS distress and safety frequency or via INMARSAT.

7.3.11 When an aircraft can assist or will participate in the SAR operation as a SAR unit, the RCC will request the ship with the emergency or in distress and ships assisting to establish, if possible, a listening watch on the frequency 4,125 kHz. If unable to use the frequency 4,125 kHz, ships will be requested to establish a watch on the frequency 3,023 kHz.

7.3.12 The aircraft will initially attempt to establish communications on the frequency 4,125 kHz and, if this is not successful, will then attempt to establish communications on the frequency 3,023 kHz.

7.3.13 If the emergency is over and assistance is no longer required, the ship will initiate notification to cancel the emergency or distress situation in accordance with the requirements of the ITU kadio Regulations.

7.4 Air-surface visual signals*

(*These signals are illustrated in appendix 3 to the *International Code of Signals.)*

7.4.1 **Signals with ships and surface craft**

7.4.1.1 When an aircraft wishes to communicate with a surface craft, whether in distress or not, it may either drop a message or use a signalling lamp using the *International Code of Signals* or plain language (see note following 7.4.2. 1).

7.4.1.2 The following manoeuvres performed in sequence by an aircraft mean that the aircraft wishes to direct a vessel towards a ship or other craft in distress:

.1 circling the vessel at least once;
.2 crossing the projected course of the vessel close ahead at low altitude and:
.2.1 rocking the wings; or
.2.2 opening and closing the throttle; or
.2.3 changing the propeller pitch;
.3 heading in the direction in which the vessel is to be directed; **.4** repetition of such manoeuvres has the same meaning.

7.4.1.3 The following manoeuvre by an aircraft means that the assistance of the vessel to which the signal is directed is no longer required:

.1 crossing the wake of the vessel close astern at low altitude and:
.1.1 rocking the wings; or
.1.2 opening and closing the throttle; or
.1.3 changing the propeller pitch.

Note: Due to high noise level on board vessels, the sound signals in 7.4.1.2.2.2 and 7.4.1.2.2.3 may be less effective than the visual signal in 7.4.1.2.2.1 and are regarded as alternative means of attracting attention.

7.4.1.4 A vessel receiving the above signals will reply in the following manner:

.1 when acknowledging receipt of the signals it will:
.1.1 hoist the code and answering pendant (vertical red and white stripes) close up (meaning understood);
.1.2 flash the Morse code procedure signal **T *(--)*** by signal lamp;
.1.3 change the heading into the required direction;
.2 when indicating inability to comply it will:
.2.1 hoist the international flag **N** (NOVEMBER) (a blue and white chequerboard flag); or
.2.2 flash the Morse code procedure **N (-- ·)** by signal lamp.

7.4.2 **Signals with survivors**

7.4.2.1 When an aircraft wishes to inform or instruct survivors, it should:

.1 drop a message;
.2 drop communication equipment suitable for establishing direct contact.

Note.- Before dropping messages or equipment, the weather, size and degree of manoeuvrability of the distressed craft should be taken into consideration, e.g. lifeboats having means of propulsion may be able to recover messages or equipment from the sea at some distance, but survivors in liferafts will experience considerable difficulty even in calm weather.

7.4.2.2 When a message dropped by an aircraft is understood by the survivors, they should acknowledge it by:

.1 flashing the Morse code procedure signal **T *(--)*** "meaning word or group received", or **R (· -- ·)** , meaning "received" or "I have received your last signal/message", with a signal lamp, if available;
.2 giving the affirmative manual signal consisting of vertical motion of a white flag or of the arms by day or vertical motion of the white light by night;
.3 using any other suitable signal agreed upon.

7.4.2.3 When a message dropped by an aircraft is not understood by the survivors, they should inform the aircraft by:

.1 flashing the Morse code procedure signal consisting of the group *RPT (.-. .--. -)*, meaning "I repeat" or "repeat what you have sent", with a signal lamp, if available;
.2 giving the negative signal consisting of horizontal motion of a white flag or of the arms extended horizontally by day or horizontal motion of a white light by night.

7.4.3 Surface-to-air visual signals

7.4.3.1 To communicate with an aircraft a surface craft or survivors may use: the signals contained in figure 7-2, a torch, a signalling lamp or signal flags using the *International Code of Signals* or plain language.

7.4.3.2 Surface craft or survivors may signal the meanings shown in figure 7-2 by displaying them as symbols on the deck or on the ground.

Surface-air visual signal code for use by survivors

No.	*Message*	*Code symbol*
1	Require assistance	**V**
2	Require medical assistance	**X**

3	No or negative	**N**
4	Yes or affirmative	**Y**
5	Proceeding in this direction	

FIGURE 7-2

7.4.3.3 When a signal made or displayed by a surface craft is understood by an aircraft, the aircraft should acknowledge the signal by:

.1 dropping a message; or

.2 during daylight: rocking the wings of the aircraft; or

.3 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; or

.4 flashing the Morse code procedure signal **T *(--)*** meaning "word or group received", or **R (· -- ·)** , meaning "received" or "I have received your last signal/message", with a signal lamp; or

.5 any other signal agreed upon.

7.4.3.4 When a signal made or displayed by a surface craft is not understood by an aircraft, the aircraft should inform the surface craft by:

.1 flying straight and level without rocking wings; or

.2 flashing the Morse code procedure signal

R PT (· -- · · - - · --) , meaning "I repeat" or "repeat what you have sent", with a signal lamp; or

.3 any other suitable signal agreed upon.

Chapter 8 Aircraft casualties at sea

8.1 Aircraft/ship communications

8.1.1 When an aircraft transmits a distress message by radio, the first ransmission is generally made on the designated air/ground route frequency in use at the time between the aircraft and aeronautical station. The aircraft may change to another frequency, possibly another route frecluency or the international aeronautical emergency frequencies of 121.5 MHz or 243 MHz. In an emergency, it may use any other available frequency to establish contact with any land, mobile or direction-finding station.

8.1.2 There is liaison between CRS, aeronautical units, and land-based search and rescue organizations. Merchant ships will ordinarily be informed of aircraft casualti - es at sea by broadcast messages from CRS made on the international distress frequencies *of 500* kHz, 2,182 kHz or 156.8 MHz (VHF channel 16). Ships may, however, become aware of the casualty by receiving:

.1 an SOS message from an aircraft in distress which is able to transmit on 500 kHz or a distress signal from an aircraft using radiotelephony on 2,182 kHz or 156.8 MHz (VHF channel 16);

.2 a radiotelegraphy distress signal on 500 kHz from a handoperated emergency transmitter carried by some aircraft;

.3 a message from a SAR aircraft (see paragraph 7.3.2).

8.1.3 ForthePurposeofernergencyconimunicationswithaircraft,special attention is called to the Possibility of conducting direct communications on 2,182 kHz or 156.8 MHz (VHF channel 16), if both ship and aircraft carry compatible VHF equipment.

8.2 Distress signals

8.2.1 An aircraft in distress will use any means at its disposal to attract attention, make known its position and obtain help, including some of the signals prescribed by the International Regulations for Preventing Collisions at Sea.

8.3 Action taken to render assistance if aircraft is still airborne

8.3.1 Aircraft usually sink quickly (e.g. within a few minutes). Every endeavour will be made to give ships an accurate position of an aircraft which desires to ditch. When given such a position, a ship should at once consult any other ships in the vicinity on the best procedure to be adopted. The ship going to the rescue should answer the station sending the broadcast and give its identity, position and intended action (see chapter 3).

8.3.2 If a ship should receive a distress message direct from an aircraft, it should act as indicated in the immediately preceding paragraph and also relay the message to the nearest CRS. Moreover, a ship which has received a distress message direct from an aircraft and is going to the rescue should take a bearing on the transmission and inform the CRS and other ships in the vicinity of the call sign of the distressed aircraft and the time at which the distress message was received, followed by the bearing and time at which the signal ceased.

8.3.3 When an aircraft decides to ditch in the vicinity of a ship, the ship should:

.1 transmit homing bearings to the aircraft, or (if so requested) transmit signals enabling the aircraft to take its own bearings;

.2 by day, make black smoke;

.3 by night, direct a searchlight vertically and turn on all deck lights. Care must be taken not to direct a searchlight towards the aircraft, which might dazzle the pilot.

8.3.4 Ditching an aircraft is difficult and dangerous. A ship which knows that an aircraft intends to ditch should be prepared to give the pilot the following information:

.1 wind direction and force;

.2 direction, height and length of primary and secondary swell systems;

.3 other pertinent weather information.

8.3.5 The pilot of an aircraft will choose his own ditching heading. If this is known by the ship, it should set course parallel to the ditching heading. Otherwise, the ship should set course parallel to the main swell system and into the wind component, if any, as shown in figure 8-1.

8.4 Rescue action

8.4.1 A land plane may break up immediately on striking the water and liferafts may be damaged. The ship should, therefore, have a lifeboat ready for launching, and if possible, boarding nets should be lowered from the ship and heaving lines made ready in the ship and lifeboat. Survivors on the aircraft may have bright coloured lifejackets and location aids.

8.4.2 The method of recovering survivors must be left to the judgement of the master of the ship carrying out the rescue operation (see paragraph 6.1).

8.4.3 It should be borne in mind that military aircraft are often fitted with ejection seat mechanisms. Normally, their aircrew will use their ejection seats, rather than ditch. Should such an aircraft ditch, rather than the aircrew bale out, and it becomes necessary to remove them from their ejection seats while still in the aircraft, care should be taken to avoid triggering off the seat mechanisms. The activating handles are invariably indicated by red or black/yellow colouring.

8.5 Questioning survivors

8.5.1 A survivor from an aircraft casualty who is recovered may be able to give information which will assist in the rescue of other survivors. Masters are therefore asked to put the following questions to survivors and to communicate the answers to a CRS. They should also give the position of the rescuing ship and the time when the survivors were recovered.

.1 What was the time and date of the casualty?

.2 Did you bale out or was the aircraft ditched?

.3 If you baled out, at what altitude?

.4 How many others did you see leave the aircraft by parachute?

.5 How many ditched with the aircraft?

.6 How many did you see leave the aircraft after ditching?

.7 How many survivors did you see in the water?
.8 What flotation gear had they?
.9 What was the total number of persons aboard the aircraft prior to the accident?
.10 What caused the emergency?

Annex I Standard format for search and rescue situation reports (SITREPS)

Situation reports (SITREPS) should be compiled as follows:

Short form - to pass urgent essential details when requesting assistance, or to provide the earliest notice of a casualty.

TRANSMISSION PRIORITY (Distress/urgency etc.)
FROM (Originating RCC)
TO --
SAR SITREP (NUMBER) (Serial number)
A IDENTITY OF CASUALTY (Name, call-sign, flag state)
B POSITION (Latitude/longitude)
C SITUATION (Type of message e.g. distress/urgency, date/time,nature of distress/urgency; e.g. fire, collision, medico)
D NUMBER OF PERSONS AT RISK --
E ASSISTANCE REQUIRED --
F CO-ORDINATING RCC --

Full form - to pass amplifying or updating information during SAR operations the following additional sections should be used as required:

G DESCRIPTION OF CASUALTY (Physical description, owner/ charterer, cargo carried, passage from/to, life-saving appliances carried, etc.)
H WEATHER ON-SCENE (Wind, sea/swell state, air/sea temperature, visibility, cloud cover/ceiling, barometric pressure)
J INITIAL ACTIONS TAKEN (By casualty and RCC)
K SEARCH AREA (As planned by RCC)
L CO-ORDINATING INSTRUCTIONS (OSC/CSS designated, units participating, communications etc.)
M FUTURE PLANS
N ADDITIONAL INFORMATION/CONCLUSION (Include time SAR operation terminated)

Notes.-

1 Each SITREP concerning the same casualty should be numbered sequentially.
2. If help is required from the addressee, the first SITREP should be issued in short form if remaining information is not readily available.
3 When time permits, the full form may be used for the first SITREP or to amplify it.
4 Further SITREPs should be issued as soon as other relevant information has been obtained. Information already passed should not need repetition.
5 During prolonged operations "no change" SITREPS, when appropriate, should be issued at intervals of about three hours to reassure the recipients that nothing has been missed.
6 When the incident has been concluded, a final SITREP should be issued as confirmation.

Annex 2 Man-overboard manoeuvres

1. Practice has shown that different man-overboard manoeuvres may be required, depending upon the situation prevailing and the type of ship involved.

2 The effectiveness of the manoeuvres described below has been proved in many man-overboard casualties, including the following situations:

.1 *"Immediate action" situation* Casualty is noticed on the bridge and action is initiated immediately;

.2 *"Delayed action" situation* Casualty is reported to the bridge by an eye witness and action is initiated with some delay;

.3 *"Person missing" situation* Person is reported to the bridge as "missing"

3 When a ship makes full speed ahead, the following three standard manoeuvres are used:

.1 Single turn (270^0 manoeuvre)

.1.1 Rudder hard over (in an "immediate action" situation, only to the side of the casualty).

.1.2 After deviation from the original course by 250^0, rudder to midship position and stopping manoeuvre to be initiated.

.2 Williamson turn

.2.1 Rudder hard over (in an "immediate action" situation, only to the side of the casualty).

.2.2 After deviation from the original course by 60^0 rudder hard over to the opposite side.

.2.3 When heading 20^0 short of opposite course, rudder to midship position and ship to be turned to opposite course.

.3 Scharnow turn (not to be used in an "immediate action" situation.)

.3.1 Rudder hard over.

.3.2 After deviation from the original course by 240^0, rudder hard over to the opposite side.

.3.3 When heading 20^0 short of opposite course, rudder to midship position so that ship will turn to opposite course.

4 Assessment of the manoeuvres described under (3) in relation to the types of situation described under (2):

1. "Immediate action" situation

1.1 SINGLE TURN will take the ship back to the scene of the casualty most quickly.

.1.2 WILLIAMSON TURN requires more time and will temporarily take the ship farther away from the scene of the casualty.

.1.3 SCHARNOW TURN is not appropriate.

.2 "Delayed action " situation

.2.1 WILLIAMSON TURN will take the ship to the scene of the casualty most surely. (When the ship has reached the manoeuvre commencement point, search speed must be reduced so as to enable fast stopping.)

.2.2 SCHARNOW TURN cannot be carried out effectively unless the time elapsed between the occurrence of the casualty and the commencement of the manoeuvre is known.

.3 "Person missing" situation

Both WILLIAMSON TURN and SCHARNOW TURN will take the ship back into her wake. Less distance is covered, and thus time is saved, when carrying out SCHARNOW TURN. When the ship is on opposite course after carrying out SCHARNOW TURN, the manoeuvre commencement point will be some ship's lengths behind her stern. Depending on the type of ship involved, between one and two nautical miles may be saved. (See also the figure opposite.)

5 Since standard man-overboard manoeuvres are not guaranteed to return a ship into its wake, these turns should be regularly practised to account for the particular ship characteristics and the effects of environmental conditions on the ship and the person in the water.

Annex 3 Regulation V/10 of the International Convention for the Safety of Life at Sea, 1974

Distress messages - obligations and procedures

(a) The master of a ship at sea, on receiving a signal from any source hat a ship or aircraft or survival craft thereof is in distress, is bound to roceed with all speed to the assistance of the persons in distress informing em if possible that he is doing so. If he is unable or, in the special ircumstances of the case, considers it unreasonable or unnecessary to roceed to their assistance, he must enter in the log-book the reason for iling to proceed to the assistance of the persons in distress.

(b) The master of a ship in distress, after consultation, so far as may e possible, with the masters of the ships which answer his call for ssistance, has the right to requisition such one or more of those ships s he considers best able to render assistance, and it shall be the duty of e master or masters of the ship or ships requisitioned to comply with e requisition by continuing to proceed with all speed to the assistance f persons in distress.

(c) The master of a ship shall be released from the obligation imposed y paragraph (a) of this regulation when he learns that one or more ships ther than his own have been requisitioned and are complying with the quisition.

(d) The master of a ship shall be released from the obligation imposed y paragraph (a) of this regulation, and if his ship has been requisitioned, om the obligation imposed by paragraph (b) of this regulation, if he is formed by the persons in distress or by the master of another ship which s reached such persons that assistance is no longer necessary.

(e) The provisions of this regulation do not prejudice the International onvention for the Unification of Certain Rules relating to Assistance and Ivage at Sea, signed at Brussels on 23 September 1910, particularly the ligation to render assistance imposed by article 11 of that Convention.