

NATIONAL SEARCH AND RESCUE MANUAL

**DEPARTMENT OF TRANSPORTATION
U. S. Coast Guard (09/79)**

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IMPORTANT NOTE: In September, 1979, the information contained in this pamphlet was current according to the latest updates of those Directives/Publications listed. This pamphlet was compiled for training **ONLY**. It should **NOT** be used in lieu of official Directives or publications. It is always **YOUR** responsibility to keep abreast of the latest professional information available for your rate.

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LETTER OF PROMULGATION

1. *Purpose.*—The National Search and Rescue Manual (FM 20-150, NWP 37 (B), AFM 64-2, CG 308) is hereby promulgated for the guidance of U.S. Federal Forces, military or civil, participating in search and rescue (SAR) operations. The manual provides common procedures, techniques, and terminology so that any military and civilian combination of forces can effectively accomplish search and rescue missions.

2. *Cancellation.*—The National Search and Rescue Manual (FM 20-150, NWP 37 (A), AFM 64-2, CG 308) of 1 July 1959 is superseded and canceled. Stocks of superseded manuals shall be destroyed without report.

3. *Policy.*—Procedures, techniques, and terminology herein have been adopted for use by the Departments of Transportation, Army, Navy, and Air Force for joint SAR operations, and are recommended for use by all agencies conducting search and rescue operations under the terms of the National Search and Rescue Plan. However, because of the many variables encountered in SAR operations, these procedures and techniques should be tempered with judgement, having due regard for conditions existing at the time which may require deviation and resourcefulness.

4. *Assignment of responsibilities.*—The U.S. Coast Guard has been assigned coordinating responsibility for the promulgation of the manual and all changes. Permanent changes will be issued annually approximately 1 August in a series of consecutively numbered amendments. Interim changes will be issued when required and will be incorporated in the permanent annual change. Each military service and civil agency of the U.S. Government is responsible for training and familiarizing its own SAR personnel with the "National Search and Rescue Manual." All participants are encouraged to recommend changes and additions to the manual. Such recommendations should be transmitted to the parent service with a copy to Commandant (GO), U.S. Coast Guard, Washington, D.C. 20590. Additional or more detailed SAR procedures and techniques which are unique to a single service should be promulgated by that service as a service addendum to this manual, and bound within this manual. The following page colors are assigned for the service addendums:

Yellow—U.S. Army. Pink—U.S. Civil Agency/Administration.

Blue—U.S. Navy. Red—Civil Air Patrol.

Green—U.S. Air Force. Brown—Coast Guard Auxiliary.

Salmon—U.S. Coast Guard.

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TABLE OF CONTENTS

	Page
Chapter	
1. The Search and Rescue System.....	1-1
2. The Search and Rescue Organization.....	2-1
3. Search and Rescue Facilities.....	3-1
4. Search and Rescue Communications.....	4-1
5. Search and Rescue Emergency Care.....	5-1
6. Search and Rescue Documentation.....	6-1
7. Awareness and Initial Action Stage.....	7-1
8. Planning Stage.....	8-1
9. Operations Stage.....	9-1
10. Mission Conclusion Stage.....	10-1
11. Legal Aspects of Search and Rescue.....	11-1
12. Search and Rescue Public Information.....	12-1
Appendix A. Search and Rescue Agreements.....	A-1
B. Treaties and Other International Instruments in Force Between the United States and Other Countries Regarding Search and Rescue.....	B-1
C. Distress and Emergency Signals.....	C-1
D. Canadian SAR Organization.....	D-1
E. Sample Regulation/Instruction—Local Search and Rescue Requirements	E-1
F. Sample Local Search and Rescue Organization.....	F-1
G. Glossary.....	G-1

INTRODUCTION

The "National Search and Rescue Manual" has been completely reorganized and revised with this edition. One major change is a total systems approach to the SAR system, identifying the various supporting components and the sequential SAR stages of a SAR mission. The second major change is the introduction of numerous nomographs to simplify or replace unwieldy tables and graphs previously used for search planning. The third major change is the recognition and discussion of the emergency medical care provided to survivors by the SAR system. The fourth major change is the addition of general discussions of rescue techniques for typical SAR units to fulfill the manual's title of search and rescue. The fifth major change is the additional coverage of coastal and inland SAR missions involving boat, helicopter, and light aircraft operations.

Search and rescue is both an art and a science, and encompasses or draws from many diverse knowledge areas. Throughout this revision, an attempt was made to include only that information which SAR personnel need to plan and conduct SAR missions on a professional level. As a corollary to this, the manual is developed to serve as both a training manual and an operational manual.

Chapter 1. TABLE OF CONTENTS

	Page
100 Search and Rescue.....	1-8
110 SAR System.....	1-8
120 SAR Stages.....	1-8
180 Components	1-8
181 Organization	1-4
182 Facilities	1-4
183 Communications	1-4
184 Emergency Care	1-4
185 Documentation	1-4

Chapter 1. THE SEARCH AND RESCUE SYSTEM

100 SEARCH AND RESCUE

Search and Rescue (SAR) is defined in the National SAR Plan (app. A) as the employment of available personnel and facilities in rendering aid to persons and property in distress.

110 SAR SYSTEM

A systems approach is used in this manual to examine the SAR problem.

The search and rescue system consists of five SAR stages, supported by five components. From an operational viewpoint the SAR system is activated when information is received that an emergency exists, or may exist, and is deactivated when the survivor or endangered craft is delivered to a position of treatment or safety respectively, when it has been determined that no emergency actually existed, or when there is no longer hope for rescue.

120 SAR STAGES

From time to time the SAR system may become part of a more comprehensive emergency system (e.g. disaster relief) or parts of another emergency system may merge with the SAR system and become part of it (e.g. emergency medical services).

The five stages in which the SAR system operates can be defined as follows:

a. Awareness stage.—Awareness that an emergency situation may exist. Includes the receiving of emergency information by any person or agency.

b. Initial action stage.—Preliminary action taken to alert SAR facilities and obtain amplifying information. Includes evaluation and classification of the information, alerting SAR facilities, preliminary communication check, extended communication check and, in urgent cases, immediate action from the following stages as circumstances dictate.

c. Planning stage.—The development of an effective plan of operations, including search plan and, where appropriate, rescue and final delivery plan. May include such things as determining most probable position of the emergency, size of search area, type search pattern, optimum search plan, attainable search plan, selecting best rescue method, optimum rescue plan, attainable rescue plan, selection of suitable medical facilities for injured or ailing survivors.

d. Operations stage.—SAR facilities proceed to the scene, conduct search, rescue survivors, assist distressed craft, provide emergency care for survivors needing it and deliver injured to a suitable medical facility. Includes crew briefings, dispatch of facilities, conduct of operations on scene, on scene reliefs, providing emergency care for survivors, delivery of injured or ailing survivors to a medical facility, and debriefings of crews.

e. Mission conclusion stage.—Movement of the SAR facilities from the safe delivery point to their regular location where they are prepared for another mission. Includes return to base, final debriefing, refueling, replenishing, remaining and documentation of the SAR mission.

130 COMPONENTS

To satisfy the requirements imposed by the operational stages, the SAR system includes five functional components.

- (a) Organization.
- (b) Facilities.
- (c) Communications.
- (d) Emergency Care.
- (e) Documentation.

131 ORGANIZATION

Provides for geographically defined areas of SAR coordination responsibility, and for centralized control and coordination capability to insure effective use of all available facilities for all types of SAR missions. Includes all SAR

coordinators, rescue coordination centers (RCCs), rescue sub-centers (RSCs), SAR mission coordinators (SMCs), and on-scene commandars (OSCs).

132 FACILITIES

Provides the personnel, equipment, and facilities necessary to perform the stages of the SAR system. Includes all boats, vessels, aircraft, and land vehicles, including the personnel to man them.

133 COMMUNICATIONS

Provides all communications media through which early detection, alerting, control, support,

and coordination are maintained throughout the SAR system.

134 EMERGENCY CARE

Provides injured survivors with all the necessary emergency treatment within capabilities. Includes emergency first aid skills applied to the injured at the distress scene, and life support en route to a medical facility.

135 DOCUMENTATION

Provides for the collection and analysis of information pertaining to a SAR mission. It includes all data recorded, from the awareness stage to the end of the mission conclusion stage and subsequent reports.

Chapter 2. TABLE OF CONTENTS

	Page
200 SAR Organization Component.....	2-3
210 Independent Organizations.....	2-3
211 International Organizations.....	2-3
212 U.S. Federal Organizations.....	2-5
213 U.S. State Organizations.....	2-9
214 U.S. County Organizations.....	2-9
215 U.S. Municipal Organizations.....	2-10
216 Commercial and Private Organizations.....	2-10
217 National Association for Search and Rescue.....	2-10
220 Geographic SAR Organization.....	2-10
221 SAR Areas.....	2-10
222 SAR Coordinators.....	2-11
223 Inland SAR Region.....	2-11
224 Maritime SAR Region.....	2-12
225 Overseas SAR Regions.....	2-12
226 Areas not Included in Regional Plans.....	2-14
227 SAR Plan.....	2-15
228 SAR Agreements.....	2-17
230 SAR Mission Organization.....	2-17
281 SAR Coordinator's Responsibilities and Duties.....	2-17
282 SAR Mission Coordinator (SMC).....	2-19
283 On Scene Commander (OSC).....	2-21
284 Search and Rescue Unit (SRU).....	2-24
285 Local Base SAR Officer.....	2-26
286 SAR Liaison Officers.....	2-26
287 SAR Briefing Officers.....	2-26
288 Advanced SAR Staging Base.....	2-26
289 SMC Kit.....	2-27
240 Rescue Coordination Center Organization.....	2-27
241 RCC Communications.....	2-28
242 RCC Equipment.....	2-28
243 RCC Information Data.....	2-31
244 RCC Staffing.....	2-32
245 RCC Controller.....	2-32
246 Assistant RCC Controller.....	2-34
247 RCC Plotter.....	2-35
248 RCC Personnel Training.....	2-35
250 Rescue Sub-Center Organization.....	2-36
251 RSC Communications.....	2-36
252 RSC Equipment.....	2-36
253 RSC Staffing.....	2-36

Chapter 2. THE SEARCH AND RESCUE ORGANIZATION

200 SAR ORGANIZATION COMPONENT

The organization component supports the total SAR system, and is comprised of four major elements: (1) A large number of independent SAR organizations, (2) geographically defined areas of SAR coordination responsibility, (3) a centralized rescue coordination center (RCC) within each defined area, and (4) a SAR mission organization.

210 INDEPENDENT ORGANIZATIONS

There are several independent organizations engaged in SAR operations or influencing the SAR system. The organizations may be international, Federal, State, county, local governmental, commercial, or private in nature. Additional details on the facilities of primary SAR organizations are included in chapter 3, SAR facilities. In addition to the organizations listed in this section, SAR personnel should actively obtain information on other independent organizations within their SAR area which may be of assistance in prosecuting SAR missions.

211 International Organizations

The general purpose of most international organizations is to establish standardization which is acceptable to those nations which have signed an international instrument (treaty, convention, or agreement) involving operations that require international cooperation.

This standardization is usually accomplished by the organization through amendments to the basic international instrument; through the acceptance of supplementary regulations or standards; and through the adoption of recommendations. The basic international instrument and its amendments, plus the regulations or standards, are requirements to which all signatory nations pledge themselves to conform unless they make specific reservations in each case. Although signatory nations do not pledge them-

selves to conform to recommendations, they are expected to give serious consideration to them.

a. International Civil Aviation Organization (ICAO)

ICAO is a worldwide organization formed for the primary purpose of administering the Convention on International Civil Aviation which was designed to promote the safe, orderly and efficient growth of international civil aviation, including both commercial and general aviation. Over 100 nations, including the United States, are members. Of all the various international organizations, ICAO is the most prominent in SAR due to its having established comprehensive standards, recommended practices and procedures for the conduct of SAR for international civil aviation. Under the terms of the Convention, each signatory nation undertakes to provide such measures of assistance to aircraft of any nationality in distress within its territory, as it may deem practicable and to permit, subject to control by its own authorities, the owners of the aircraft or the authorities of the nation in which the aircraft is registered, to provide such measures of assistance as may be necessitated by the circumstances. The Convention also provides that each signatory nation, when undertaking search for missing aircraft, will collaborate in coordinated measures which may be recommended from time to time pursuant to the Convention.

The United States, under the Convention, thus has an international obligation to furnish SAR services for its own territory. In addition, the United States has accepted international responsibilities for furnishing SAR service over certain international waters, notably large portions of oceanic areas.

The detailed worldwide requirements for SAR can be found in the Annexes to the Convention. The most pertinent of these to SAR is Annex 12—Search and Rescue. This annex contains those standards and recommended prac-

ties adopted under the Convention specifically for search and rescue services. Other annexes contain standards and recommended practices dealing with other aspects of air navigation and air transportation. Some of these indirectly affect SAR because they deal with related subjects. Most prominent among these are Annex 6—Operation of Aircraft (among other things establishes requirements for emergency equipment carried by civil aircraft), Annex 9—Facilitation (among other things establishes requirements for facilitating the entry of SAR units into different countries), Annex 10—Aeronautical Telecommunications (among other things establishes requirements for emergency communications and specifications for emergency communications equipment), Annex 11—Air Traffic Services (among other things establishes requirements for alerting of SAR services by the Air Traffic Services).

In addition to the standards and recommended practices of the annexes, internationally agreed upon procedures are contained in another set of ICAO documents known as Procedures for Air Navigation Services (PANS). These supplement the standards and recommended practices. Much more detailed suggestions for operation of services are contained in the ICAO technical manuals. Of primary interest to SAR personnel among this group is the ICAO Search and Rescue Manual.

The detailed plan for each region of the world is contained in a series of documents called Regional Air Navigation Plans. The SAR section of these documents contains a list of required facilities (including RCCs, aircraft and marine craft), a chart showing the geographic areas of responsibility of each member country, and a list of regional recommendations.

This "National Search and Rescue Manual" incorporates all pertinent Standards and Recommended Practices adopted under the convention and includes such portions of other ICAO documents as are applicable and agreed upon by the United States.

b. Intergovernmental Maritime Consultative Organization (IMCO)

IMCO is an international organization interested primarily in shipping matters. It is comparable in purpose and scope to ICAO. It is primarily concerned with administering the

International Convention for Safety of Life at Sea (SOLAS). SOLAS, among other things, established requirements for merchant vessels to carry emergency and survival equipment, and radios equipped with an automatic alarm device. SOLAS also established requirements for merchant vessels to respond to a distress signal from any craft or person. Of importance to SAR is the fact that IMCO is the international organization which coordinates and issues international procedures for SAR at sea. A recommendation of SOLAS provides that IMCO, ICAO, WMO, and ITU (see below) should pursue their joint studies on matters regarding the planning and providing of facilities for SAR and the dissemination of information concerning these arrangements and in other matters of joint concern regarding safety on and over the sea.

Two of the products of IMCO's efforts which affect SAR are the new International Code of Signals (INTERCO) which contains sections on emergencies, distress, and search and rescue and the Merchant Ship SAR Manual (MERSAR) which provides procedures for merchant ships engaged in SAR operations. IMCO is also developing an international SAR organizational plan for maritime purposes.

c. International Telecommunications Union (ITU)

ITU coordinates the establishment of international radio regulations and recommendations. It prescribes the frequencies and signals for alerting, distress, emergency, and safety messages. ITU also prescribes recommended 8-, 16-, and 24-hour radio watch schedules for merchant vessels worldwide.

d. World Meteorological Organization (WMO)

WMO establishes standard weather report terminology and format, and maintains a world weather watch throughout the world.

e. World Health Organization (WHO)

WHO coordinates worldwide health efforts, establishes standard immunization forms/cards, and coordinates national health requirements for entry into participating nations' territory.

f. International Radio-Medical Center (CIRM)

CIRM is an humanitarian organization in Rome, Italy. It provides medical advice and as-

sists in arranging for the evacuation of injured or seriously ill merchant seamen throughout the world. CIRM covers many parts of the world where other medical advice facilities are not available. All U.S. Coast Guard (USCG) coastal radio stations and USCG manned ocean stations relay CIRM traffic at no cost. Brazilian, Italian, CIRM and other foreign radio stations also provide free traffic relay services.

Pertinent CIRM documents are:

Radio Medical Assistance, Vol. I—Code Book. Establishes five letter code groups for medical messages addressed to CIRM Roma.

Radio Medical Assistance, Vol. II—Medical Guide. Provides diagnosis, initial treatment, advanced treatment, first aid, and medico message information for mariners' use at sea.

g. International Red Cross (IRC)

IRC coordinates disaster relief on an international scale without regard to political considerations. Normally all United States' rescue coordination centers will operate through the American National Red Cross (ARC) for any liaison requiring IRC action.

h. Foreign Rescue Organizations

Many nations maintain a search and rescue organization. However, the organizations differ from nation to nation depending on local circumstances. Some nations have specialized services similar to the USCG and the USAF Aerospace Rescue and Recovery Service (ARRS), some depend upon their military operational units, some depend on operational units of the civil branches of the government, some depend upon volunteer groups and some have combinations of all these in their organization.

i. Inter-American Defense Board (IADB)

The Council of Delegates to the Inter-American Defense Board has approved for use by Member States the IADB Search and Rescue Manual (DOC C-1542). The IADB Manual is based on the National Search and Rescue Manual. The IADB document has the advantage of providing standardized SAR procedures with translations into English, Spanish, Portuguese and French. The manual has been approved by the Joint Chiefs of Staff for use in rescue operations involving U.S. forces with other

member countries. IADB countries are Argentina, Bolivia, Brazil, Chile, Colombia, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, United States, Uruguay and Venezuela. In the interest of standardization, the procedures contained in the IADB SAR Manual (DOC C-1542) are recommended for combined rescue operations with member states. Copies are available through Department/Agency sources.

j. Lloyds, London

The Intelligence Department of Lloyds collects an enormous amount of shipping information and has worldwide contacts with the shipping industry. Although this information is collected mainly for underwriting purposes, Lloyds will supply pertinent information to SAR authorities on request in the event of a marine casualty or report of an overdue vessel. Information on a particular vessel, its owners or agents, which is not readily available may be accessible through Lloyds. The best means for U.S. SAR authorities to contact Lloyds is direct through international TELEX (No. 886691).

212 U.S. Federal Organizations

a. General

The national SAR plan (app. A) is the policy document on which this procedural manual is based. It is the direct result of a national policy statement approved by the President in May 1954. This policy statement was part of a broader statement of national policy known as Civil Air Policy. On search and rescue it stated:

It is the policy of the United States:

1. To provide a basic network of search and rescue facilities in the United States, its territories and possessions to serve both civil and military aviation, including the discharge of United States responsibilities as a result of United States adherence to the convention on International Civil Aviation.
2. To provide an overall search and rescue plan for effective utilization of all available facilities to include provisions for the control and coordination of all types of search and rescue missions.
3. To utilize available State and local search and rescue facilities to the maximum extent possible in an overall research and rescue plan, and to encourage their continued development.

The National SAR Plan implements the President's policy as stated above. It provides an overall plan for the control and coordination of all available facilities for all types of search and rescue operations. A single Federal agency coordinates all Federal SAR operations in any one area. The plan establishes three major groupings of SAR regions and designates regional SAR coordinators as follows:

Inland Region: U.S. Air Force.

Maritime Region: U.S. Coast Guard.

Overseas Regions: Overseas Unified Commanders.

Regional SAR coordinators are responsible for organizing existing agencies and their facilities, through suitable agreements, into a basic network for rendering assistance both to military and civilian persons and property in distress and to carry out the U.S.' ICAO obligations within their specific SAR regions.

b. Department of Defense (DOD)

As there is an indispensable requirement for military SAR in support of military operations, each armed service is responsible for providing SAR facilities in support of its own operations. In so doing, maximum consideration is given to inherent SAR capabilities of own forces, special forces with a primary SAR mission, and availability of SAR facilities within other Defense Department resources and the U.S. Coast Guard. All Department of Defense facilities are available for use to meet civil needs on the basis of noninterference with primary military missions. Under the national SAR plan, coordination of all DOD facilities committed to military or civil SAR missions is the responsibility of the designated SAR coordinator.

Commanding officers of all major military installations shall establish and maintain a base search and rescue plan designed primarily to provide SAR service for local base equipment and secondarily to assist in the National SAR Plan. Commanding officers should assign SAR Officers and alternates to develop plans and coordinate the use of local SAR resources with the RCC for their area. Appendix E provides a sample local SAR requirements regulation and appendix F provides a local base SAR organization plan outline to assist commanding officers in meeting this requirement.

1. Department of the Air Force (USAF). (a) Aerospace Rescue and Recovery Service (ARRS).—As executive agent for the USAF, ARRS has been designated the SAR coordinator for the Inland Region. ARRS has responsibility for organizing available facilities into a SAR network for rendering assistance to military and civilian persons and property in distress within the Inland Region.

ARRS is also assigned the responsibility of SAR support for USAF global air and space operations. This support is accomplished by globally deployed ARRS wings, groups, squadrons, detachments, and operating locations. These units are equipped with specifically designed equipment to accomplish precautionary flights, personnel, or equipment recovery, and pararescue missions wherever they are needed. ARRS resources include long range fixed-wing aircraft and rotary wing aircraft, plus highly trained pararescue personnel. ARRS operates the Inland Region RCC and provides personnel for most of the Overseas Region RCCs. ARRS resources are available to assist inland, maritime, and overseas SAR coordinators on a non-interference basis with the primary USAF mission.

ARRS also can deploy SAR mission coordinators and RCC controllers to support SAR operations in designated areas.

(b) Civil Air Patrol (CAP).—The CAP is the world's largest inland volunteer civilian SAR organization, and provides SAR services as an official auxiliary of the USAF. The CAP has a three-fold mission: emergency services, aerospace education, and a cadet program. Emergency services has a primary operational mission of providing SAR services in the inland area of the United States and its territories. The CAP has been largely instrumental in the success, on the working level, of the national SAR plan for the Inland Region and the Alaskan Overseas Region. The majority of the SAR missions in the Inland Region are flown by CAP pilots using privately owned aircraft. The CAP is capable of responding either to local and national disasters or to SAR missions, with a large fleet of light aircraft and pilots, a communications network of fixed, land-mobile, and air-mobile communications stations; and a ground rescue capability of numerous vehicles and ground rescue/ranger teams. The CAP, whose

senior members conduct most SAR missions, is composed of aviation-oriented civilians, military reservists, and active duty military volunteers. Its units are organized along conventional military lines with each State's Wing Commander carrying the CAP rank of colonel. CAP members are reimbursed for aviation fuel, lubricants, and communications expenses they incur while on official Air Force missions such as search and rescue. They are also supported by the donations of excess and surplus Air Force equipment. Almost all other fund requirements are obtained from annual membership dues, although some States support the CAP with appropriated funds.

2. Department of the Navy (USN). For naval SAR operations, facilities are normally provided from the operating forces of the Navy. Naval forces are well adapted for SAR due to their inherent mobility and the extensive communications network common to their operations. In numbers, equipment, and geographic location, naval forces constitute a major SAR resource for all areas included in the national SAR plan. Naval forces include extensive numbers and types of aircraft, vessels, submarines, sea-air-land (SEAL) teams, diving teams, pararescue teams, salvage forces, radar nets, SOFAR nets, and communications nets. The U.S. Navy maintains a worldwide long-range direction finding (DF) network. It cooperates with SAR coordinators in providing bearing and fix information for prosecution of SAR missions. (See para. 348 for DF net details.)

3. Department of the Army (USA). The Army maintains a SAR capability during the conduct of land operations for its own forces. SAR services are primarily provided by aviation units based at Army installations. Because the Army maintains no organizational rescue units, Army facilities for operational use are made available, under the National SAR Plan, as required on a noninterference basis with primary Army mission. Army helicopters and light aircraft have an effective capability for assistance during SAR operations and natural disasters. In addition ground parties, vehicles, medical personnel, portable field hospitals, portable field kitchens, and other support facilities may also be provided.

The Army has been designated the coordinator for all military support operations in response to natural disasters occurring within U.S. territories.

4. The Defense Civil Preparedness Agency (DCPA). The DCPA is within the Department of Defense, and has a mission of meeting and reducing the effects of enemy attack. It assists in maintaining a nation-wide pool of trained personnel and stockpiled equipment for ground rescue, airborne and ground radiological surveying, emergency operating centers, and communications networks. Local civil defense units are under the direct control of local governments. Natural disasters and large scale inland SAR missions may involve employment of civil defense resources. Several States have SAR coordinators in their civil defense of emergency service departments whose responsibility is to coordinate the SAR resources and operations within that State. State coordinators may also provide liaison with military units assisting in a civil SAR emergency or an incident involving Federal resources within the State.

Basically the civil defense chain of command follows the governmental chain with top governmental officials in any area having responsibility for civil defense. In most areas these officials use their organized agencies as civil defense components in times of emergency. For example the mayor of a city is responsible for all civil defense functions within his city, and assigns civil defense responsibility to his fire department, police department, sanitation department, etc. These departments would be supplemented by trained volunteers in time of emergency. However civil defense control remains with the established agencies. Use of civil defense material resources is normally limited to time of enemy attack. However, anytime a natural disaster or other disaster creates an emergency situation in a local area, the civil defense organization may be used. The local civil defense organization will include emergency operating centers (OEC's), trained fire fighting crews, medical facilities, facilities for handling mass casualties, facilities for handling large numbers of deceased personnel, etc. The civil defense operations plans include the necessary communications and unified control of all local facilities. Use of civil defense forces can

best be effected by local liaison with the mayor of a city or Governor of a State.

c. Department of Transportation (DOT)

1. U.S. Coast Guard (USCG). The U.S. Coast Guard is a military service and a branch of the Armed Forces of the United States at all times. During times of peace, it is a separate Federal agency operating under the Department of Transportation. In times of war or when the President so directs, it operates as a specialized service within the United States Naval establishment, and its responsibilities are subject to the orders of the Secretary of the Navy.

The Coast Guard has specific statutory authority and responsibility for developing, establishing, maintaining, and operating SAR facilities; for rendering aid to distressed persons and property, both military and civilian, on, over and under the high seas and waters subject to the jurisdiction of the United States; and may render aid to persons and protect/save property at any time and at any place at which Coast Guard facilities and personnel are available and can be effectively utilized.

Under the national SAR plan, the Coast Guard has responsibility for organizing available facilities into a SAR network for rendering assistance to military and civilian persons and property in distress within the maritime region.

The Coast Guard, as the world's largest search and rescue organization maintains a wide variety of SAR facilities. USCG resources include cutters, boats, aircraft—fixed-wing and rotary-wing, and numerous stations throughout the United States and its territories. Its operations are supported by an extensive communications network of coastal radio stations, specialized land-line circuits and numerous communications centers.

2. Coast Guard Auxiliary (CGAUX). CGAUX is the world's largest maritime volunteer civilian SAR organization, and provides SAR services as the official auxiliary of the Coast Guard. As defined by statute, the CGAUX has a four-fold mission:

(a) To promote safety and to effect rescues on and over the high seas and on navigable waters of the United States;

(b) To promote efficiency in the operation of motorboats and yachts;

(c) To foster a wider knowledge of, and better compliance with, the laws, rules, and regulations governing the operation of motorboats and yachts;

(d) To facilitate other operations of the Coast Guard.

The CGAUX membership is composed of small boat, yacht, aircraft, or amateur radio station owners, or persons with special qualifications desirable in the field of either boating safety or search and rescue. CGAUX members train for operational specialties in seamanship, navigation, communication, search and rescue, patrol procedures, weather, and administration.

3. Federal Aviation Administration (FAA). The FAA has broad statutory responsibility in the field of air safety. While not assigned any responsibility for conducting rescue operations, the FAA provides assistance in SAR operations through the use of its air traffic control and flight service facilities, and by providing alerting service for any aircraft requiring emergency aid.

The FAA maintains a nation-wide communications net for the control, coordination, and assistance of civil and military air traffic, which interfaces with international aeronautical communications services. In addition the FAA maintains a fleet of aircraft which may be utilized for SAR missions on a noninterference basis with primary FAA missions. These aircraft are of several types but have highly sophisticated electronic monitoring and detecting equipment in addition to the capability for precise area navigation. The FAA also maintains a nationwide VHF/UHF radio direction finding network.

The FAA U.S. Aircraft Registry Section maintains a current registry of all licensed U.S. civil aircraft, which includes owners names and addresses.

4. Interagency Committee on Search and Rescue (ICSAR)

The ICSAR is sponsored by the Coast Guard and includes membership from the agencies signatory to the National SAR Plan. It is chaired by the Chief, Office of Operations, U.S. Coast Guard and reports to the Secretary of

Transportation through the Commandant. Its objectives are:

(a) To provide a standing committee to oversee the National SAR Plan and coordinate interagency search and rescue matters.

(b) To provide a forum for preliminary development of interagency positions in search and rescue matters.

(c) To provide for an interface with other national agencies involved with emergency services.

A copy of the Agreement which established the committee is contained in Appendix A.

d. Other National Agencies

A number of other national agencies which have a special interest in emergency services, which provide helpful ancillary services for SAR, or which have facilities that may be able to assist in special cases are listed below.

1. National Oceanic and Atmospheric Administration (NOAA). Provides environmental information and predictions.

2. Federal Communications Commission (FCC). Operates a direction finder network which can be used in some cases for locating a distressed unit.

3. National Aeronautics and Space Administration (NASA). Has aircraft and worldwide tracking, data acquisition and communications networks which can be used to assist in SAR operations.

4. National Transportation Safety Board (NTSB). Provides investigative services and determines probable cause in aircraft, marine, highway, railroad, and pipeline accidents and recommends improvements to prevent SAR incidents.

5. National Park Service. Administers national park areas and provides emergency services therein.

6. U.S. Forest Service. Administers national forests and other lands. Can provide emergency services therein.

7. U.S. Public Health Service. Provides a radio medical service to merchant ships and medical officers to the Coast Guard.

8. Federal Disaster Assistance Administration (FDAA). Coordinates Federal assistance to States in major disasters.

9. Energy Research and Development Administration. Provides special expertise in ac-

cidents involving nuclear materials. See Interagency Radiological Assistance Plan (ERDA-10) and individual service directives.

10. American National Red Cross. A volunteer organization chartered by Congress which provides relief and rehabilitation to disaster victims. It is affiliated with the International Red Cross.

213 U.S. State Organizations

a. State SAR Coordinators

Some States have by statute or executive appointment designated a SAR coordinator who is charged with coordinating the SAR resources of the State.

b. Law Enforcement Agencies

Most States maintain some type of statewide law enforcement agency. These are the State Highway Patrol, State Safety Patrol, Rangers, or similar organizations. These organizations cooperate fully in assisting in the location of lost, stranded, or overdue personnel, boats and aircraft or other vehicles.

c. State Directors of Aviation

Most States have established a State Director of Aviation, or its equivalent, to coordinate aviation activities within its State. Some States have assigned search and rescue responsibility for aircraft accidents occurring within its boundaries to these directors. Close cooperation and coordination is required when conducting SAR operations under these circumstances. State SAR coordination is paramount to the federal SAR system in some of these States, however operational control of federal forces is normally not assigned to States.

d. State Boating Law Administrators (SBLA)

Most States have established a State Boating Law Administrator to coordinate all boating activities within its State. These are usually States which have enacted a Coast Guard-approved boating law. SBLA's can be most helpful in coordinating Federal and State assistance on waters of concurrent jurisdiction.

e. State Park Services

There are over 2,400 State parks and forestry areas throughout the United States. The capa-

bility of State park services to provide SAR services is similar to that of the National Park Service and the U.S. Forest Service.

214 U.S. County Organizations

Most of the county-size areas of the United States have established some form of county-wide government. Most of these county governments have established a county sheriff. The county sheriff is usually assigned SAR responsibility for incidents occurring within his county. Many county sheriffs have highly developed SAR systems including land, water, and air SAR capabilities, backed up with extensive communications capability.

215 U.S. Municipal Organizations

Almost all cities and towns have established police and fire departments which can provide limited SAR services. Large cities have developed police and fire departments to a very sophisticated level, including helicopters, light aircraft, boats, and vehicles that are capable of performing local SAR efficiently. In addition some municipalities maintain hospitals and ambulances which are capable of providing emergency care on scene or within the immediate area of a mishap.

Some cities have also developed extensive lifeguard and beach patrol groups which can respond to coastal SAR missions involving personnel or small craft close to the shoreline. These may include trained swimmers, scuba diving qualified personnel, boats, emergency care equipment, and helicopters.

216 Commercial and Private Organizations

There are certain commercial and private organizations which sometimes assist in the prosecution of a SAR case.

Aircraft and marine craft in transit may be requested to assist since they have a moral, and sometimes a legal, obligation to assist in cases of distress within their area of operations, if possible. Commercial towing and salvage companies may provide vessels to take over the towing or salvage of a vessel which is no longer in immediate danger. Arrangements for their services are usually made by the owner or agent of the disabled vessel. SAR units should not in-

terfere with this form of private enterprise providing that the commercial facilities are capable of completing the operation safely.

Other commercial and private organizations which might volunteer to assist in a SAR operation are commercial airlines, crop-dusting companies, oil companies, fishing companies, volunteer rescue squads, aeroclubs, etc. Sometimes these groups may start a SAR operation on their own. In any case, when such participation is expected, the group should be requested to coordinate its activities with the SAR operation being conducted by the RCC. If it is known that such groups are willing to assist in cases in their area, the RCC may apprise them of cases that occur where they can be of assistance and request advice on whether they are willing to participate.

SAR coordinators have no specific authority as such to hire commercial or private facilities or personnel to prosecute a SAR case. In rare instances where this might be considered, they will have to be guided by the governing laws and policies of their own service. It may be possible, in some cases, to have local or state officials procure such services since some states have legal provisions for doing this.

217 National Association for Search and Rescue (NASAR)

NASAR is a national non-profit association which is dedicated to developing increased state, federal, local and volunteer coordination and improvements in search and rescue services. The association also promotes survival education programs.

220 GEOGRAPHIC SAR ORGANIZATION

This element of the SAR organization defines the geographic boundaries of the United States' SAR areas, the designation of SAR coordinators for each area, and the responsibilities and duties of the designated SAR coordinators.

221 SAR Areas

SAR area is a general term for any geographically defined area of SAR responsibility. SAR areas as outlined in the National SAR Plan are called regions, subregions and sectors, with a subregion being a division of a region and a sector a division of a subregion.

As explained in paragraph 212a, the National Search and Rescue Plan assigned SAR coordination responsibility for U.S. interests throughout the world on the basis of three major groupings of areas: The Inland Region, the Maritime Region, and the Overseas Regions.

SAR area boundaries are established primarily for broad planning purposes. In specific cases they should never be allowed to become barriers to effective action.

Regional SAR coordinators may divide their regions into subregions and sectors as necessary. Temporary revisions of boundaries between regions, as defined in the National SAR Plan, may be made by mutual agreement between regional coordinators. However, if these are expected to become permanent, a recommendation should be made via the chain of command for amendment to the National SAR Plan.

Since SAR within the territory (including territorial waters) of any country is a sovereign right and a primary responsibility of that country, regional SAR coordinators must constantly take into consideration the laws, regulations, policies, and SAR capabilities of countries in-

volved with their region so as not to infringe upon the other country's sovereignty and to insure coordination between foreign SAR organizations and U.S. facilities which might assist them.

222 SAR Coordinator (SC)

A SAR Coordinator is the official or agency responsible for the SAR organization within a given area and for the coordination of SAR operations within that area. SCs are part of the geographic element and part of the mission element of the SAR organization. More detailed responsibilities and duties are listed in paragraph 281.

223 Inland SAR Region

The Chief of Staff, U.S. Air Force has designated the Commander, Aerospace Rescue and Recovery Service (ARRS) as his executive agent in implementing the National SAR Plan in the Inland Region. The Commander, ARRS has established a rescue coordination center at ARRS Headquarters, Scott Air Force Base, Ill. to coordinate SAR in the Inland Region (see figure 2-1).

Name of subdivision	Area of responsibility	Coordinator
Atlantic Maritime Region	The subregions described below	Commander Atlantic Area, U.S. Coast Guard—Atlantic SAR Coordinator.
Boston subregion	The area shown on figure 2-2 and the U.S. navigable waters within the 1st Coast Guard District.	Commander 1st Coast Guard District—Boston SAR Coordinator.
New York subregion	The area shown on figure 2-2 and the U.S. navigable waters within the 3d Coast Guard District.	Commander 3d Coast Guard District—New York SAR Coordinator.
Norfolk subregion	The area shown on figure 2-2 and the U.S. navigable waters within the 5th Coast Guard District.	Commander 5th Coast Guard District—Norfolk SAR Coordinator.
Miami subregion	The area shown on figure 2-2 and the U.S. navigable waters within the 7th Coast Guard District.	Commander 7th Coast Guard District—Miami SAR Coordinator.
San Juan sector	The area shown on figure 2-2	Commander, Greater Antilles Section, U.S. Coast Guard—San Juan SAR Coordinator.
New Orleans subregion	The area shown on figure 2-2 and the U.S. navigable waters within the 8th Coast Guard District.	Commander 8th Coast Guard District—New Orleans SAR Coordinator.
Cleveland subregion	The U.S. portion of the Great Lakes and other U.S. navigable waters within the 9th Coast Guard District.	Commander, 9th Coast Guard District—Great Lakes SAR coordinator.
St. Louis subregion	The central Mississippi River system and other U.S. navigable waters within the 2d Coast Guard District.	Commander, 2d Coast Guard District—Central Rivers SAR Coordinator.

Name of subdivision	Area of responsibility	Coordinator
Western Atlantic Oceanic subregion.	The area shown on figure 2-2.	Commander Atlantic Area, U.S. Coast Guard—Atlantic Oceanic SAR coordinator.
Pacific Maritime Region.	The Northern, Eastern, and Central Pacific subregions described below.	Commander Pacific Area U.S. Coast Guard—Pacific SAR Coordinator.
Northern Pacific subregion.	The area shown on figure 2-3 and the U.S. navigable waters within the 17th Coast Guard District.	Commander 17th Coast Guard District—Northern Pacific SAR Coordinator.
Juneau sector.	The area shown on figure 2-3.	Commander 17th Coast Guard District—Juneau SAR Coordinator.
Kodiak sector.	The area shown on figure 2-3.	Commanding Officer, USCG Air Station, Kodiak—Kodiak SAR Coordinator.
Adak sector.	The area shown on figure 2-3.	Commanding Officer, Naval Station, Adak—Adak SAR Coordinator.
Western Arctic sector.	The Arctic Seas north of the Kodiak SAR sector with the easternmost boundary at the 141° W. meridian and the westernmost boundary at the 100° E. meridian.	Commander 17th Coast Guard District—Juneau Arctic SAR coordinator.
Eastern Pacific subregion.	The area shown on figure 2-3 and the U.S. navigable waters within the 11th, 12th, and 13th Coast Guard District.	Commander Pacific Area U.S. Coast Guard—Eastern Pacific SAR Coordinator.
Seattle sector.	The area shown on figure 2-3 and the U.S. navigable waters within the 13th Coast Guard District.	Commander 13th Coast Guard District—Seattle SAR Coordinator.
San Francisco sector.	The area shown on figure 2-3 and the U.S. navigable waters within the 12th Coast Guard District.	Commander 12th Coast Guard District—San Francisco SAR Coordinator.
Long Beach sector.	The area shown on figure 2-3 and the U.S. navigable waters within the 11th Coast Guard District.	Commander 11th Coast Guard District—Long Beach SAR Coordinator.
Central Pacific subregion.	The area shown on figure 2-3.	Commander 14th Coast Guard District—Central Pacific SAR Coordinator.
Honolulu sector.	The area shown on figure 2-3.	Commander 14th Coast Guard District—Honolulu SAR Coordinator.
Midway sector.	The area shown on figure 2-3.	Commanding Officer, Naval Station, Midway—Midway SAR Coordinator.
Wake sector.	The area shown on figure 2-3.	Commander 14th Coast Guard District—Wake SAR Coordinator.
Guam sector.	The area shown on figure 2-3.	Commander Coast Guard Marianas Section—Guam SAR Coordinator.

224 Maritime SAR Region

The Commandant, U.S. Coast Guard has divided the Maritime Region into two major areas of responsibility—the Atlantic Maritime Region, and the Pacific Maritime Region. Commander, Atlantic Area, U.S. Coast Guard has been designated Atlantic Maritime Region SAR Coordinator and Commander Pacific Area, U.S. Coast Guard has been designated Pacific Maritime Region SAR Coordinator. Further subdivisions have been made into Subregions and Sectors. These are shown in figures 2-2 and 2-3. Some areas which are nominally within the Maritime Region are actually part of those

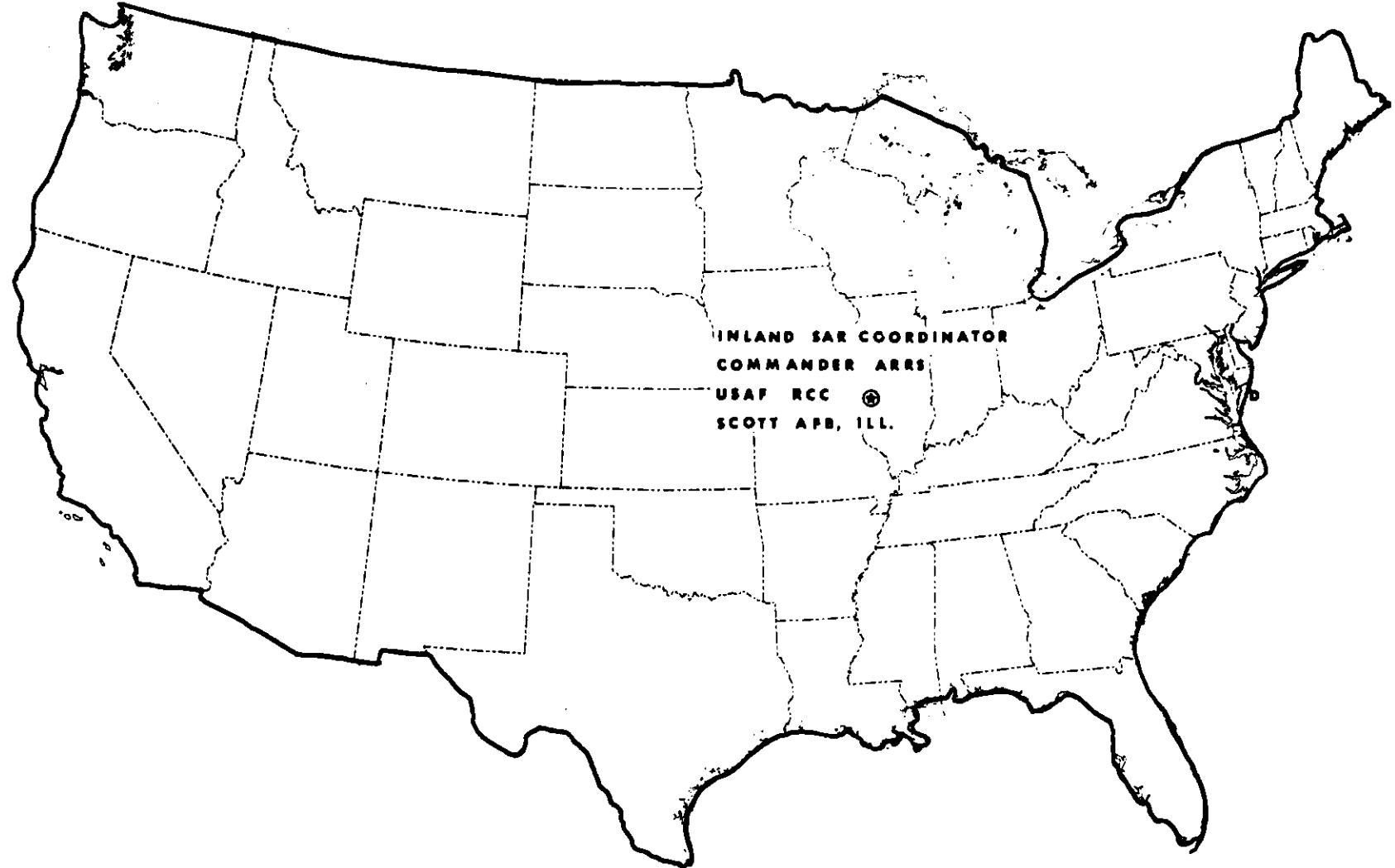
areas for which Canada has accepted SAR coordination responsibility.

Coast Guard and, by agreement, Navy commands have been designated as SAR Coordinators as shown above.

225 Overseas SAR Regions

The National SAR Plan designates unified commanders as SAR coordinators for the Overseas Regions. Overseas Regions are not as well defined as the Inland and Maritime regions. In general, they are contiguous with those portions of unified command areas which lie outside of the inland and maritime regions. Unified com-

SAR AREAS & COORDINATORS INLAND REGION



manders usually designate one of their subordinate commands to act as SAR coordinator for the region and in some cases for subdivisions of the regions. In order to determine the specific divisions of Overseas Regions and delegations of responsibilities, the operation plans and instructions of the unified commander concerned should be consulted.

SAR coordinators in Overseas Regions have the primary responsibility of developing plans and providing facilities to meet the SAR needs of U.S. military forces. They have the ancillary responsibility under the National SAR Plan of representing all U.S. SAR interests in their areas. Examples of the latter are: Providing SAR assistance upon request from foreign gov-

ernments within their area if within their capabilities or providing technical SAR advice to U.S. Foreign Service Posts (embassies and consulates) in evaluating cases where U.S. craft or U.S. citizens in foreign craft are missing. The amount of assistance that Overseas Coordinators can render in any specific instance depends upon the availability of U.S. facilities in the area in question. In some cases, even though U.S. facilities may not be available, Overseas Coordinators may be able to provide valuable aid through their liaison channels with foreign SAR authorities.

A listing of Overseas Regions is given below with designated SAR coordinators.

Oversea region	Regional coordinators	Subregional coordinators
Alaskan Command Area	Commander, Alaskan Air Command.	
Pacific Command Area	Commander in Chief, Pacific delegated to Commander in Chief, U.S. Air Forces, Pacific.	Western Pacific RCC.
Atlantic Command Area	Commander in Chief, Atlantic Fleet	Commander, Iceland Defense Force; Commander, U.S. Forces, Azores; Commander, Naval Forces, Caribbean; U.S. Commander, Eastern Atlantic.
Southern Command Area (including certain ocean areas delegated by CINCLANT and CINCPAC).	Commander, U.S. Southern Command delegated to Commander U.S. Air Forces, Southern Command.	
European Command Area	Commander in Chief, European Command delegated to Commander in Chief U.S. Air Forces, Europe.	

226 Areas Not Included in Regional Plans

For various reasons, some areas of the world have not been explicitly included in the plans of any U.S. regional SAR coordinator. However, in some of these areas, working arrangements have developed for handling cases where the United States has a SAR interest. These are outlined below:

(a) Canada and Areas of Canadian Maritime Responsibility.—SAR questions involving U.S. craft, U.S. citizens, or the provision of U.S. facilities to assist in operations in Canada or areas of Canadian responsibility are handled directly between the controlling Canadian RCC and the nearest appropriate continental U.S. RCC. (See app. D for an outline of the Canadian SAR organization.)

b. Mexico.—SAR questions involving U.S.

craft, U.S. citizens, or provision of U.S. facilities to assist in operations in Mexico are handled by the U.S. Embassy, Mexico City, with the nearest appropriate continental U.S. RCC.

c. Greenland.—As a result of agreements between the United States and Denmark, certain U.S. facilities in Greenland are available for SAR in Greenland. These facilities are under the operational command of the Air Defense Command. Aviation SAR incidents in Greenland are usually handled by the Rescue Coordination Center at Sondrestrom Air Base, operated by ARRS personnel.

d. Remote Areas.—Certain remote areas of the world, while within the boundaries of a national SAR region, are devoid of any U.S. facilities which can render SAR assistance under normal circumstances. When military operations are conducted in such areas, the situation

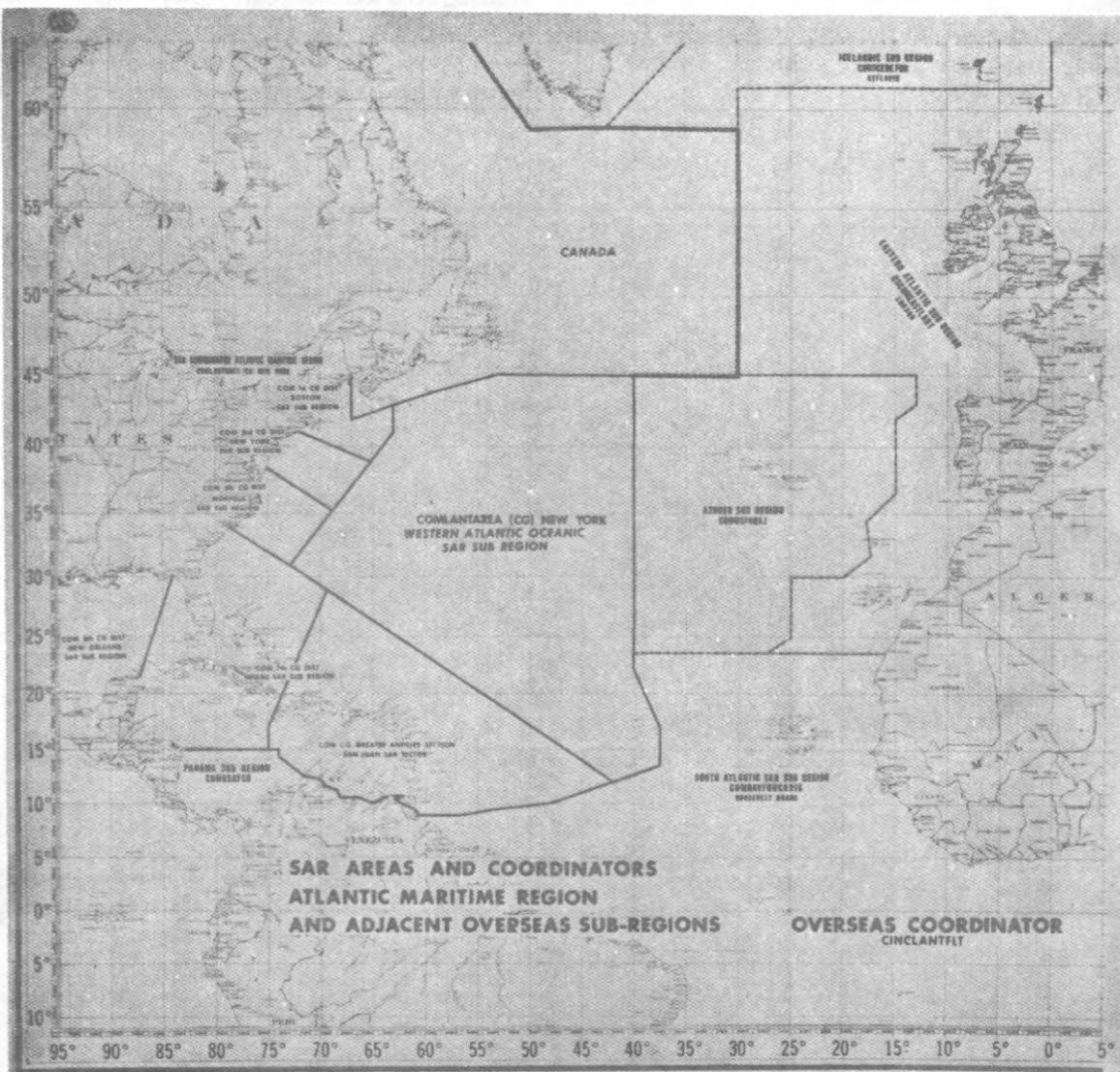


FIGURE 2-2

is considered as falling within the category of special military operations. In such instances, the responsible commander provides for SAR in his operation plans. In rare instances when a U.S. SAR question arises concerning remote areas, the assistance of U.S. military attaches, U.S. embassies and U.S. consular posts can be helpful in resolving the question, usually by obtaining the necessary assistance from another country.

227 SAR Plan

Each designated SAR coordinator is required to develop a SAR plan for his assigned area.

This plan describes the detailed procedures to be observed when conducting SAR operations in that area. The SAR plan should include the following information:

- The manner in which U.S. SAR operations shall be conducted in the area.
- Available SAR facilities, primary and secondary, and priority of use.
- Other facilities which serve as alerting posts such as air route traffic control centers and flight service stations.
- A list of other services likely to be useful.
- The responsibilities of personnel assigned to SAR duties.

f. Contact officials for requesting SAR facilities.

g. Arrangements for refueling and servicing of aircraft, vessels, and vehicles engaged on SAR missions.

h. The organization of communications including: the location, call signs, hours of watch, and frequencies of all radio stations likely to be employed in search and rescue; locations and hours of watch of services keeping radio watch

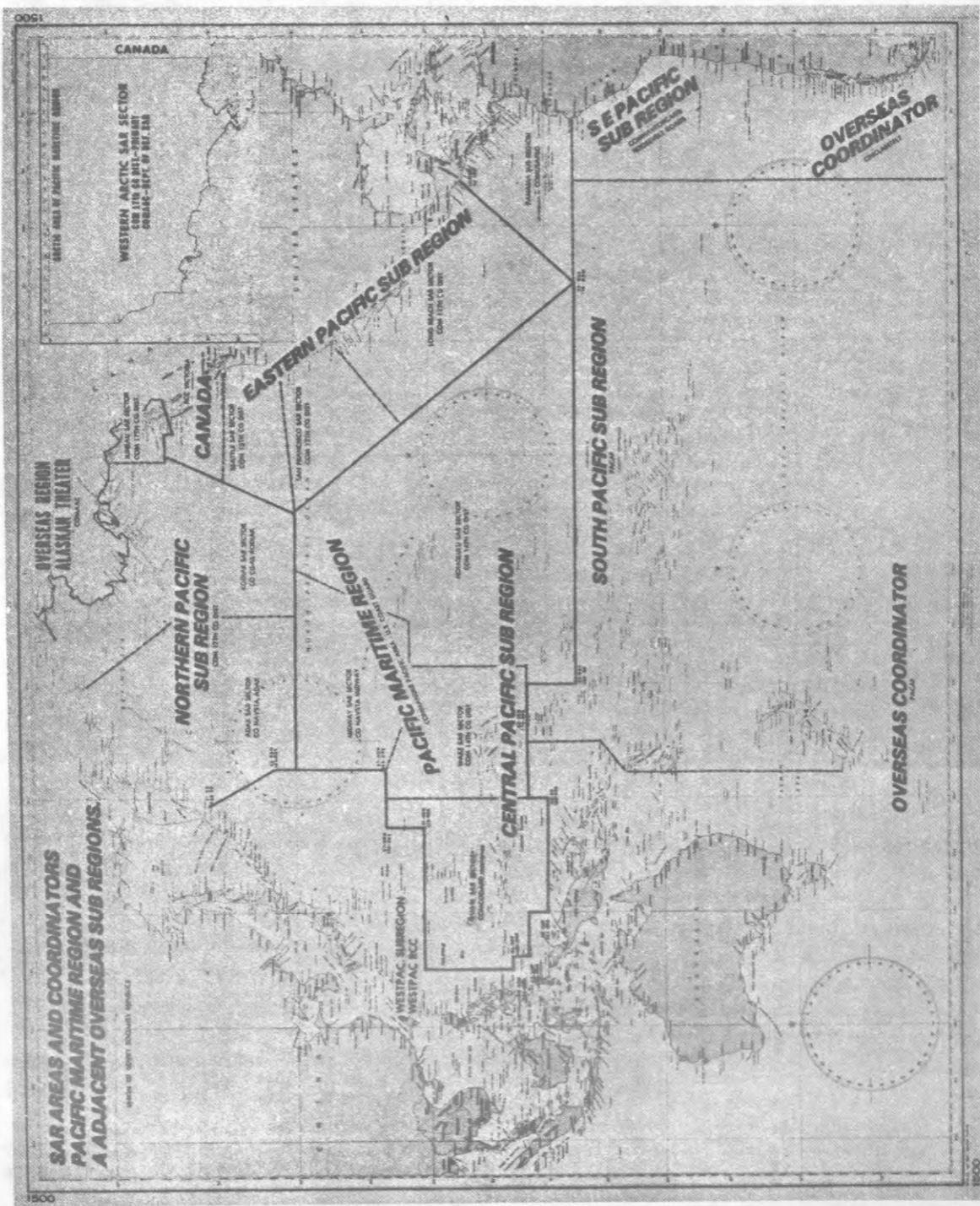


FIGURE 2-3

and the frequencies guarded; SAR mission communications, including assignment of control channels, on scene channels, monitor channels, and call signs; radio schedules; SAR message formats; SAR message routing; and supporting fixed stations.

i. Obtaining essential information, including notices to airmen, notices to mariners, past/present/forecast weather and oceanographic data and distressed craft's movement data.

j. A record, and if possible, photographs of all unremoved and unobiterated aircraft wreckage or vessel wrecks within the area. (This record may be maintained in the RCC instead of the SAR plan.)

k. Conduct of joint SAR operations with adjacent areas both national and foreign.

l. Method of alerting enroute aircraft and vessels.

m. Method of obtaining ship position information in maritime areas.

n. Procedures for assisting aircraft which must ditch in rendezvousing with surface craft, if in maritime areas.

o. Coordination with accident investigation boards, medical teams, aircraft operators, and merchant vessel agents.

p. Establishment of training programs.

q. SAR personnel orientation visits to RCCs, RSCs, and SAR facilities.

r. Any special provisions such as plans for the redeployment of equipment necessitated by expected meteorological or other disturbances.

s. Holding of periodic discussions between SAR personnel and other interested parties on such subjects as SAR system efficiency, SAR mission critiques, emergency procedures used by airmen and mariners, emergency and survival equipment carried by vessels and aircraft, and SAR facilities improvements.

agencies and the use and coordination of facilities committed to SAR missions. Written agreements will normally involve officials of comparable levels in their respective agencies. Written agreements should be as brief as possible, covering only those specific items for which the agreement is deemed necessary. They should not be repetitious or contradictory of matters contained in the National SAR Plan or agreements of superiors.

SAR coordinators may make agreements with foreign SAR authorities only as prescribed in individual service directives (see AFM 11-21; USCG Addendum to CG 308).

230 SAR MISSION ORGANIZATION

This element of the SAR organization defines the individual mission organization established when prosecuting a SAR operation. The designations, responsibilities, and duties of the SAR Coordinator, SAR Mission Coordinator (SMC), On-Scene Commander (OSC), on scene SAR units, and their interrelationship is covered. Figure 2-4 depicts typical SAR mission organizations.

This manual, together with the SAR coordinator's SAR plan, provide operating personnel with sufficient guidance to effectively prosecute an actual search and rescue mission.

231 SAR Coordinator's Responsibilities and Duties

a. General

The term SAR Coordinator (SC) has been defined in paragraph 222. The designated SC has the primary responsibility of insuring that a SAR operation can be promptly initiated and thoroughly prosecuted with maximum efficient use of available SAR resources, until rescue has been effected or until chance of success is no longer a reasonable possibility.

b. Coordination Relationship

SAR operations are normally coordinated at the smallest division level within a search and rescue region. However, subregional SAR coordinators are responsible to appropriate regional SAR coordinators for the coordination of SAR operations occurring within their designated subregions. In those missions

228 SAR Agreements

SAR agreements involving Federal, State, local, and private agencies may be made by SAR coordinators of any search and rescue area. They may be either informal, verbal agreements, or they may be formal written documents. Agreements shall provide for the maximum practicable cooperation of such

requiring a high degree of coordination between subregions or employing SAR facilities of other subregions, the appropriate regional SAR coordinator may assume overall coordination of that mission. This same concept applies in a similar manner to sector/subregion SAR coordination. Military component commanders may retain control of missions involving their own forces.

c. Initial Mission Responsibility

The SAR coordinator who receives the initial information of a distress or other emergency situation, shall assume SAR responsibility for that mission and take appropriate initial action to relieve the situation, regardless of the location.

d. Transferring Mission Responsibility

When a SAR coordinator has activated the SAR system in response to a distress or other emergency situation outside of his assigned search and rescue area, he shall contact the SAR coordinator within whose area the distress or emergency condition is occurring as soon as possible, and advise him of all mission information, actions taken or contemplated, and transfer SAR mission responsibility to that SAR coordinator. If that SAR coordinator is unable to accept SAR mission responsibility, the initially responding SAR coordinator shall retain responsibility.

Occasionally a mission can be more effectively controlled by an adjacent SAR coordinator rather than the SAR coordinator within whose area the incident is occurring. This may be due to such things as weather, relative locations of rescue coordination centers or SMC's workloads, or other considerations. In this situation, SAR mission responsibility may be transferred between SAR coordinators by mutual agreement. All assisting forces must be notified whenever this is accomplished.

e. Overlapping Mission Responsibility

Sometimes a SAR mission will encompass two or more search and rescue areas. For example an aircraft or vessel may be reported overdue or missing, and his proposed track crossed more than one search and rescue area. In this situation the SAR coordinator within whose area the last position report was re-

ceived shall assume SAR mission responsibility. If the last position report was received at the boundary of two areas, the SAR coordinator of the area toward which the craft was proceeding shall assume SAR mission responsibility. If no position reports were received due to lack of two-way radio equipment, or due to the craft's being under no obligation to send position reports, the SAR coordinator of the area to which that craft was destined shall assume SAR mission responsibility.

f. SAR Coordinator's Duties

In order to fulfill his SAR responsibility, the SAR coordinator shall:

1. Establish a rescue coordination center (RCC) to coordinate all participating search and rescue units and facilities within his area of responsibility.
2. Establish as many rescue sub-centers (RSCs) as may be required for those portions of his area within which the RCC can not exercise direct and effective coordination of SAR facilities.
3. Ensure that the RCC and RSCs conform to the SAR procedures which have been established by this manual.
4. Establish close liaison and formulate agreements with other services, agencies, and organizations having a SAR potential.
5. Establish liaison with SAR authorities of neighboring nations, to insure mutual co-operation and coordination in combined operations.
6. Ensure that a comprehensive and current SAR plan is prepared and distributed to appropriate activities. (See para. 227.)
7. Establish and supervise communication facilities and assign SAR frequencies, from those authorized, to units designated for SAR tasks. Communications must be established with other commands, participating agencies, adjoining RCCs and interested civilian agencies to insure two-way alerting and dissemination of SAR information.
8. Take immediate action to provide assistance. Relay, when indicated, to the adjoining RCC all information received concerning distress incidents and any action taken.

9. Report to the operating command or agency of any craft or ground unit in need of assistance, the initial action taken, and keep that agency informed of all pertinent developments.

10. Make assignments of surface and air facilities in SAR operations.

11. Designate SMC's for specific SAR missions.

12. Follow each mission closely until assistance is no longer necessary, rescue has been effected, or until chance of success is no longer a reasonable possibility. When terminating a search, the SAR coordinator shall report such action to the appropriate operating command or agency and the next highest SAR coordinator within the SAR region.

13. Take appropriate action for SAR operations occurring near the border of an adjoining area when it is not known which SAR coordinator has definite responsibility. The SAR coordinators involved shall then agree on who will assume responsibility for coordination of the specific case.

unit. The practice of designating a command rather than an individual as SMC is the more common practice, and all SAR personnel should understand that it is actually the commanding officer of that activity that has the SMC responsibilities.

b. Qualifications

Major military commands which may be assigned SAR mission coordination responsibilities normally have previously appointed a staff officer as "search and rescue officer" and assistants, each of whom is capable of carrying out all SMC duties. RCC controllers and SAR officers are required to continually review and maintain proficiency in the doctrine, procedures and techniques of the "National Search and Rescue Manual," the SAR plan for the appropriate area, and/or the local base SAR plan. It is impossible to effectively and efficiently prosecute a SAR mission without thorough knowledge of this manual and appropriate SAR plans. Since most SMC duties require extensive communications capabilities, floating and airborne commands are not usually designated SMC. The one major exception is large naval task forces which do have extensive communications capabilities as well as extensive facilities for SAR employment.

c. Authority

The authority of the SMC while prosecuting a mission carries with it full operational authority of the SAR coordinator who designated him as the SMC.

d. Responsibilities

The SMC is responsible for efficiently prosecuting a SAR mission using the facilities made available to him by the SAR coordinator and other commands. His responsibilities include the prompt dispatch of appropriate and adequate SAR facilities and the thorough prosecution of SAR operations until rescue has been effected, or chance of success is no longer a reasonable possibility. In general the SMC has responsibility for coordinating and controlling a specific SAR mission from the time of designation as SMC to the termination of that mission. In other words the SMC is responsible for all of the SAR stages of the SAR system.

Typical SAR Mission Organizations

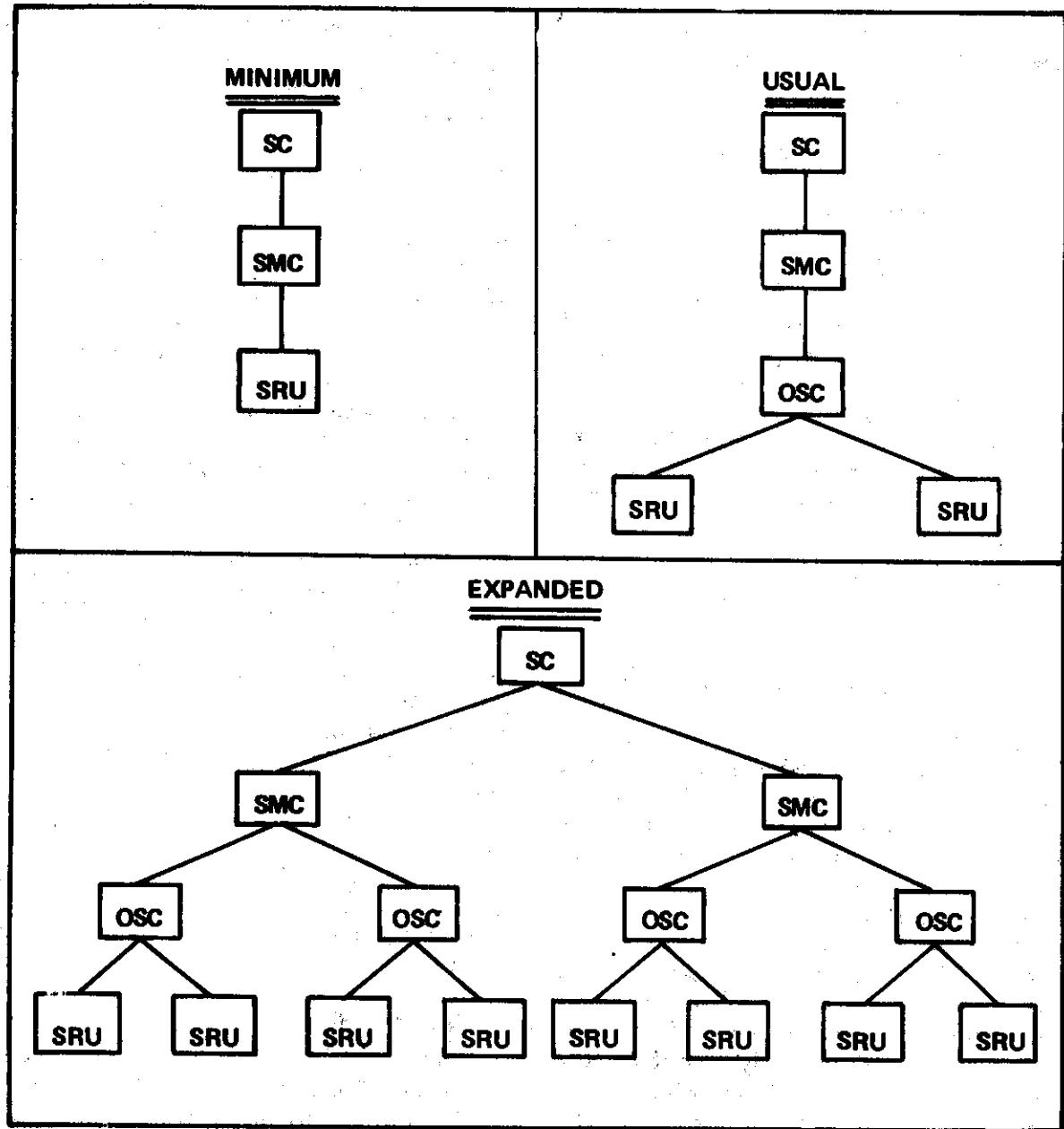


FIGURE 2-4

e. Duties

An SMC is concerned with immediate operations. SAR coordinators, participating agencies, and operating facilities having actual or potential SMC responsibilities should prepare checkoff lists in all appropriate details for the types of cases which might reasonably be assigned to them.

The SMC should provide for all of the stages

of the SAR system. In general his duties are:

1. Evaluate all information pertaining to the mission that he can obtain.
2. Classify the SAR mission into the appropriate emergency phase (uncertainty, alert, distress) if this has not already been done.
3. Alert appropriate SAR facilities and SAR organizations that may be of assistance during the mission.

4. Dispatch initial SAR force, if situation warrants.
5. For overdue marine craft, conduct preliminary communications search (PRECOM) and, for all craft, extended communications search (EXCOM) to obtain additional information on the distressed craft, its equipment, its operating personnel, etc.
6. Conduct planning for the prosecution of the operation. Prepare optimum plans and promulgate attainable plans.
7. Keep informed on past/present/forecast weather and oceanographic conditions within, approaching, and along enroute tracks to the operating area.
8. Provide for: SAR crews' briefing, dispatching of appropriate SAR craft and personnel, designation of an OSC, debriefing of SAR crews, and all support through the completion of mission.
9. Designate communications control channel, on scene channels, and monitoring channels with frequencies to be used during a mission.
10. Maintain a continuous, chronological plot showing DF bearings, fixes, areas searched, probability of detection percentages, sightings, and leads. If search effort extends beyond one day, use transparent overlays for each 12 or 24 hours of search effort.
11. Maintain a continuous, chronological record, or log, of the mission effort, including actions taken, SAR craft employed, sorties, hours flown/underway, sightings, leads, results obtained, message traffic, telephone calls, daily evaluation of progress, and probability of detection.
12. Initiate marine distress broadcasts or marine information broadcasts and enroute aircraft emergency alerts as required. Follow up with Notice to Airmen or Notice to Mariners as necessary.
13. Direct ground radio stations to maintain communications, establishing a communications schedule if necessary.
14. Request additional SAR facilities, if needed.
15. Exercise SAR operational control over all forces assigned.
16. Keep the operating command or agency of any craft being assisted fully advised of actions taken and all pertinent developments.
17. Keep SAR coordinator fully advised of SAR mission progress with timely situation reports (SITREPS) at least once daily, and any time a significant development occurs. SITREPS should be sent in a numbered sequence.
18. Issue news media releases on progress of mission as necessary. Answer all queries from news media in accordance with agency policies.
19. Provide for final debriefing of SAR crews, dealert and release SAR facilities and organizations involved, insure that SAR alert forces are relocated to normal standby location, refueled, replenished, and remanned as required, the SAR mission is documented, and the SAR coordinator and operating command or agency of the distressed craft are advised of mission termination and final results.
20. The SMC should consult with the SAR coordinator prior to terminating an unsuccessful SAR mission.
21. Compress, modify, combine, or bypass SAR stages as required to cope with unique, unusual, or changing circumstances of the emergency.

f. Multiple SAR Mission Coordinators

Occasionally the possible area within which a distressed craft may be located is extremely large. In this event the SAR coordinator may, at his discretion, assign two or more SMC's for the same mission. When this is done the SAR coordinator will always specify the exact geographic boundaries of areas within which each SMC will prosecute the search and rescue effort.

233 On Scene Commander (OSC)

a. Designation

The OSC is the official designated by the SMC for coordinating and controlling a specific SAR mission at the scene. The OSC is subordinate to the SMC. The OSC may be a designated official of the SMC's own service, or a designated official of some other agency with superior equipment or facilities for coordinating and controlling that SAR mission on scene. An OSC is not required for all missions, although the general rule is to designate an OSC anytime there are two or more SAR units on scene. The SMC should always designate an OSC when coordination can be better accomplished by an official at the scene. If the SMC does not desig-

nate an OSC for a particular mission, the commanding officer of the first SAR unit to arrive on scene shall assume OSC responsibilities, advise the SMC of this and perform all the duties of an OSC. Designation as OSC may be given in two forms; the OSC is designated by name and rank, or a particular facility may be designated OSC. When a facility is designated OSC, it is understood that the commanding officer of that facility is officially designated as the OSC rather than the facility. The practice of designating a facility rather than an individual as OSC is the more common practice, and all SAR personnel should understand that it is the commanding officer of that facility who has the OSC responsibilities.

Frequent change of the OSC is not desirable. To provide continuity of command, any officer who is senior to the military OSC, and who arrives subsequently, should not take over command of operations unless: (1) Ordered to do so by the SMC, or (2) such senior officer present decides that a change of command is essential. Relief of OSC shall be reported to the SMC by the officer assuming OSC duties.

b. Qualifications

The unit designated as OSC should be both adequately manned and suitably equipped to accomplish the required OSC duties. The SAR unit selected as OSC should be proficient in the doctrine, procedures, and techniques of the "National Search and Rescue Manual," the SAR plan for the appropriate area, and/or the local base SAR plan. Since continuity of operations is important for effective coordination, the OSC should have the capability of remaining on scene for an extended period of time. The OSC should be capable of communicating with all on scene SAR units, the SMC, and the distressed craft. As a minimum, the OSC must maintain a communications link with the SMC and with all SAR units on scene.

Large fixed-wing SAR aircraft such as the HC-130, make excellent OSC platforms, due to their extensive communication capabilities, reasonably long on scene duration capability, and adequate space for the OSC to accomplish his necessary planning, charting, and coordination duties. Medium and high endurance Coast Guard cutters (over 150 feet in length) and naval vessels of destroyer escort size and above

make excellent OSC platforms, due to their extensive communication capabilities, long duration when compared to aircraft, and large working space available for the OSC. In general the smaller the aircraft or surface craft, the less will be its OSC capabilities, primarily due to their lesser communications capability, on scene duration, and OSC working space.

The SMC must consider the experience and training of the personnel manning the unit selected as OSC. All other things being equal, preference should be given to SAR units manned with personnel having SAR as a primary mission. An additional factor that must be considered in missions of large magnitude, where many SAR units must be controlled by an airborne OSC, is the provision of an OSC team. For these large coordinating requirements the SMC should provide an OSC team in addition to the flight crew of aircraft designated as OSC.

Suitably equipped ground facilities have at times been used as OSC's with satisfactory results. As long as the minimum communications requirements can be met and the ground facility has adequately trained personnel, a ground facility may be designated as OSC.

c. Authority

The authority of the OSC while prosecuting a mission on scene carries with it the full operational authority of the SMC who designated him as the OSC. The OSC has operational control of all SAR units assigned to him by the SMC or other participating agencies, during the time that the units are on scene engaged in the SAR mission. Operational control of SAR units en route to and from the scene of the SAR effort remains vested in the parent agency. The agency is authorized to withdraw its units from the SAR mission at any time it deems it necessary or required. When this is done the parent agency withdrawing forces should advise the SMC as early as possible to permit the SMC to obtain and dispatch suitable relief facilities to the scene prior to the departure of the withdrawn forces.

d. Responsibilities

The OSC is responsible for efficiently prosecuting the SAR mission on scene, using facilities that are made available to him by the SAR

mission coordinator, and for safely, efficiently, and expeditiously carrying out the SMC's SAR action plans. If necessary the OSC should modify the SMC's SAR action plans to cope with changing on scene conditions. In the absence of a sufficiently detailed SAR action plan from the SMC, the OSC is responsible for completion of those SMC duties which pertain to any on scene operation and for notifying the SMC of this action. The unit designated as OSC retains his responsibilities from the time of designation until relieved or until the mission is terminated.

e. Duties

An OSC is concerned with immediate on scene operations. SAR facilities which have a potential for OSC responsibilities should prepare checkoff lists in all appropriate details for the types of missions which might reasonably be assigned to them.

In general the OSC will perform the following duties:

1. Execute the SMC's SAR action plans.
2. Modify the plans as required to cope with changing on scene conditions. Consider such variables as available SAR units, wind, weather, visibility, turbulence, flying conditions, SAR units' endurance, new target information, and new developments on scene. Advise SMC of all major changes. When time permits, OSC should also doublecheck the SMC's search planning and, if any discrepancies are noted, advise the SMC.
3. Assume SAR operational control of all SAR units assigned to his search area, and coordinate all of their SAR efforts.
4. Establish and maintain communications with the SMC via the appropriate radio station using the designated control channels.
5. Submit numbered situation reports (SITREPS) at regular intervals to the SMC for action. (Do not include information addressees. The SMC will keep all interested agencies informed). Submit SITREP No. 1 with the on scene weather immediately upon arrival on scene or upon assuming OSC. Information that the SMC needs from the OSC includes:
 - (a) SAR unit arrival information: On scene arrival times; estimated time of departure; and position of departure, if appropriate.
 - (b) SAR unit departure information: Departure from scene; and estimated time of arrival at destination.
 - (c) On scene weather, wind, and sea conditions when significant changes occur, and at least every 4 hours if the SMC has not directed a shorter time interval.
 - (d) Any pertinent new developments or sightings.
 - (e) Any major modifications made to SMC's SAR action plans.
 - (f) Any request for additional assistance.
 - (g) Summary of search areas completed with average probabilities of detection for specific search targets.
 - (h) Aircraft wreckage or sunken vessels requiring marking.
 - (i) Recommendations for future SAR action plans.
 - (j) Relief of OSC by another SAR unit.
6. Establish and maintain communications with all SAR units, using the designated on scene channels. Require all aircraft to make "Operations Normal" reports to him and not to air traffic control agencies (every 15 minutes for single-engine aircraft and every 30 minutes for multi-engine aircraft). Position reports from SAR units are not required as long as they remain in their assigned search areas.
7. Obtain necessary arrival information from arriving SAR units. SAR units should contact the OSC 15 to 20 minutes prior to their estimated time of arrival (ETA) on scene. Arrival information includes: ETA on scene, on scene communications capability, planned search speed, and on scene endurance. If the SAR unit is an aircraft, additional information includes: En route IFF/SIF transponder assignment, intended time of departure from scene, type of flight plan, planned return flight level or altitude, and planned time of leaving airspace controlled by an air traffic control agency.
8. Provide initial briefing and search instructions to arriving SAR units.
9. If capabilities permit, provide air traffic control services to arriving and departing SAR aircraft. Otherwise, provide advisory service (e.g. radar positions, locations, and altitudes of other aircraft, etc.) to aid pilots in maintaining separation from one another; emphasize to pilots this is advisory service only.

10. Receive and evaluate sighting reports from all units. Coordinate and divert surface units or helicopters to evaluate sightings.

11. Obtain results of search as each unit departs the scene.

12. If it is necessary to depart scene, shift the duty of OSC to the SAR unit remaining which is best able to perform OSC duties. Brief the selected relief OSC on the current situation.

f. Multiple OSC's

Occasionally the area within which a distressed craft may be located is extremely large. In this event the SMC may, at his discretion, assign two or more OSCs for the same SAR effort. When this is done, the SMC will usually specify exact geographic boundaries of areas within which each OSC will have responsibility. Another situation which may involve multiple OSCs could occur when multiple aircraft are participating with surface craft. For flight safety reasons it is often wise to split OSC responsibilities between surface and air. The SMC may assign an aircraft as OSC of all aircraft SAR units, and select a surface unit as OSC for all surface SAR units. In this case geographic boundaries are not used. Occasionally it is necessary to assign an airborne OSC and a surface OSC when there is no communications link available between the surface craft and aircraft. The SMC must exercise a greater degree of coordination when employing this method of multiple OSC assignments.

234 Search and Rescue Unit (SRU)

a. Designation

A search and rescue unit (SRU) is a facility that actually performs the search, rescue, or similar operation during any of the SAR stages. An SRU may be either a facility with an assigned primary duty of SAR, or a facility made available to the SC, SMC, or OSC for a specific SAR mission by a parent agency which has no assigned primary SAR duty. The SRU is subordinate to the OSC while engaged in SAR operations on scene. SRU's are normally designated by name if a large vessel, submarine, or ground party; or by type and side number if an aircraft, boat, or ground vehicle. SRU designation by classified, tactical call signs should be used only in hostile enemy territory. These are not employed in normal SAR operations.

Some SAR coordinators have authorized more specific abbreviations for search and rescue units, in addition to the general abbreviation of SRU. Some of these abbreviations are: Search unit, SU, rescue unit, RU; pararescue unit, PRU; and mountain rescue unit, MRU. This manual uses only the general abbreviation SRU.

b. Qualifications

An SRU should be both adequately manned and suitably equipped to accomplish the required tasks. The SRU selected should be proficient in the specific search, rescue, or other operation that it will be engaged in during the mission. When possible, SAR units selected should be proficient in the doctrine, procedures, and techniques of the "National Search and Rescue Manual." Normally the SAR coordinator or SMC will select those facilities with a primary SAR duty before he will select SAR facilities from other agencies. A knowledge of the capabilities and limitations of available facilities within the search and rescue area is necessary for an intelligent selection of SAR units. Chapter 3—SAR FACILITIES, describes some of the more common SAR facilities available to most SAR coordinators.

c. Authority

The authority of search and rescue units during the time they are prosecuting a mission on scene is limited to that authority necessary to accomplish their assigned task. All SAR units are under the operational control of the OSC during the time that the units are on scene engaged in the SAR mission. SAR units en route to and from the scene of the SAR effort are under the operational control of their parent agency.

d. Responsibilities

The search and rescue unit is responsible for efficiently prosecuting his assigned SAR task. If the SAR unit is engaged in an independent task with no other SAR units on scene, he will perform all the duties of OSC with respect to keeping the SMC advised.

e. Duties

SAR units are concerned with completing specific SAR tasks. SAR facilities should prepare checkoff lists with all appropriate details

for the types of missions which might reasonably be assigned to them.

Generally, SAR units will perform the following duties:

1. Execute the SMC's SAR action plans as modified and as directed by the OSC.

2. Establish and maintain communications with the OSC from approximately 15 minutes prior to arrival on scene, until release by the OSC and departure from the scene.

3. Furnish the OSC with arrival information upon initial communications contact, including ETA on scene, any limitations on operational capability which might affect performance (e.g. breakdowns in communications, navigation equipment, radar, etc.), planned search speed, and on scene endurance. If the SAR unit is an aircraft, also furnish: En route IFF/SIF transponder assignment, intended departure point and time, type of flight plan, planned return flight level or altitude, and planned time of leaving airspace controlled by an air traffic control agency.

4. Aircraft SRU's make "Operations Normal" reports to the OSC every 15 minutes for single-engine aircraft and every 30 minutes for multi-engine aircraft.

5. If survivors are sighted, advise the OSC as soon as possible, including the following items, if known:

- (a) Position.
- (b) Survivor identity.
- (c) Physical condition of survivors.
- (d) Wind, weather, and sea conditions.
- (e) SRU fuel remaining, in hours.
- (f) Type of emergency equipment being used by survivors, needed by survivors, or air dropped to survivors.

6. If aircraft wreckage, unusual ground disfiguration, debris, empty life boats or life rafts, oil slicks, sea-dye marker, flares, smoke, or any other unusual object is sighted, advise the OSC as soon as possible, including the following items:

- (a) Position.
- (b) Detailed description of object.
- (c) Concentration of objects, if several sighted.
- (d) Wind, weather, and sea conditions.
- (e) SRU evaluation of object.

7. If a radio, radar, sonar, or any other emergency signal or possible survivor transmission is

detected on any of the monitor channels or sensing devices of the SRU, advise the OSC as soon as possible, including the following items, if known:

- (a) SRU position when detection made.
- (b) Detailed description of signal detected.
- (c) Exact times signal commenced and terminated.
- (d) DF/ECM/Sonar bearing of signal from SRU position.
- (e) Frequency that signal was being transmitted upon.
- (f) Signal strength.
- (g) Actions taken by SRU. (Homing in or continuing search pattern.)
- (h) SRU evaluation of signal.
- 8. Maintain a suitable marking device available for immediate jettisoning to mark all sightings. Marking devices include drift signals, smoke floats, sea-dye marker, floating electric lantern, floating radar/radio/TACAN beacons, crash position indicating beacons, and similar devices.
- 9. If survivors are sighted, or the scene of distress is located, observe the following procedures, as appropriate:
 - (a) Keep survivors, or distressed craft, in sight at all times (assign a specific lookout to this task).
 - (b) Mark position.
 - (c) If the SRU is an aircraft and circumstances are such that the pilot needs to mark the position by radar, he should obtain an identifying IFF/SIF Mode/Code from appropriate radar control facility. With no communications, and as a last resort, the pilot may switch IFF/SIF to emergency, mode 1-on, mode 2-on, and mode 3-code 7700.
 - (d) If the SRU is an aircraft, airdrop appropriate and available emergency equipment.
 - (e) Make survivor sighting report to OSC.
 - (f) Direct potential rescue vessels, helicopters, or ground party to the scene by all available radio, electronic, and visual signals.
 - (g) Effect rescue if SRU is capable.
 - (h) Remain on scene as long as fuel endurance permits, or until relieved by another unit.
 - (i) Inform survivors they have been sighted by any of the following means: Via emergency radio; firing two green star shells a few seconds apart; making two white flashes with signal

lamp; flying low over survivors with landing lights on; dropping two orange smoke signals a few seconds apart; making two distinct puffs of stack smoke 1 minute apart.

10. Upon completion of SAR task, report to OSC the results including such items as: Search results; area actually searched; ceiling, visibility, and wind in search area; probability of detection or coverage factor for visual search, radar search, electronic search and other type searches that were conducted.

11. Upon return to base, report to SAR mission debriefing officer or contact SMC for mission debriefing.

f. Multiple SAR Units

Many SAR missions involve more than one SRU. As a result the SMC and OSC must exercise a very close control over SRU's and coordinate their efforts efficiently and safely. SRUs must comply with OSC directions, in order not to endanger other participating SRUs. For example, the SMC or OSC will provide altitude separation between aircraft SRUs searching within the same airspace. An unauthorized deviation by one aircraft could endanger itself and other aircraft. Similarly, if the boundaries of assigned search areas are exceeded by a surface unit, not only might SRUs in adjacent areas be endangered, but also the resulting search efficiency is reduced by the undesired duplication of search effort.

235 Local Base SAR Officer

Local base SAR officers should be appointed by commanding officers of major operational military bases for the purpose of coordinating the use of local resources with the RCC of their area (see para. 212b). SAR officers must be familiar with this manual and be prepared to act as SMC, OSC, RCC controller, SAR liaison officer, and SAR briefing officer. Local base staff operations personnel are normally designated SAR officer, or alternate, as a collateral additional duty.

236 SAR Liaison Officers

Liaison officers may be used in a number of different ways during a SAR mission. The SMC may dispatch a liaison officer to a major military command which is supplying facilities, to assist in coordinating activities, provide briefing and debriefing, keep the SMC informed of avail-

ability of facilities, etc. On the other hand, a liaison officer from the parent command of a missing unit may be dispatched to the SMC to assist in providing background information, developing hypotheses on what actions might have been taken by the missing craft, otherwise provide expertise about the craft and its operation to aid in search planning, and provide for keeping the parent command fully informed of the progress of the operation.

Liaison officers may also be dispatched to foreign RCC's to assist in coordinating U.S. SAR efforts with those of foreign governments when the United States is assisting foreign SAR authorities in a case.

237 SAR Briefing Officers

During SAR missions involving a large number of SRUs, the SMC may appoint one or more SAR briefing officers to brief departing SRUs and debrief returning SRUs. He is responsible for briefing the SRUs on the overall SAR mission progress, the action plan, and the specific detailed requirements which that particular SRU will be executing during its sortie. For the greatest effectiveness, briefing should be conducted as close as possible to the time of departure of the SRU. An additional briefing is required when untrained scanners/lookouts are assigned to the SRU, including such items as scanner techniques, sighting reporting procedures, and methods for minimizing fatigue. When time permits, the briefing officer should prepare individual search craft briefing folders containing all necessary details, charts, messages, etc., which the SRU will require on scene. These folders will be delivered to the SRU commander and taken with him. Recommended contents of SRU briefing folders are discussed in paragraph 634.

238 Advanced SAR Staging Base

a. General

When SAR missions occur in remote, isolated areas, or where communications facilities are inadequate, it may be necessary for the SAR coordinator to designate an SMC with a supporting staff, and transport them to an advanced base of operations. The SMC should determine the most suitable location nearest the scene of the incident for establishing the advanced SAR staging base. The base selected should have com-

munications equipment required of an RSC if at all possible, and must have transient feeding and housing facilities, SMC working and briefing spaces, and SRU refueling facilities.

b. Communications

To successfully prosecute a SAR mission the staging base must have the communications capability required to receive SAR information, alert SAR facilities, dispatch SRUs and make reports to the SAR coordinator. Communication links should be rapid and reliable, and if possible, by direct voice or teletype.

c. Equipment

The SMC operating from an advanced SAR staging base will require all the necessary equipment for completing search planning, rescue planning, dispatching forces, and maintaining detailed records of the SAR mission. This should include a plotting table, plotting equipment, necessary charts, SMC kit, and sufficient space to accommodate the staff and equipment. Generally, the SMC will require the same basic equipment and information data that is normally required in an RSC. If this equipment is not available at the selected base, then the SAR coordinator should provide sufficient equipment and materials for the SMC to successfully prosecute the mission.

d. Staffing

The SAR coordinator or SMC should select sufficient staff to efficiently operate in an advanced base environment. This should include sufficient personnel to meet the needs of the particular case.

239 SMC Kit

An SMC kit should be maintained by RCC's and RSC's which occasionally have a requirement for deploying a liaison officer, or an SMC to a staging base. These kits should be inventoried periodically to insure their currency and completeness. SMC kits should contain at least the following items.

a. Publications

1. Flight Information Publications and Airmen's Information Manual.
2. Charts of RCC/RSC's area of operation.
3. National Search and Rescue Manual.
4. SAR plan for the area.

5. Any other publication required to effectively operate from an advanced base within the SAR area.

b. Blank Forms

1. All SAR mission logs, SAR mission forms, SAR mission folders, and SAR liaison forms necessary for the SMC to effectively accomplish his duties.
2. Aircraft clearance forms.
3. Meal ordering forms.
4. Purchase order forms.

c. Equipment

1. Charts and clean transparent overlays.
2. Navigational equipment.
3. Grease pencils, felt tip pens, colored pencils, etc.
4. Tablets of lined notepaper.
5. Necessary materials for maintaining the mission log.

- d. Any additional publications, forms, or equipment as directed by the SAR coordinator.
- e. Classified documents shall not be made a permanent part of the SMC kit. They may be included for a specific mission if necessary.

240 RESCUE COORDINATION CENTER (RCC) ORGANIZATION

An RCC is the center established by each SAR coordinator within his area for the purpose of controlling and coordinating SAR operations. It is the central point, or the hub of the SAR wheel. The typical chain of organization normally flows from the SAR coordinator to an RCC chief, who is responsible for the day-to-day operation of the RCC. Subordinate to the RCC chief are the RCC controllers and assistant controllers who stand the RCC watches. The mission of the RCC is to carry out all responsibilities assigned to the SAR coordinator. One RCC is established for each search and rescue area. A rescue subcenter (RSC) is sometimes established when it is found that the RCC cannot exercise complete control and coordination over search and rescue facilities in certain sections of its area. The RSC is subordinate to the RCC and an immediate communication link must be available between the RSC and RCC. (The RSC must also establish direct liaison and have a means of rapid and reliable communication with adjacent RCCs/RSCs.)

241 RCC Communications

a. General

Adequate communications are a mandatory prerequisite for successful SAR operations. The RCC should incorporate wide area communication nets available through commercial, governmental, and military sources such as AUTO VON, AUTODIN, Federal Telecommunications System, Wide Area Telephone Service (WATS), TWX, TELEX, SARTELS and commercial long-distance service. All of these nets will have varied degrees of effectiveness during any given SAR mission. SAR dedicated lines of communication may be warranted for those agencies having a continuing SAR function. A schematic of all communications circuits tied into, or used by, the RCC should be available to the RCC controllers as a ready reference. Detailed discussion of these and other communications nets is contained in chapter 4.

b. Immediate Communications

RCCs must have a means of immediate communications with the following facilities within their area.

1. Associated air traffic control centers and flight service stations.
2. Associated RSCs.
3. Radar and direction finding stations in the area.
4. If a maritime area, a coastal radio station capable of alerting surface vessels by any means, including particularly the use of the radiotelegraph and radiotelephone alarm signals and broadcasts.

Means of immediate communication are considered to be direct line telephone or teletype, direct radiotelephone circuit, or, when these cannot be made available, telephone or teletype via a switchboard.

c. Rapid and Reliable Communications

RCCs must have rapid and reliable communications with all primary and secondary SAR facilities to insure prompt receipt of distress information, to alert assisting agencies, to dispatch SAR facilities, and to coordinate and control subsequent SAR operations. Communications should be direct, if at all possible, to eliminate delays and errors caused by relaying

information. Rapid and reliable communications are required with the following:

1. Aerospace defense command facilities.
2. Military airways air/ground stations and communications centers.
3. Rescue coordination centers in adjacent areas.
4. Sources of environmental information.
5. All major military commands, or other agencies, maintaining an RSC, or providing SAR facilities for the SAR coordinator in accordance with his SAR plan.
6. All SAR units assigned to active SAR missions within the area.
7. All advanced SAR staging bases during an active mission.

Rapid and reliable communications are considered to be telephone, teletype, radiotelephone direct or indirect, or, when these cannot be made available, radiotelegraphy.

242 RCC Equipment

a. Primary RCC Equipment

The equipment installed in an RCC largely depends upon the scope of the activity in which the RCC will become involved. As a minimum the following specific items are required for the RCC of each SAR coordinator:

1. **Area Wall Chart.** A large area wall chart which portrays the RCC's area of SAR responsibility and all primary and secondary SAR facilities listed in the SAR coordinator's SAR plan. The chart should depict all boundary lines and overlap into adjacent areas, all bases where SAR-dedicated forces are established, any RSCs established by the SAR coordinator and their areas of operation, radar stations, radio direction finding stations, and all bases suitable for use as advanced SAR staging bases. Facilities such as weather forecasting and advisory offices, specialized ground units, major military installations, aircraft and marine craft suitable for SAR missions but not listed in the SAR plan, and any State, county or local resources having a potential SAR capability may also be included.

2. **SAR Facilities Location Chart.** If plotting all primary and secondary SAR facilities clutters the wall chart excessively, a separate chart may be constructed to show the location of primary and secondary SAR facilities.

3. SAR Facilities Status Board. This Board shows the current status and location of all primary SAR facilities within the area, and any other facilities deemed necessary by the SAR coordinator. This board should be displayed in the RCC in such a position as to be readily viewable by the RCC controllers.

4. Plotting Equipment. Necessary plotting equipment includes a plotting table, necessary charts, drafting material, navigational hand-computers, and miscellaneous navigational accessories such as dividers, plastic plotter, grease pencils, felt-tip pens, etc. The plotting equipment should be sufficient to plot mission information, bearings, search areas, search aircraft assignments, reported leads, sightings, etc., while actively prosecuting the SAR mission. The charts maintained in the RCC should include the appropriate selection of aeronautical charts, pilot charts, bathymetric charts, operating area, and warning area charts, oceanic vessel track charts, lake survey, geological survey charts, topographical charts, small craft nautical charts, marine waterway charts, charts, civil defense charts of water reservoirs and military airfields, population density chart, township maps, road maps and three dimensional terrain and ocean bottom charts. Some RCCs have placed one-eighth inch clear plastic sheets on top of their plotting table in order to insert search planning nomographs and one or two charts extensively used by that RCC between the plexiglass and plotting table surfaces, so that they may be readily available at all times. Edge-lighting the flat plastic with shielded fluorescent light tubes will permit the charts to be used in dim ambient lighting. Back lighting of three dimensional plastic charts is also effective.

5. Wreckage Locator Chart. The wreckage locator chart indicates the geographic location of all known aircraft wreckage sites, and all known vessel wrecks which show above low water or which can be seen from the air. The exact location of each known wreck is plotted on the chart with a pin or other suitable marker and numbered in chronological order. The wreckage number is cross referenced with the wreckage locator file described in paragraph 243a.

b. Additional RCC Equipment

In addition to the above equipment, RCCs may find a need for additional equipment to increase their efficiency and effectiveness during the prosecution of a mission. The additional items installed in an RCC will depend upon its operational load and its geographic location. The following equipment should be considered for installation in ROC's:

1. Underlit Plotting Table. In addition to the required plotting table, a separate, underlit, adjustable plotting table is extremely valuable during SAR missions which progress beyond 1 day. The underlit table not only improves the accuracy of plots, but it also increases the effectiveness and versatility of transparent search overlays as the mission progresses.

2. DF Plotting Board. RCC's prosecuting frequent missions involving radio direction finding plots should construct and install a separate DF plotting board for this purpose.

3. SAR Mission Monitor Board. A SAR mission monitoring board permits a visual presentation of en route times, on scene times, required relief times, and return times of SRUs participating in a mission. It helps the SMC to readily visualize the necessary departure times for on scene relief of SRUs, and in addition, for those RCCs in direct radio contact with SRUs, it readily shows the presence of periodic operations-normal reports from search aircraft on scene. A simple motorized cord loop across the top of the board, with another weighted cord attached vertically, and synchronized with clock time, insures an effective grasp of the mission progress at any time on a real time basis. A typical monitor board is depicted in figure 2-5.

4. Rapid Information Retrieval/Display. An ROC controller should be able to rapidly obtain information which has previously been accumulated in the RCC. A distress situation requires a rapid response from the SAR system, and any equipment which reduces time lost by the SMC or RCC controller in searching for pertinent information should be considered for installation. The RCC controllers should be able to rapidly retrieve checklists, charts for specific areas, personnel information, frequency lists, communications schematics, SAR facilities information, SAR unit capabilities/limitations data, and many others. One type of equipment which is

SAR Mission Monitor Board

SEARCH AREA	SRU TYPE	CALL SIGN	DATE												SEARCH TYPE	SEARCH TARGET	
			00	02	04	06	08	10	12	14	16	18	20	22	24		
A-1	HC-130	AF 306	①	②			③	④	⑤							⑨ ELINT	EPIRB
A-2	HC-130	CG 218			ECG	FL180'		500'					ECG			DV	RAFT
B-1	AR GUS	CDF 731					HFX	2000'					1000'			NV	PYRO
B-2	P-3C	N 811					NSC	500'					500'			NV	PYRO
			NEXT DAYS DATE														
B-1	AR GUS	CDF 731		1000'			1000'	NSC								NV	PYRO
B-2	P-3C	N 811		500'		NSC										NV	PYRO
C-1																	
C-2																	

NOTES:

1. Departure point designator (e.g. NSC = NAS, New York)
2. Enroute altitude or flight level (FL)
3. Search altitude
4. Radio Contact Ticks
5. Return altitude or flight level (FL)
6. Recovery Point/Destination Designator
7. Clock-synchronized moving cord

8. Clock and gearing
9. Time line
10. ELINT = Electronic
DV = Daylight Visual
NV = Night Visual
RDR = Radar
MAD = Magnetometer

FIGURE 2-5

useful for storing cardex type data and other 5 by 8 inch card indexes is a device that permits the RCC controller to type in a one, two, or three number subject code using a standard keyboard and have the appropriate card immediately extracted automatically. Another type of information retrieval and display equipment is mounted in a standard 19 inch instrument console and incorporates a 35 mm. slide projector and rear projection system for selecting and displaying any one of 80 35 mm. slides in 3 seconds. More elaborate information retrieval and display equipment could involve the use of computer-controlled displays in which information stored in a computer is called up with a standard computer keyboard control device, and displayed on either a cathode ray tube or by a rear projection wall display system.

5. Rapid Dial Telephone. Rapid dial telephone equipment which is available through

commercial sources, can handle from 250 to 1,000 telephone numbers.

6. Voice Recorder and Timer. All voice communications equipment including telephones located in the RCC should be attached to a multi-channel tape recorder which incorporates a timing channel. This permits the RCC controllers to review information received over a voice system, in addition to resolving any disputes about information received by the RCC. Recorded tapes should be retained in the RCC for at least 30 days prior to re-use. When it is possible that information on the tape may be required as evidence in a judicial dispute, the tape should be retained until the matter is resolved.

7. Date-Time Stamp. A date-time stamp relieves the RCC controller from manually receipting for each message as it is received in the RCC. The electric date-time stamp is used

on each message at the time it is delivered to the RCC and provides a positive check of the time of receipt of all written communications.

8. Local Accident/Crash Grid Charts. The RCC should maintain copies of all accident/crash grid charts that are in use within its area of SAR responsibility. Grid charts are normally maintained by all military air stations, civil airports, major city police and fire departments, and civil defense organizations. In times of emergency local authorities will frequently use their grid charts to indicate specific locations.

9. Staff Locator Board. The staff locator board provides a visual presentation of the SAR co-ordinator's staff, where they may be located, and telephone numbers.

10. Recall Chart. A recall chart is useful for recalling augmenting RCC personnel or the entire complement of a SAR facility.

11. Programmable Desk-Top Calculator. A calculator is very useful during and after a mission for compiling mission statistics and evaluating mission effectiveness. If the calculator also has a programmable capability, the entire search planning sequence can be permanently programmed, and then used during a mission to insure complete, accurate, quicker, and more effective search planning.

12. SAR Unit Response Chart. This chart will provide the RCC controller a pictorial view of the time and distance capabilities and limitations of all primary SAR aircraft, vessels, and boats, and will aid in selecting suitable SRUs rapidly. This chart should also depict all medical facilities which have helicopter landing areas nearby.

13. Low-Level Hazard Chart. This chart will display all natural and man-made hazards within the SAR area which might endanger SAR aircraft operating at low altitudes.

243 RCC Information Data

Due to the varying complexity of SAR missions, the RCC controller must have information immediately available concerning facilities, personnel, procedures, and techniques. The extensiveness of each data file will depend upon the mission load of the RCC and its geographic location.

a. RCC Data Files

The following data files are recommended for RCCs:

1. SAR Facilities Liaison File. The liaison file contains data on all primary and secondary SAR facilities within the area. It may be amplified by listing those SAR facilities in adjacent areas as well. This file includes such data as location of facility, search capability, rescue capability, communication capability, any mission specialization, names and positions of key personnel, and methods of contacting.

2. Wreckage Locator File. This file contains all known aircraft and vessel wreckage sites within the SAR area which might be mistakenly believed to be the SAR target of subsequent missions. This file is used with the wreck locator chart described in paragraph 242a, and contains pertinent data about each wreckage. This data may be recorded in a card type file, in a loose-leaf notebook, or stored in a rapid information retrieval and display system. Wreckage sites must be cross-referenced by type craft and by wreckage plot number. Pertinent data includes such things as type and identification of the craft, color and distinctive markings, pilot/operators name if known, date of crash or sinking, geographical location, description of wreckage, SAR case number if any, and other appropriate facts. If a photograph of a wreck is available, it may be attached to the index card or filed separately with a number corresponding to the wreckage number. Photos should be dated and marked with an arrow indicating true north.

3. Missing/Stolen Craft File. This file contains data on all craft reporting missing, overdue or stolen, and never located. Data is entered after a mission has been suspended, or if no mission is prosecuted, data is entered when received. It is used to aid in identifying craft recovered at a later date. Data in this file should include such items as craft type and identification, color and distinctive markings, pilot or operators name, flight or voyage plan, date mission was suspended and case number, and any other appropriate facts. RCC controllers must review this file periodically to keep themselves updated on all missing and unlocated craft.

4. SAR Publications Library. Each RCC should maintain a publications library of all reference material necessary for prosecuting SAR mis-

sions within the SAR area. The library should include at least the following publications:

- (a) SAR publications and directives.
- (b) Aviation planning publications, such as "Military Flight Information Publications" (FLIPs), "FAA Airman's Information Manual" (AIM), Pilot Handbooks for those aircraft dedicated full-time as primary SRUs, airport/heliport/hospital landing site directories.
- (c) Communications publications such as JANAP, ACP, and ICAO series.
- (d) Oceanographic atlas which depicts ocean currents, wind, sea surface temperatures, and other data necessary for search planning.
- (e) Nautical and air almanacs.

b. Additional Data Files

In addition to the previously listed data files the following files will enhance the efficiency and effectiveness of an RCC when prosecuting SAR missions.

1. Primary SRU Planning Data. This data file lists all primary SRU units by types and details their capabilities and limitations, including such specifics as en route speeds, search speeds, endurance, communications capabilities, OSC capabilities, etc.

2. Secondary SRU Planning Data. This file is similar to the primary SRU planning data file and includes all secondary SAR facilities within the area. This file contains the capabilities and limitations of land parties, secondary aircraft, secondary surface vessels and so forth.

3. Rescue Coordination Center Manual. Each RCC should develop a manual for use as a practical guide for its RCC controllers and staff duty officers in the performance of their duties. The RCC manual may contain chapters on SAR organization, SAR and other operations, SAR communications, RCC routine, national defense, and an index. Generally the RCC manual is used to provide the controller with detailed instructions for the performance of duties during his watch.

4. Advanced SAR Staging Base Data, Where Required. This file lists all bases within the area which would be suitable for establishing an advanced SAR staging base for prosecuting a SAR mission more effectively from a location nearer to a distress scene. This file would contain details on each base that would affect the number of SAR units that could be staged from

that base or would affect an SMC team's performance while prosecuting a mission from that base. Specific details should include:

- (a) Presence of a centralized operations center command post.
- (b) Communications.
- (c) Operating hours.
- (d) Instrument landing systems.
- (e) Terrain limitations.
- (f) Runway lengths and weight limits.
- (g) Ramp capacity.
- (h) Refueling capacity.
- (i) Maintenance and ground support.
- (j) SAR crew briefing space.
- (k) Transient housing capacity.
- (l) Food serving capacity.

244 RCC Staffing

The staff of an RCC performs both administrative and operational duties. The administrative duties are concerned with maintaining the RCC in a continuous state of preparedness, and are mainly of a routine character. The operational duties, on the other hand, are concerned with the efficient control and coordination of all search and rescue missions occurring within the SAR area. The RCC must be staffed with suitably trained and experienced personnel to provide a continuous live watch. The normal duty shift of an RCC usually consists of an RCC controller and an assistant RCC controller. When a period of heavy activity is anticipated, or during major SAR missions, the normal staff may be supplemented with a plotter and additional assistants as required. Senior RCC controllers, or experienced SAR officers assigned to the staff of the RCC, are usually designated to supervise large scale, major missions which require extensive planning and coordination. When new personnel are assigned they should be fully trained prior to being considered qualified as RCC controllers.

245 RCC Controller

a. Designation

The RCC controller is the SAR coordinator's duty officer. The RCC controller is frequently called upon to function in the name of the SAR coordinator. He must therefore be well versed and qualified in all aspects of the broad spectrum of the search and rescue field.

b. Qualifications

The RCC controller must be fully qualified to perform the duties of an SMC prior to being assigned to RCC watches. The RCC controller is required to continually review and maintain proficiency in the doctrine, procedures and techniques of the "National Search and Rescue Manual," and the SAR plan for his search and rescue area. A thorough knowledge of the SAR manual and SAR plan is mandatory for safe, effective, and efficient prosecution of SAR missions. The RCC controller must be familiar with the communications capabilities within his area. Basically the RCC controller must be capable of performing all functions required of the SAR coordinator or the SMC.

On many occasions he must act rapidly without benefit of advice from seniors and often with incomplete information. He must know the extent of his authority and responsibility and he must adopt the habit of taking immediate and adequate action on his own, when necessary.

c. Authority

While on watch, the RCC controller has the full operational authority of the SAR coordinator who assigned him as an RCC controller, and is answerable to the SAR coordinator for all actions taken during his duty period.

d. Responsibilities

The RCC controller is responsible for maintaining an effective and efficient watch within the RCC. He must maintain a stature of readiness to respond rapidly to any SAR incident arising during his watch. He must be prepared to efficiently use all facilities available to the SAR coordinator. His responsibilities include the prompt dispatch of appropriate and adequate SAR facilities and the thorough prosecution of operations until the rescue has been effected, or until chance of success is no longer a reasonable possibility. In general the RCC controller has the responsibility of automatically assuming the SMC designation and responsibilities, and executing all SMC duties for all SAR missions occurring within his area from the time of their inception to their termination, or until he is either relieved or another SMC is specifically designated for that mission. In other words, the RCC controller is responsible for all of the SAR stages of the SAR system until such

time as he is properly relieved by a new oncoming watch, or by a separately designated SMC. When some other SMC is designated for a specific mission, the RCC controller is responsible for continuously monitoring that mission to insure that the SAR coordinator's policies and requirements are met.

e. Duties

The RCC controller is concerned with all SAR operations taking place within the SAR area which his RCC serves. The RCC controller should have available prepared checkoff lists in all appropriate details for the types of missions which might occur within his area.

The following specific duties may be prescribed for RCC controllers depending on local circumstances:

1. Upon reporting for duty immediately accomplish the following:
 - (a) Obtain a complete and detailed briefing from the RCC controller being relieved. Special emphasis shall be placed on those items which require further action.
 - (b) Review all entries in the SAR operations log which pertain to missions in progress, unsuccessful missions which were closed during the past 24 hours, and other items requiring further action on his part.
 - (c) Determine the mission ready status of all primary SAR equipment. As applicable, determine the status of secondary SAR equipment.
 - (d) Obtain a thorough briefing on the current and forecast weather and oceanographic conditions, which will affect his SAR area of responsibility during the scheduled tour of duty.
 - (e) Test primary lines of communication to insure they are in proper operating condition.
2. Assume SMC designation for himself for all missions in progress without a designated SMC, and for all missions initiated during his watch until he is relieved or until he designates another SMC. In this respect, be prepared to function as SMC for any SAR mission. This includes a complete familiarity with the duties of the SMC as listed in paragraph 232e.
3. Continuously monitor the availability of SAR forces assigned within his area.
4. Dispatch SAR units and employ other SAR facilities whenever notified of a distress or other emergency.

5. Be familiar with the lines of communication available to him in the prosecution of SAR missions. This includes not only parent agency lines of communication, but the detailed communications available through other military services, civilian agencies, law enforcement agencies, and commercial communications.

6. Be inquisitive and use initiative in obtaining maximum information concerning missions for which minimal information is known. Assume the role of a SAR detective, digging for information pertaining to doubtful, questionable, or possible SAR missions.

7. Know the geographical features of his area, such as terrain heights, hazards to low-level aircraft searches, navigational aids, water depths.

8. Know capabilities, limitations and recommended employment of all SAR facilities available to him.

9. Be prepared to make instantaneous decisions, frequently without consulting higher authority, basing his decisions on knowledge, logic, and good judgement.

10. Continually review the doctrine, techniques, and procedures required in the prosecution of the variety of SAR missions with which he may be faced. This includes detailed knowledge of the "National Search and Rescue Manual," the SAR plans for both his area and those of superiors that may affect his SAR operations, and the local RCC directives.

11. Continually review with a constructively critical attitude all procedures and documentation to insure they serve the intended purpose. RCC controllers should be prepared to recommend changes at all levels of command when a new procedure, technique, or equipment that may improve the SAR system is noted.

246 Assistant RCC Controller

a. Designation

The SAR coordinator may designate as many assistant RCC controllers as he may feel necessary to meet the requirements of his rescue coordination center. As the title implies, the assistant RCC controller assists, and is subordinate to, the RCC controller. The assistant RCC controller is frequently called upon to function in the name of the RCC controller, and by inference

in the name of the SAR coordinator. He must therefore be well versed and qualified in all aspects of the broad spectrum of the SAR field.

b. Qualification

Normally the assistant RCC controller relieves the RCC controller of plotting, documentation, information retrieval, SAR detective work, and other routine details, in order to permit the RCC controller to concentrate his energies on the major requirements of prosecuting a SAR mission. However several SAR missions are frequently in progress simultaneously, and the assistant RCC controller will have to function as an RCC controller for some of them. For this reason, the assistant RCC controller must be basically qualified to perform the duties of the RCC controller and of an SMC prior to being assigned to RCC watches.

c. Authority

While on watch the assistant RCC controller is under the direct supervision of the RCC controller, and therefore has the full operational authority of the RCC controller when carrying out specific duties assigned to him by the duty RCC controller.

d. Responsibilities

The assistant RCC controller is responsible for the routine documentation required during his duty period, and for assisting the RCC controller in the prosecution of all missions in progress or which are initiated during his watch period.

e. Duties

The assistant RCC controller is concerned with all SAR operations taking place within the SAR area which his RCC serves. The assistant RCC controller will employ the same prepared checkoff lists as those used by the RCC controller, and will assist the RCC controller in carrying out all the necessary stages of the SAR system. The following specific duties may be prescribed for assistant RCC controllers depending on local circumstances:

1. Upon reporting for duty, immediately accomplish the following:
 - (a) Obtain a complete and detailed briefing from the assistant RCC controller being re-

lieved. Special emphasis shall be placed on those items which require further action.

(b) Review all entries in the SAR operations log which pertain to missions in progress, unsuccessful missions which were closed in the past 24 hours, and other items requiring further action on his part.

(c) Determine the mission-ready status of all primary SAR equipment.

(d) Obtain a thorough briefing on the current and forecast weather and oceanographic conditions which will affect his SAR area of responsibility during his scheduled tour of duty.

(e) Test primary lines of communications to make sure they are in proper operating condition, if the RCC Controller has not done so.

2. Be prepared to function as an assistant SMC for any SAR mission which the RCC controller has assumed SMC designation and responsibilities. This includes a complete familiarity with the duties of the SMC as listed in paragraph 232e.

3. Continuously monitor the availability of SAR forces assigned within his area, and make corrections as they occur on the SAR facilities status board, and SAR unit status board.

4. Be familiar with the lines of communication available to him in the prosecution of SAR missions.

5. Know the geographic features of his SAR area.

6. Have a general knowledge of the capabilities, limitations, and recommended employment of all SAR facilities available within the area.

7. Continually review the doctrine, techniques, and procedures required in the prosecution of the variety of SAR missions with which he may be faced. This includes detailed knowledge of the "National Search and Rescue Manual," the SAR plans for both his area and those of superiors that may effect his SAR operations and the local RCC directives.

8. Read and file all incoming messages, insure that the RCC controller sights all pertinent incoming messages, and assist the RCC controller in preparing outgoing messages.

9. Make all appropriate entries in the aircraft/vessel wreckage locator file, missing/

stolen craft file, SAR liaison file, SAR mission folder, and chronological entries in either the SAR operations log or the mission operations log, as appropriate.

10. Maintain all RCC files and prepare appropriate reports as required by the SAR coordinator.

11. Be thoroughly familiar with the location and use of RCC wall charts, navigation charts, plotting charts, plotting procedures, and special operational equipment within the RCC.

12. Be familiar with the contents of all instructions and publications in the RCC library, and enter all corrections.

13. Plot all search areas and make overlays for missions requiring them.

14. Maintain the cleanliness of the RCC.

15. Assist the RCC controller as much as possible throughout the prosecution of all missions in progress during the duty period.

16. Carry out additional duties as directed by the RCC controller or higher authority.

247 RCC Plotter

An RCC plotter may be assigned to assist the RCC controller during periods when either numerous missions are being run simultaneously, or when a large scale SAR mission is active. The plotter should be well versed in the use of all navigational plotting equipment and all types of navigation charts. He should be familiar with the search planning procedures used by the RCC. This will enable him to assist the controller by doing the drift computation plots, layout of search areas, construction of overlays, etc. The use of a plotter in the RCC will relieve the RCC controller and his assistant of a time consuming task and allow them additional time for detailed SAR planning and dispatching of SAR facilities.

248 RCC Personnel Training

The SAR coordinator must insure that all personnel assigned to RCC watches are fully trained and capable of performing the duties of an RCC controller in an efficient, effective and safe manner. Personnel assigned as assistant RCC controllers should receive identical training.

250 RESCUE SUBCENTER (RSC) ORGANIZATION

The establishment of an RSC should be considered by the SAR coordinator when it is found that the RCC cannot exercise direct and effective control over SAR facilities in certain sections of his area.

251 RSC Communications

An RSC must have a means of immediate communication, either voice or printed communications via direct landline or radio link, with the parent RCC. In addition an RSC must have means of rapid and reliable communications, either voice or printed communications, via landline or radio, and on either direct or indirect links, with:

- a. Adjacent RSC's, if any;
- b. A source of meteorological information;
- c. All primary and secondary SAR facilities available within its assigned operational area, and
- d. Any aeronautical radio stations, air traffic control centers, flight service stations, aerospace defense command facilities, radar sites, or direction finding stations which are serving as alerting posts for that RSC.

252 RSC Equipment

The equipment requirements of an RSC are comparable to, but less extensive than, those of an ROC, since the RSC is responsible for limited SAR operations in part of the area only. To be able to perform its functions properly, an RSC should have at its disposal charts, plotting equipment, and necessary information for the performance of the SAR functions delegated to it. The RSC should contain as much of the material and information listed in paragraphs 242 and 243 as is necessary for completing assigned duties.

253 RSC Staffing

The number of personnel assigned to an RSC will be dependent upon the responsibilities assigned to it by the parent RCC. The RSC is not normally required to maintain a continuous live watch, although some RSCs do so. Regardless of the readiness stature required of an RSC, it should have sufficient personnel available to perform its assigned duties. When an RSC is activated, the personnel assigned to duty have the same basic responsibilities as RCC controllers and assistant controllers.