

**NAVY
SEARCH AND RESCUE
TACTICAL
INFORMATION
DOCUMENT
(SAR TACAID)**

NWP 3-22.5-SAR-TAC

**NAVAIR
A1-SARBA-TAC-000**

**(FORMERLY NWP 55-8-SAR
(REV. B))**

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**DEPARTMENT OF THE NAVY
OFFICE OF THE CHIEF OF
NAVAL OPERATIONS**

**SAR
CHECKLISTS**

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COMMUNICATIONS

2

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SAR**

3

**OVERLAND
SAR**

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SEPTEMBER 1997

**NWP 3-22.5-SAR-TAC
NAVAIR A1-SARBA-TAC-000**

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TACTICAL
INFORMATION
DOCUMENT
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**THIS PUBLICATION SUPERSEDES NAVAIR
A1-SARBA-TAC-000 (Rev. B) DATED FEBRUARY 1986**

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**ISSUED BY AUTHORITY OF THE CHIEF OF NAVAL
OPERATIONS AND UNDER THE DIRECTION OF THE
COMMANDER, NAVAL AIR SYSTEMS COMMAND.**

SEPTEMBER 1997



DEPARTMENT OF THE NAVY
CHIEF OF NAVAL OPERATIONS
2000 NAVY PENTAGON
WASHINGTON, DC 20350-2000

September 1997

LETTER OF PROMULGATION

1. NWP 3-22.5-SAR-TAC (NAVAIR A1-SARBATAC000), NAVY SEARCH AND RESCUE INFORMATION DOCUMENT (SAR TACAID) is effective upon request. It supersedes NWP 55-8-SAR, SAR TACAID (Rev. B) (NAVAIR A1-SARBA-TAC-000) of February 1986 which shall be destroyed without report.

2. Aircraft tactical manuals provide the latest and most accurate tactical information to air crews and tactical commands. These manuals are designed to promote the development of efficient and sound tactical doctrine and to eliminate the need for promulgation of doctrine by individual squadrons. The tactics published herein are to be considered as a guide to better operations, not as the only way and final authority in tactical evolutions. It is both desirable and necessary that new ideas and new techniques be expeditiously evaluated and incorporated if proven to be sound. To this end, Operational Commanders should encourage innovative thought and the use of effective tactics not reflected herein. These manuals are compiled using Fleet inputs and are kept current to achieve maximum combat readiness. To provide the latest data, Navy and Marine Corps Fleet/Type/Air Wing Squadron Commanders are directed to review these procedures on a continuing basis and submit recommended modifications as outlined under "Change Recommendations."

A handwritten signature in black ink, appearing to read "Dennis V. McGinn".

DENNIS V. MCGINN
Rear Admiral, U.S. Navy
Director, Air Warfare

List of Effective Pages

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INSTRUCTIONS

CHANGE RECOMMENDATIONS

Recommended changes to this publication may be submitted by anyone in accordance with NWP 1-01. Change recommendations of an URGENT nature should be submitted directly to the originator's Type Commander by Priority message. Submit Routine change recommendations to the SAR TACAID Model Manager (HC-3) on OPNAV Form 3500-22.

HELSPUPRON THREE
NAS NORTH ISLAND
SAN DIEGO, CA 92135-7122
ATTN: SAR MODEL MANAGER
DSN-735-2479/5240
COMMERCIAL (619)545-2479/5240

COMMANDER
NAVY WARFARE DEVELOPMENT COMMAND
686 CUSHING ROAD
NEWPORT RI 02841-1207

UPDATING THE TACAID

To ensure that the TACAID contains the latest procedures and information, a review conference is held periodically as necessary. Changes generated by revision/change to referenced publications will be incorporated automatically by the Navy Tactical Support Activity, with the approval of the Model Manager.

YOUR RESPONSIBILITY

The SAR TACAID is kept current through an active publication change program. If you find anything you don't like about the TACAID, if you have information you would like to pass on to others, or if you find an error in this publication, submit a change recommendation to the Model Manager at once.

INSTRUCTIONS (Cont.)

HOW TO OBTAIN COPIES

One-Time Orders

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Automatic Distribution (With Updates)

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CHANGE SYMBOLS (APPLIES TO CHANGES, NOT REVISIONS)

Revised text is indicated by a black vertical line in either margin of the page, adjacent to the effected text, like the one printed next to this paragraph. The change symbol identifies the addition of either new information, a changed procedure, the correction of an error, or a rephrasing of the previous material.

WARNINGS, CAUTIONS AND NOTES

The following definitions apply to “WARNINGS,” “CAUTIONS,” and “NOTES” found throughout the manual.



An operating procedure, practice, or condition, etc. which may result in injury or death, if not carefully observed or followed.



An operating procedure, practice, or condition, etc. which may result in damage to equipment, if not carefully observed or followed.

Note

An operating procedure, practice, or condition, etc. which is essential to emphasize.

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SEARCH BRIEFING CHECKLIST

Briefing Officer: Conduct a thorough briefing using the following items as a Guide. (If search craft already scrambled, use this checklist as a guide for radio briefing, condensing as appropriate.)

- A. SITUATION
 - 1. CIRCUMSTANCES OF DISTRESS
 - 2. PERSONS ON BOARD, POB
 - 3. SEARCH TARGETS
 - 4. DESCRIPTIONS
 - 5. LAST KNOWN POSITION
 - 6. SURVIVAL EQUIPMENT
 - 7. CURRENT LEADS
 - 8. ESTIMATE OF THE SITUATION
 - 9. PARTICIPATING SAR AGENCIES
- B. WEATHER
 - 1. AT TIME OF DISTRESS
 - 2. CURRENT EN ROUTE
 - 3. CURRENT ON SCENE
 - 4. FORECAST EN ROUTE
 - 5. FORECAST ON SCENE
 - 6. WEATHER HAZARDS
- C. SEARCH AREAS
 - 1. PREVIOUS COVERAGE
 - 2. CURRENT COVERAGE
 - 3. AIRSPACE RESERVATION
 - 4. DISASTER CONTROL AREA
 - 5. DESIGNATIONS
 - 6. SIZE
 - 7. MAJOR AXIS
 - 8. ENROUTE SEARCHING
 - 9. COMMENCE SEARCH POINTS
 - 10. TERRAIN HAZARDS
- D. SEARCH PATTERNS
 - 1. GENERAL DESCRIPTIONS
 - 2. DESIGNATIONS
 - 3. CREEP
 - 4. TRACK SPACING
 - 5. SEARCH ALTITUDES
 - 6. PROBABILITY OF DETECTION
 - 7. ACCURATE NAVIGATION
 - 8. VARY POD VERSUS S
- E. SEARCH ASSIGNMENTS
 - 1. AIRCRAFT ASSIGNMENTS
 - 2. BACKUP ASSIGNMENTS
 - 3. VESSEL ASSIGNMENTS
 - 4. BOAT ASSIGNMENTS
 - 5. ROUND ROBIN ETE
 - 6. DESIRED ETA ON SCENE
 - 7. INITIAL EN ROUTE COURSE
 - 8. ON-SCENE RELIEFS
- F. LOOKOUT/SCANNER TECHNIQUES
 - 1. INSTRUCTIONAL HANDOUT
 - 2. ICS SIGHTING REPORTS
- G. COMMUNICATIONS
 - 1. ON-SCENE CHANNELS
 - 2. CONTROL CHANNELS
 - 3. EN ROUTE CHANNELS
 - 4. MONITOR CHANNELS
 - 5. TACAN CHANNELS
 - 6. AIRCRAFT IFF/SIF
 - 7. AIRCRAFT TACAN
 - 8. NO TACTICAL CALLS
- H. IFF/SIF ASSIGNMENTS
 - 1. ON-SCENE AIRCRAFT OR VESSELS
 - MODE 3 CODE 5000
 - MODE 3 CODE 5100
 - MODE 3 CODE 5200
 - MODE 3 CODE 5300
 - MODE 3 CODE 5400
 - 2. EN ROUTE AIRCRAFT
 - ATC/OAC ASSIGNED
- I. COORDINATING INSTRUCTIONS
 - 1. SMC ASSIGNMENT
 - 2. OSC ASSIGNMENT
 - 3. MIDDLEMAN ASSIGNMENT
 - 4. OSC & OAC CHOPPING
 - 5. DESCENTS & CLIMBS
 - 6. OPS NORMAL REPORTS
 - 7. POSITION REPORTS
 - 8. SIGHTING REPORTS
 - 9. SIGHTING PROCEDURES
 - 10. MARKING SIGHTINGS
 - 11. FLIGHT PLAN REMARKS
 - 12. FLIGHT HAZARD
- J. INFORMATION FOR OSC
 - 1. IFR ROUND ROBIN FLIGHT PLAN
 - 2. ETA ON SCENE
 - 3. EN ROUTE SQUAWK
 - 4. BEACON TUNED & IDENT
 - 5. COMMUNICATIONS AVAILABLE
 - 6. SEARCH TAS (ACFT) SOA (VESSEL)
 - 7. ENDURANCE ON SCENE
 - 8. RETURN ALTITUDE REQUESTED
 - 9. INTENDED DEPARTURE POINT
 - 10. CLEARANCE TO CHOP

AIRCRAFT SCANNER INSTRUCTIONS/BRIEFING

AIRCRAFT SCANNER BRIEFING

MOTIVATION

1. REQUIREMENT FOR SCANNERS
2. IMPORTANCE OF DUTY
3. PURPOSE OF SEARCH
4. REQUIREMENT FOR PROLONGED SEARCH OPERATIONS
5. DEVELOPMENTS IN SEARCH
6. ORIENTATE ALL STATEMENTS TO SCANNER MOTIVATION

MISSION BRIEFING

1. PURPOSE (KNOWN FACTORS ON SAR INCIDENT)
2. TARGETS
 - a. DISTINCTIVE MARKINGS & COLOR
 - b. NUMBER OF PERSONNEL INVOLVED
 - c. EMERGENCY EQUIPMENT CARRIED
 - d. FLIGHT INFORMATION:
 - LENGTH OF TIME EN ROUTE TO SEARCH AREA
 - TIME ON STATION
 - SEARCH ALTITUDE
 - WEATHER CONDITIONS
3. ASSIGNED SEARCH AREAS
 - a. PATTERN ASSIGNED
 - b. REASON PARTICULAR PATTERN ASSIGNED

SIGHTING CHARACTERISTICS (COVER APPLICABLE PORTION)

1. SURFACE CRAFT AFLOAT
 - a. SIZE AND DISTINCTIVE MARKINGS
 - b. LOCATION AT NIGHT
2. FOUNDERED DISTRESS VESSELS/AIRCRAFT
 - a. OBJECTS OF SEARCH
 - LIFEBOATS
 - RAFTS
 - DEBRIS
 - OIL SLICKS
 - PERSONNEL IN WATER

**AIRCRAFT SCANNER INSTRUCTIONS/BRIEFING
(Cont.)**

- b. SCENE OF DISASTER -LARGE VESSELS
LARGE AMOUNT OF DEBRIS
OIL SLICK
SURVIVORS IN LIFEBOATS OR WATER
VISUAL SIGNALS
- c. SCENE OF DISASTER-SMALL VESSELS
SURVIVORS IN SMALL BALSA OR PNEUMATIC
RAFTS
SURVIVORS IN WATER
LIMITED EMERGENCY SIGNALING EQUIPMENT
- 3. OVERLAND SEARCH OBJECTIVES
 - a. LOOK FOR
VARIATIONS IN CONTRAST
ODD ANGLES OF LIGHT
DIFFERENCES IN TEXTURE
DISCONTINUITY
MOVEMENT
 - b. SPECIFICALLY
BROKEN OR SCARRED TREES
BITS OF SHINY METAL BENEATH TREES
FRESH BURNED OUT AREAS
PARACHUTES
VISUAL AID SET BY SURVIVORS
- 4. SURVIVAL SIGNALS
 - a. PYROTECHNIC SIGNALS (SMOKE OR FLARE)
MK 124 DAY AND NIGHT FLARE
VERY PISTOL
PARACHUTE
PEN GUN
 - b. SIGNAL MIRROR FLASHES
SEA DYE MARKER
LIGHTS
TRACER AMMUNITION
OTHERS
SCANNING

**AIRCRAFT SCANNER INSTRUCTIONS/BRIEFING
(Cont.)**

SCANNING PROCEDURES

1. SIGHTING RANGES
2. EYE MOVEMENT PATTERNS
 - a. FOLLOW FIXED PATTERN TO AVOID MISSING AREA
 - b. FOR WAIST OR SIDE POSITION:
START UNDER AIRCRAFT
MOVE OUT TO EFFECTIVE FIELD OF VISION
RETURN TO STARTING POINT AT SAME RATE
REPEAT
 - c. FOR FORWARD POSITION:
MOVE RIGHT TO EFFECTIVE FIELD OF VISION
MOVE BACK TO LEFT TO EFFECTIVE FIELD OF VISION
REPEAT
3. RATE OF EYE MOVEMENT (NORMAL SPEED SEARCH AIRCRAFT)
 - a. 10° EYE MOVEMENT PER SECOND
 - b. PAUSE EVERY 3°- 4°
 - c. REASON: EYE MUST BE FIXED OR FOCUSED ON OBJECT TO SIGHT IT (WITHIN A 5° RADIUS)
4. METHODS OF PREVENTING FATIGUE AND PROLONGING SCANNER ENDURANCE
 - a. MOVEMENT OF HEAD WITH EYES TO PREVENT EYESTRAIN
 - b. AREAS OF "NO CONTRAST"
MAY CAUSE SEVERE EYESTRAIN PROBLEM
PREVENT BY PERIODIC FOCUSING OF EYES ON NEARBY OBJECT (IN OR ON AIRCRAFT OR ON SURFACE)
USE OF SUNGLASSES
 - c. COMFORTABLE SCANNER POSITIONS
 - d. CLEANLINESS OF WINDOWS
 - e. 30-MINUTE ROTATION OF POSITIONS
 - f. RELIEF AT PERIODIC INTERVALS (MAXIMUM SCANNER ENDURANCE WITHOUT REST IS 2-3 HOURS)
 - g. USE OF LIGHT SNACKS & COFFEE

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AIRCRAFT SCANNER INSTRUCTIONS/BRIEFING (Concl.)

- h. INTERCOMMUNICATION BETWEEN SCANNERS
- COMFORTABLE CABIN TEMPERATURES
- CORRECT USE OF VISUAL AIDS
- NIGHT TECHNIQUES
- LIGHTS
- DARK ADAPTATION PERIOD

SIGHTING PROCEDURES

1. REPORTING SIGHTING TO PILOT
USE CLOCK POSITION AND ESTIMATED DISTANCE
EXAMPLE: "TARGET, 4 O'CLOCK, 500 YARDS"
2. MARKING SIGHTING LOCATIONS
3. PROCEDURE TURN TECHNIQUE (90°-270° METHOD)
4. VISUAL RETURN TO TARGET
SCANNER CALLS OUT CLOCK POSITION AND
ESTIMATED DISTANCE
PILOT TURNS AIRCRAFT IN DIRECTION OF
SIGHTING
SCANNER CONTINUES TO CALL OUT POSITION
AND DISTANCE TO ORIENTATE PILOT
PILOT (CO-PILOT) STATES WHEN HE HAS TARGET
IN SIGHT
DO NOT REMOVE YOUR EYES FROM THE TARGET.

ON-SCENE PROCEDURES

INFORMATION REQUIRED BY THE ON-SCENE COMMANDER

Search craft should contact the OSC 15 to 30 minutes prior to ETA on scene. The OSC will request the search craft to either confirm or provide the following information:

1. What is your ETA on scene? _____
2. What is your IFF/SIF if transponder now squawking?

3. Do you have the SAR vessel's aerobeacon tuned and identified? _____
4. Do you have full capability on all on-scene communication channels? _____
5. What is your search true airspeed or speed of advance? _____
6. What is your on-scene endurance? _____
7. What is your intended departure point and time, if not via OSC position? _____
8. Are you on an IFR round robin flight plan? (ACFT only)

9. What return altitude (or flight level) did you file for? (ACFT only) _____
10. Have you obtained ATC/OAC clearance to chop to OSC control when over the SAR vessel's aerobeacon (or over commence search point)? (ACFT)

ON-SCENE PROCEDURES (Cont.)

OPS NORMAL REPORTS

The OSC should require an *operations normal* report at least every 30 minutes for multi-engine, fixed-wing aircraft and every 15 minutes for single-engine aircraft and helicopters. If you are unable to report directly to the OSC over an on-scene channel, you should relay the report through another SRU.

SURVIVOR SIGHTING PROCEDURES

Search craft should always keep a drift signal, smoke float, or sea-dye marker ready for immediate jettison. When any sighting is made, drop a smoke float immediately. If you sight survivors, or locate the scene of distress, observe the following procedures:

1. Keep survivors, or distressed craft, in sight at all times (assign a specific lookout to this task).
2. Mark the position (use drift signal, smoke float, sea-dye marker, floating lantern, search datum marker beacon, crash position locator beacon, EPIRB or any other method of marking).
3. Switch IFF/SIF to emergency, MODE 1 ON, MODE 2 ON, and MODE 3-7700.
4. Airdrop appropriate, available emergency equipment (ACFT only).
5. Make survivor sighting report to on-scene commander.
6. Direct potential rescue vessels and other aircraft to the scene by all available radio, electronic, and visual signals.
7. Effect rescue if your craft is capable.

ON-SCENE PROCEDURES (Cont.)

SURVIVOR SIGHTING PROCEDURES (Cont.)

8. Remain on scene as long as fuel endurance permits, or until relieved by on-scene commander, whichever occurs first.
9. Inform survivors they have been sighted by any of the following means:
 - a. Via emergency radio
 - b. Fly low over survivors with landing lights on (ACFT only)
 - c. Fire two green star shells a few seconds apart
 - d. Drop two orange smoke signals a few seconds apart (ACFT only)
 - e. Make two distinct puffs of stack smoke, one minute apart (VESSEL only)
 - f. Make two white flashes with signal lamp.

SIGHTING REPORTS TO OSC

If you sight survivors, advise the on-scene commander as soon as possible including the following items if known:

1. Position (by latitude and longitude plus a bearing and distance).
2. Survivor identity (individual identity and parent activity).
3. Physical condition of survivors.
4. Wind, weather, and sea conditions.
5. Your fuel remaining, in hours.
6. Type of emergency equipment being used by survivors.
7. Type of emergency equipment needed by survivors.
8. Type of emergency equipment airdropped by you to survivors (acft only).

If you sight empty lifeboats, liferafts, debriefs, oil slicks, sea-dye marker, flares, smoke, or any unusual object, advise the on-scene commander as soon as possible, including the following items:

1. Position (by latitude and longitude plus a bearing and distance).
2. Detailed description of object.
3. Concentration of objects, if several sighted.
4. Wind, weather, and sea conditions.
5. Your evaluation of object.

ON-SCENE PROCEDURES (Concl.)

SRU ON-SCENE PROCEDURES

If you hear an emergency signal or a possible survivor radio transmission on any of the monitor channels, advise the on-scene commander as soon as possible, including the following items if known:

1. Your position (by latitude and longitude plus bearing and distance).
2. Detailed description of signal or transmission heard.
3. Exact times signal commenced and terminated.
4. DF/ECM bearing of signal from your position.
5. Frequency that signal was being transmitted upon.
6. Signal strength.
7. Actions taken by you (homing in or continuing search pattern).
8. Your evaluation of signal.

INDICATING LOCATION OF A DISTRESSED UNIT OR SURVIVORS

Aircraft circling the location of a distressed unit or survivors to a friendly surface ship should circle ship at least once, fly across its bow at low altitude, opening or closing throttle or changing propeller pitch when possible, and head in the direction of the distress scene. (Repeat until ship acknowledges by following.) Aircraft should also use Aldis lamp, radio, or message drop to explain if possible. Surface ship should follow or indicate "unable to comply" by hoisting the NOVEMBER flag.

Crossing the wake of the ship close astern at low-altitude opening and closing the throttle or changing the propeller pitch, shall mean that the service of the ship to which the signal is directed is no longer required.

ON-SCENE COMMANDER INFORMATION

ON-SCENE COMMANDER'S INITIAL BRIEFING

1. Any new developments since latest SAR action message/report.
2. Search targets.
3. Search area designation.
4. Search pattern.
5. Major axis and direction of creep.
6. Track spacing.
7. Search altitude.
8. Search, IFF/SIF squawk.
9. Search TACAN channel.
10. Traffic advisories.
11. OPS normal reporting times.
12. Latest on-scene weather.
13. Vector to commence search point.
14. If aircraft is assigned to a coordinate air/surface search:
 - a. Correction to track table
 - b. Time and heading on crosslegs
 - c. Inbound and outbound heading on searchlegs.

ON-SCENE COMMANDER'S PROCEDURES

When each search craft departs its home base (or staging base) its parent activity should notify this to OSC, and information to SMC, including such information as:

1. Search craft type & call, pilot (if aircraft), departure place and time.
2. Assigned search area.
3. ETA on scene.
4. En route TAS or SOA.
5. En route flight level or altitude (if aircraft).
6. Communication channel for initial contact.
7. Search TAS or SOA.
8. Assigned search IFF/SIF squawk.
9. Assigned search TACAN channel — either air/air or air/ground.

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ON-SCENE COMMANDER INFORMATION (Cont.)

10. The rendezvous position.

After arriving search craft has commenced its search, send an on-scene arrival message, action to SMC only. Include such information as:

1. Craft type & call.
2. Arrival time.
3. Planned return flight level or altitude.
4. If not departing the scene via the OSC's position, his intended departure time and departure position.

Maintain communications with all search units under your control using the designated on-scene channels.

Require search aircraft to make thirty minute 'OPS normal' reports to you and not to ATC/OAC. Position reports are not required as long as search aircraft remain in their assigned search areas.

Information that the SMC desires from the OSC includes:

1. Search unit on-scene arrival time and planned return flight level.

Also ETD and position, if appropriate (SMC relays this information to ATC/OAC for aircraft or to parent command for vessels).

2. Search unit departure time, return flight level, and ETA at destination. (SMC relays this information to ATC/OAC for aircraft or to parent command for vessels.)
3. On-Scene weather, wind and sea conditions when significant changes occur, and at least every four hours.
4. Any pertinent new developments.
5. Any major modifications made to SMC's SAR action plan.
6. Any requests for additional assistance, such as more search units, alerting DF nets, updated AMVER SURPIC(s) etc.
7. Summary of search areas completed with average probabilities of detection. (Base probabilities in accordance with Joint Pub 3-50/NWP-3-50.1.
8. Any recommendations for future SAR action plans.

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Use the on-scene procedures forms as a guide for exercising positive aircraft control during the search effort. You must insure that adequate aircraft separation and safety communications guard is maintained throughout the search areas.

Search the assigned areas in the most efficient manner possible, modifying the SMC's SAR action plan as you deem necessary.

When it is necessary for you to depart the scene, assign the on-scene commander to the senior officer remaining on scene.

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OSC SEARCH LOG

THE FOLLOWING FORM IS RECOMMENDED FOR USE BY ON-SCENE COMMANDERS CONTROLLING SEARCH AIRCRAFT:

1. UNIT _____
(call sign) (frequency)

2. REPORTED ON SCENE _____ z _____
(time) (posit)

3. OSE ___ hrs ___ min RELIEF TIME _____ z

4. SEARCH PATTERN (phonetic) _____
AREA _____

5. WX
Vis ___ (rain/snow/smoke/haze); Wind ___ T ___ kts
Ceiling _____ (ovr/brk/sct) Cloud Cover _____ %
Sunset ___ z Twilight ___ min Sunrise _____ z

6. AIR SPACE RESERVATION

7. ADJACENT UNITS (call signs) _____

8. SEPARATION Vertical Horizontal

9. ON-SCENE Channel HF VHF UHF
PRI _____
SEC _____

10. CONTROL CHANNEL PRI SEC

11. OPS NORMAL ___ z ___ z ___ z ___ z
___ z ___ z ___ z ___ z ___ z
z ___ z ___ z ___ z ___ z ___ z
___ z ___ z ___ z ___ z ___ z

12. DEPARTED SCENE ___ z DEST. _____
ETA ___ z CHOP _____ z TO _____

13. REMARKS:

**ON-SCENE COMMANDER'S SEARCH STATUS
CHECKLIST**

(PASS ASTERISK ITEMS TO RELIEF OSC)

	*SEARCH CRAFT CALL						
	*SEARCH CRAFT TYPE						
I N F O F O R O S C	*IFR RR FLIGHT PLAN						
	ETA ON SCENE						
	EN ROUTE IFF/SIF SQUAWK						
	AEROBEACON TUNED						
	*COMM CAPABILITY						
	*SEARCH TAS OR SOA						
	*ENDURANCE ON SCENE						
	*RETURN FLIGHT LEVEL						
	*DEPARTURE POSITION						
	*ETD						
	CHOP CLEARANCE						
D E S C E N D	HOLDING PATTERN						
	DESCENT CLEARANCE						
	*WEATHER AND ALTIMETER SET						
	TRANSITION FL						
	FL 60						
	5000						
	4000						
	3000						
	2000						
		MISSED APPROACH					
	VECTOR TO SEARCH AREA						

ON-SCENE COMMANDER'S SEARCH STATUS
CHECKLIST (Cont.)

(PASS ASTERISK ITEMS TO RELIEF OSC)

I N I T I A L B R I E F	*NEW DEVELOPMENTS						
	SEARCH TARGETS						
	AREA DESIGNATION						
	SEARCH PATTERN						
	MAJOR AXIS						
	DIRECTION OF CREEP						
	TRACK SPACING						
	*SEARCH ALTITUDE						
	*SEARCH SQUAWK						
	*SEARCH TACAN						
	TRAFFIC ADVISORIES						
	*OPS NORMAL TIME-SLOTS						
	O P S N O R M	15/45	15/45	15/45	15/45	15/45	15/45
15/45							
15/45							
15/45							
R E S U L T S	SEARCH RESULTS						
	AREA SEARCHES						
	CEILING						
	VISIBILITY						
	WIND						
	VISUAL PROBABILITY						
	ELECTRONIC PROBABILITY						
D E P A R T	CLIMB CLEARANCE						
	TRANSITION ALTITUDE						
	ATC/OAC CLEARANCE						
	ETA DESTINATION						
	DEPARTURE CLEARANCE						
	DEPARTURE MESSAGE						

SEARCH OBJECT DATA

If you receive a call or become aware of a SAR case

QUESTIONS TO ASK?

MEDEVAC INCIDENT DATA

1. Craft with medevac (name or type/call sign or number/description).
2. Craft position (latitude/longitude or brng/distance).
3. Craft course/speed.
4. Determine urgency.
5. Determine status of patients (ambulatory or litter). if a litter is used, ensure it has appropriate flotation.
6. Medication given/medical records.
7. Radio frequencies in use or monitored.
8. On-scene weather and sea conditions (Beaufort Scale).
9. Delivery point.
10. Assistance desired/coordination required.
11. Assistance being received, if any.
12. Initial reporter (parent agency, radio station, name/call sign if craft, name/telephone number if person).
13. Other pertinent information.

LOST PERSON DATA/CHECKLIST

1. Name of missing person.
2. Location last seen.
3. Date/time last seen.
4. Known intentions or possible actions of missing person.
5. Description of missing person.
6. Clothing, footgear, and equipment.
7. Physical and mental condition.
8. Knowledge of area.
9. Outdoor experience.
10. Weather conditions (Beaufort Scale).
11. Action being taken.
12. Assistance desired, if not obvious.
13. Initial reporter (name/telephone or address).
14. Date/time of initial report.
15. Nearest relative (name/telephone or address).
16. Other pertinent information.

SEARCH OBJECT DATA (Cont.)

MAN OVERBOARD DATA/CHECKLIST

1. Craft with man overboard (name or type/call sign or number).
2. Craft's present position (latitude/longitude or bearing/distance from known point).
3. Date/time of present position.
4. Craft's course/speed and destination.
5. Craft's position when man went overboard (latitude/longitude or bearing/distance from known point).
6. Date/time of man overboard position.

Take appropriate action and/or relay to RCC or RSC

7. Water temperature.
8. Person's name, age, sex.
9. Person's physical condition and swimming capability.
10. Person's clothing, amount and color.
11. Person's lifejacket, if any.
12. Has craft made search?
13. Will craft remain and search and if so, for how long?
14. Radio frequencies in use, monitored, or scheduled.
15. On-scene weather and sea conditions (Beaufort Scale).
16. Assistance desired, if not obvious.
17. Assistance being received, if any.
18. Initial reporter (parent agency, radio station, name/call sign in craft).
19. Other pertinent information.

Relay to RCC or RSC

AIR OR MARINE CRAFT DATA/CHECKLIST

1. Distressed craft (name or type/call sign).
2. Position of emergency (latitude/longitude or bearing/distance from known point or last reported position and next reporting position).
3. Nature of emergency (fire, collision, man overboard, disabled, overdue, bailout, crash, etc.).
4. Date/time of position.

SEARCH OBJECT DATA (Cont.)

Take appropriate action and/or alert RCC or RSC

5. Are survivors in sight?
6. Was a parachute sighted?
7. Craft description (size, type, hull color, cabin color, deck color, rigging, fuselage color, tail color, wingtip color, etc.).
8. Persons on board (POB).
9. Date, time, and point of departure, planned route, speed of advance (SOA), ETA and point of destination.
10. Radio frequencies in use, monitored, or scheduled.
11. Emergency radio equipment and frequencies, including EPIRB.
12. On-scene weather and sea conditions (Beaufort Scale).
13. Assistance desired, if not obvious.
14. Assistance being received, if any.
15. Heading/speed/altitude/fuel.
16. Initial reporter (name/telephone or address if person; name/call sign if craft: ARTCC; OATCC; parent agency).
17. Date/time of initial report.

2
COMM

Relay to RCC or RSC

18. Possible route deviations.
19. Navigation equipment.
20. Survival equipment.
21. Food/water duration.
22. Other information sources (friends, relatives, associates, agents, agency).
23. Auto/boat trailer license, description, location if pertinent.
24. Other pertinent information.

Relay to RCC or RSC

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BREVITY CODES

ANCHORED	Am orbiting a visible orbit point
ANGELS	Aircraft altitude (in thousands of feet)
ARK	Air droppable liferaft
BENT	Equipment indicated is inoperative (temporarily or indefinitely). Canceled by OKAY.
BINGO	Proceed/proceeding to alternate or specified field or carrier. (Not home field or carrier)
BOWWAVE	Weather report giving bases and tops of clouds, wind, visibility, significant weather, sea state
BROWNIE	Photographic devices
BUSTER	Fly at maximum continuous speed (or power)
CANDLE	Night illumination device
CHERUBS	Height of friendly aircraft in hundreds of feet, or fly, or am flying at height indicated in hundreds of feet
COFFEE BREAK	Scheduled communication period
■ CREW	Any Navy aircraft at scene of action
DATUM	Last known position of a submarine or suspected submarine, after contact has been lost
‡DAVEY JONES	Survivor in the sea without lifejacket
‡DAVID	Provide advisory control for search aircraft
■ ‡DEAF	Any surface ship at scene of action
‡DUCKBUTT	Aircraft assigned to perform precautionary SAR. Performs secondary role as NAVAID to passing aircraft providing tracking, homing, and steering information, as well as position and weather reports when required
DUFFER	DF-equipped unit
DUMBO	Call sign for amphibious SAR aircraft
‡ELEVATE	Change altitude to _____ feet
‡ELLEN	Operate radar continuously

Ref: ACP 165
‡Other

BREVITY CODES (Cont.)

‡EVERGREEN	Dye marker showing in water	
‡EXCITE	Energize specified equipment	
FAMISHED	Have you any instructions or information for me?	
FATHER TACAN		
FEAR	Any aircraft or ship at scene of action	■
FEET DRY	I am, or contact designated is over land	
FEET WET	I am, or contact designated is over water	
FLOTSAM	Unclassified contact	
GADGET	Radar equipment	
‡GOODYEAR	Liferaft (followed by number of survivors)	
HAWK	Any Air Force aircraft at scene of action	■
HIGH DRINK	Helicopter in-flight refueling from a destroyer	
HOOKER	Fishing or other small craft	
HUGO	Any Army aircraft at scene of action	■
‡LIFEGUARD	Submarine or surface ship designated for SAR operations or a submarine or surface ship stationed geographically for precautionary SAR assistance. Also the name of the unit designated to recover a man overboard for vessels conducting alongside operations.	
LINK	AIRCRAFT I am calling by flashing light.	■
LONE RANGER	Dispatch aircraft for independent assignment	
MIDDLEMAN	Communication relay that requires receipt and subsequent manual retransmission	
MOTHER	Parent ship (usually the parent carrier)	
NOCAN	Unable to comply (with instructions)	
NOJOY	I have been unsuccessful or I have no information	
OKAY	Equipment indicated is operative	
ORANGES	Weather is unsuitable for aircraft mission	
SOUR		
ORANGES	Weather is suitable for aircraft mission	
SWEET		
OVERRIDE	Positive control of aircraft is being employed	

Ref: ACP 165

‡Other

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BREVITY CODES (Cont.)

PARROT	A military IFF transponder
‡PEDRO	Rescue helicopter
PIGEONS	The magnetic bearing and distance of base for (unit indicated) from you is ___ degrees ___ ___ miles
‡PLUTO	Call sign for shore-based SAR aircraft
POPEYE	In clouds or area of reduced visibility
‡PREVIEW	Advisory control of aircraft is being employed. Aircraft report changes in heading, altitude, and speed.
‡RESCAP	Rescue Combat Air Patrol; provides protection to rescue vehicles from hostile forces during all phases of SAR

RESCUE

(Location) SAR Coordination Center at (location)

REVERT Resume search on the previous intercept guard (watch)

‡RIALTO	Call sign for any or all SAR aircraft
‡SAR	Search and rescue
‡SAPPHIRE ()	SAR boat (number)
‡SCENE COMMANDER	On-scene SAR commander
SICK	Equipment indicated is operating at reduced efficiency
SMOKE	Smoke markers used to mark a position or datum
STRANGER	An unidentified contact not associated with action in progress (bearing, range, and altitude relative to you)
STRANGLE	Switch off equipment indicated
TIFF (Location)	Senior Coordination Center at location
TOOL	Ship that I am calling (Air to Surface)
WELL	Equipment indicated is operating efficiently
X RAY (call sign)	A ship's ASCAC
‡YELLOW	Survivor in the sea wearing a lifejacket
JACKET	
ZIP LIP	Hold UHF communication to a minimum

Ref: ACP 165

‡Other

SAR AND DISTRESS FREQUENCIES

DISTRESS: (Monitor Channels for On-Scene SAR Craft)

500 kHz	cw/mcw. International (3-min. silent period, H+15, H+45 worldwide)
2182 kHz	voice. International (3-min. silent period, H+0, H+30 worldwide less North America, South America, Greenland, Japan, Philippine Islands)
2670 kHz	International and Coast Guard Common
8364 kHz	cw/mcw. International survival craft
40.5 MHz	voice. DOD Distress/SAR Common
121.5 MHz	voice/mcw. International aircraft
243.0 MHz	voice/mcw. International survival craft and U.S. military aircraft

SAFETY:

156.8 MHz	voice. International Maritime PM
6204 kHz	voice. International Asian. 35S—30N, 120W—60E

(Distress freqs. may be used for safety and urgent messages)

INFORMATION:

4182 kHz	Maritime Mobile Calling. cw
4835 kHz	Air Force Crash Boats Calling. voice/cw
277.8 MHz	Fleet common

SAR CONTROL CHANNELS:

3023.0 kHz	voice. International
5680 kHz	voice. International

(Others available. Check regional SAR Plan for area of distress)

SSB/

OTHER

SAR ON-SCENE CHANNELS:

3023.0 kHz	voice/cw. International. AM or USB
5680 kHz	voice/cw. International. AM or USB
122.9 MHz	voice. C.A.P

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SAR AND DISTRESS FREQUENCIES (Cont.)

123.1 MHz	voice. International
138.78 MHz	voice. Joint SAR coordination
172.75 MHz	voice. Channel 15 SAR buoy. Transmit only via sonobuoy hydrophone.
243.0 MHz	voice/MCW
278.1 MHz	US-SAR control frequency
282.8 MHz	voice. SAR units worldwide
381.8 MHz	voice. CG command net (working frequency between USCG aircraft, cutters, etc.)

HOMING CHANNELS:

410 kHz	cw/mcw. International maritime DF
514 kHz	voice/cw. Japan area only
522 kHz	voice/cw. Worldwide
532 kHz	voice/cw. Worldwide less Japan
1742 kHz	cw/mcw. ARRS air to air only
1746 kHz	cw/mcw. ARRS air to air only

NOTE: 2182 plus all VHF/UHF distress and on-scene channels may be used for emergency homing)

252.8 MHz	tone/voice. ARRS Tactical or Training
259.0 MHz	tone/voice. ARRS Tactical or Training
277.8 MHz	voice. Fleet common
282.8 MHz	voice. Joint/combined SAR scene of action and UHF/DF (PRC-90 frequency)
381.0 MHz	tone/voice. ARRS Tactical or Training

EN ROUTE CHANNELS:

En route channels for aircraft and vessels are usually specified by the ICAO, FAA, or the parent activity.

ALARM, EPIRB, DATUM CHANNELS AND SIGNALS:

500 kHz	mcw. 12 4-second dashes separated by 1 second
2182 kHz	mcw. Alternating tones of 2,200 Hz, and 2,300 Hz, each tone of 1/4-second duration

SAR AND DISTRESS FREQUENCIES (Concl.)

- 121.5 MHz mcw. Downward sweep of at least 700 Hz between 1,600 Hz and 300 Hz, repeated 2 to 3 times/second
- 243.0 MHz mcw. Same signal as for 121.5 MHz
- 275.1 MHz mcw. Same signal as for 121.5 MHz (DATUM)
- 240.6 MHz mcw. Same signal as for 121.5 MHz
- 261.3 MHz mcw. Same signal as for 121.5 MHz (DATUM)
- 282.3 MHz mcw. Same signal as for 121.5 MHz (DATUM)

Search craft are briefed about control channels, monitor channels and datum marker channels. Homing channels are normally employed in special situations involving intercepts, rendezvous, or ship/aircraft search operations.

DATUM MARKER BUOY:

Type	Freq.	Duration	Max. Range	Weight
2981/SRT/CG	275.1 Meg	36 hr.	line of sight	22 lbs.
URT 31/AF	243	24 hr.	line of sight	54 lbs.

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SONOBUOY VHF/UHF-DF FREQUENCIES AND CHANNELIZATION

CHANNEL	VHF	UHF-DF	CHANNEL	VHF	UHF-DF
1	162.250	324.5	51	143.125	286.25
2	163.000	326.0	52	143.500	287.0
3	163.750	327.5	53	143.875	287.75
4	164.500	329.0	54	144.250	288.5
5	165.250	330.5	55	144.625	289.25
6	166.000	332.0	56	145.000	290.0
7	166.750	333.5	57	145.375	290.75
8	167.500	335.0	58	145.750	291.5
9	168.250	336.5	59	146.125	292.25
10	169.000	338.0	60	146.500	293.0
11	169.750	339.5	61	146.875	293.75
12	170.500	341.0	62	147.250	294.5
13	171.250	342.5	63	147.625	295.25
14	172.000	344.0	64	148.000	296.0
15	172.750	345.5	65	148.375	296.75
16	173.500	347.0	66	148.750	297.5
17	162.625	325.25	67	149.125	298.25
18	163.375	326.75	68	149.500	299.0
19	164.125	328.25	69	149.875	299.75
20	164.875	329.75	70	150.250	300.5
21	165.625	331.25	71	150.625	301.25
22	166.375	332.75	72	151.000	302.0
23	167.125	334.25	73	151.375	302.75
24	167.875	335.75	74	151.750	303.5
25	168.625	337.25	75	152.125	304.25
26	169.375	338.75	76	152.500	305.0
27	170.125	340.25	77	152.875	305.75
28	170.375	341.75	78	153.250	306.5
29	171.625	343.25	79	153.625	307.25
30	172.375	344.75	80	154.000	308.0
31	173.125	346.25	81	154.375	308.75
32	136.000	272.0	82	154.750	309.5
33	136.375	272.75	83	155.125	310.25
34	136.750	273.5	84	155.500	311.0
35	137.125	274.25	85	155.875	311.75
36	137.500	275.0	86	156.250	312.5
37	137.875	275.75	87	156.625	313.25
38	138.250	276.5	88	157.000	314.0
39	138.625	277.25	89	157.375	314.75
40	139.000	278.0	90	157.750	315.5
41	139.375	278.75	91	158.125	316.25
42	139.750	279.5	92	158.500	317.0
43	140.125	280.25	93	158.875	317.75
44	140.500	281.0	94	159.250	318.5
45	140.875	281.75	95	159.625	319.25
46	141.250	282.5	96	160.000	320.0
47	141.625	283.25	97	160.375	320.75
48	142.000	284.0	98	160.750	321.5
49	142.375	284.75	99	161.125	322.25
50	142.750	285.5			

Note

ACOUSTIC SONOBUOYS MAY BE USED TO MARK LOCATION OF SURVIVORS, AND CAN HAVE A LIFE OF UP TO EIGHT HOURS. THE UHF/DF FUNCTION MAY BE USED TO MARK ON TOP ACOUSTIC SONOBUOYS BY SELECTING AND TUNING THE DESIRED SONOBUOYS SECOND HARMONIC FREQUENCY.

VHF-FM MARINE FREQUENCIES

COMPREHENSIVE VHF-FM MARINE RADIOTELEPHONE CHANNELS...by Designator						
OPERATING CHANNEL DESIGNATIONS		FREQUENCY (MHz)		TYPE OF TRAFFIC	FUNCTION	
ORIGINAL	ADDITIONAL	SHIP TX	COAST TX		SHIP/SHIP	SHIP/ShORE
1		156.05	160.65	International Only	-	Yes
2		156.1	160.7	International Only	-	Yes
3		156.15	160.75	International Only	-	Yes
4		156.2	160.8	International Only	-	Yes
5		156.25	160.85	International Only	-	Yes
6		156.3	-	SAFETY	Yes	No
7		156.35	160.95	International Only	-	Yes
7A		156.35	156.35	Commercial	Yes	Yes
8		156.4	-	Commercial	Yes	No
9		156.45	156.45	Commercial	Yes	Yes
9A		156.45	156.45	Non-Commercial	Yes	Yes
10		156.5	156.5	Commercial	Yes	Yes
11		156.55	156.55	Commercial	Yes	Yes
12		156.6	156.6	Port Operations, USCG	Yes	Yes
13		156.65	156.65	Locks, Canals, Pilots	Yes	Yes
14		156.7	156.7	Port Operations, USCG	Yes	Yes
15		156.75	156.75		Ship Receive Only	Ship Receive
16		156.8	156.8	DISTRESS CALLING	Yes	DISTRESSCALL
17		156.85	156.85	State Control Restricted	No	Yes
18		156.9	161.5	International Only	No	Yes
18A		156.9	156.9	Commercial	Yes	Yes
19		156.95	161.55	International Only	No	Yes
19A		156.95	156.95	Commercial	Yes	Yes
20		157.0	161.6	Port Operations	No	Yes
21		157.05	161.65	International Only	-	Yes
21CG		157.05	157.05	USCG Restricted	Yes	Yes
22		157.1	161.7	International Only	-	Yes
22CG		157.1	157.1	USCG Restricted	Yes	Yes
23		157.15	161.75	International Only	-	Yes
23CG		157.15	157.15	USCG Restricted	Yes	Yes
24		157.2	161.8	Public Corresp.	No	Yes
25		157.25	161.85	Public Corresp.	No	Yes
26		157.3	161.9	Public Corresp.	No	Yes
27		157.35	161.95	Public Corresp.	No	Yes
28		157.4	162.0	Public Corresp.	No	Yes
	60	156.025	160.625	International Only	Ship Receive Only	Ship Receive
	61	156.075	160.675	International Only	-	-
	62	156.125	160.725	International Only	-	-
	63	156.175	160.775	International Only	-	-
	64	156.225	160.825	International Only	-	-
	65	156.275	160.875	International Only	Yes	Yes
	65A	156.275	156.275	Port Operations	Yes	Yes
	66	156.325	160.925	International Only	Yes	Yes
	66A	156.325	156.325	Port Operations	Yes	Yes
	67	156.375	156.375	Commercial	Yes	No
	68	156.425	156.425	Non-Commercial	Yes	Yes
	69	156.475	156.475	Non-Commercial	Yes	Yes
	70	156.525	-	Non-Commercial	Yes	No
	71	156.575	156.575	Non-Commercial	Yes	Yes
	72	156.625	-	Non-Commercial	Yes	No
	73	156.675	156.675	Port Operations	Yes	Yes
	74	156.725	156.725	Port Operations	Yes	Yes
	75	GUARD CHANNEL	-	-	-	-
	76	GUARD CHANNEL	-	-	-	-
	77	156.875	-	Commercial	Yes	No
	78	156.925	161.525	International Only	Yes	Yes
	78A	156.925	154.925	Non-Commercial Only	No	Yes
	79	156.975	161.575	International Only	Yes	Yes
	79A	156.975	156.975	Commercial	Yes	Yes
	80	157.025	161.625	International Only	Yes	Yes
	80A	157.025	157.025	Commercial	-	Yes
	81	157.075	161.675	International Only	-	Yes
	82	157.125	161.725	International Only	-	Yes
	83	157.175	161.775	International Only	-	Yes
	83CG	157.175	157.175	USCG Aus Only	Yes	Yes
	84	157.225	161.825	Public Corresp.	No	Yes
	85	157.275	161.875	Public Corresp.	No	Yes
	86	157.325	161.925	Public Corresp.	No	Yes
	87	157.375	161.975	Public Corresp.	No	Yes
	88	157.425	162.025	International Only	Yes	Yes
	88A	157.425	-	Commercial	Yes	No
WE1		-	162.55	NOAA Weather	Ship Receive Only	Ship Receive Only
	WE2	-	162.4	NOAA Weather	-	-
WE3		-	162.475	-	-	-
	WE4	-	161.65	-	-	-

Check locally for Channels Authorized or used in your Area.

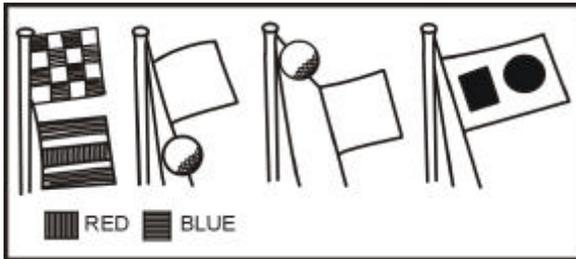
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EMERGENCY VISUAL SIGNALS

FLAG HOIST SIGNALS

PRIMARY DISTRESS

- NC – I AM IN DISTRESS AND REQUIRE IMMEDIATE ASSISTANCE
- SQUARE FLAG ABOVE OR BELOW A BALL SHAPE – I AM IN DISTRESS AND REQUIRE IMMEDIATE ASSISTANCE
- INVERTED UNITED STATES FLAG – I AM IN DISTRESS AND REQUIRE IMMEDIATE ASSISTANCE
- BLACK CIRCLE AND BLACK SQUARE ON FLUORESCENT ORANGE-RED FLAG – I AM IN DISTRESS AND REQUIRE IMMEDIATE ASSISTANCE (USED GENERALLY BY CANADIAN SMALL BOATS)
- BLANK FLUORESCENT ORANGE FLAG – I AM IN DISTRESS AND REQUIRE IMMEDIATE ASSISTANCE (USED BY SOME INLAND STATES OF USA)



SECONDARY DISTRESS — INTERCOM (BY FLAG HOIST, CW, VOICE, OR FLASHING LIGHT)

- V – I REQUIRE ASSISTANCE
- N – I UNDERSTOOD YOUR MESSAGE BUT CAN NOT COMPLY (TO SAR ACFT)
- CODE – I UNDERSTAND YOUR MESSAGE AND WILL FOLLOW YOU (TO SAR ACFT)
- AC – I AM ABANDONING MY VESSEL
- AD – I AM ABANDONING MY VESSEL WHICH HAS SUFFERED NUCLEAR ACCIDENT AND IS POSSIBLE SOURCE OF RADIATION DANGER
- AE – I MUST ABANDON MY VESSEL
- AI – VESSEL INDICATED WILL HAVE TO BE ABANDONED
- BF – AIRCRAFT HAS DITCHED IN POSITION INDICATED AND REQUIRES IMMEDIATE ASSISTANCE
- BR – I REQUIRE A HELICOPTER URGENTLY
- CB – I REQUIRE IMMEDIATE ASSISTANCE
- CC – I AM IN DISTRESS AT POSITION INDICATED AND REQUIRE IMMEDIATE ASSISTANCE
- CD – I REQUIRE ASSISTANCE IN THE NATURE OF
- CG – STANDBY TO ASSIST ME
- CV – DO YOU REQUIRE ASSISTANCE
- CK – I NO LONGER REQUIRE ASSISTANCE
- DX – I AM SINKING IN POSITION INDICATED
- EB – THERE IS A CRAFT IN DISTRESS IN POSITION INDICATED
- EK – I HAVE SIGHTED DISTRESS IN POSITION INDICATED
- FF – I HAVE INTERCEPTED DISTRESS CALL FROM CRAFT IN POSITION AND TIME INDICATED

EMERGENCY VISUAL SIGNALS (Cont.)

PYROTECHNIC LIGHT SIGNALS

ONE RED, OR A SUCCESSION OF REDS	– I AM IN DISTRESS AND REQUIRE IMMEDIATE ASSISTANCE. BY SUB: ATTEMPTING EMERGENCY SURFACING. KEEP CLEAR. BY PARARESCUE: IMPOSSIBLE TO PROCEED AS PLANNED.
TWO RED	– BY PARARESCUE: SURVIVOR INJURED, NEED DOCTOR AND MEDICAL KIT.
ONE RED, ONE GREEN	– BY PARARESCUE: RADIO INOPERATIVE, DROP ANOTHER.
ONE GREEN	– BY ACFT: REQUEST PERMISSION TO LAND (USED NEAR AIRPORT) BY SUB: HAVE FIRED EXERCISE TORPEDO BY PARARESCUE: INITIAL NOTIFICATION, ALL IS WELL.
TWO GREEN	– BY PARARESCUE: SURVIVOR READY FOR PICKUP AS ARRANGED. BY SAR ACFT OR SAR VESSEL: I HAVE SIGHTED SURVIVORS.
ONE GREEN EVERY 5 TO 10 MINUTES	– BY SAR ACFT OR SAR VESSEL: REQUEST DISTRESSED CREW FIRE RED PYRO (INTERVAL HALVED WHEN RED PYRO SIGHTED).
SUCCESSION OF GREENS	– BY ACFT: HAVE URGENT MESSAGE TO TRANSMIT.
ONE WHITE	– BY ACFT: SUB IS BELOW ME. BY SHIP: MAN OVERBOARD. BY PARARESCUE: READY FOR FLOTATION KIT, OR AERO-KITE DROP.
TWO WHITE	– BY PARARESCUE: READY FOR MA-1 KIT DROP.
TWO WHITES, 3 MINUTES APART	– BY SUB: AM SURFACING, KEEP CLEAR.
SERIES OF WHITES, 10 SECONDS APART	– BY SHIP OR ACFT: ALTER YOUR HEADING TO AVOID RESTRICTED AREA.
SUCCESSION OF WHITES	– BY ACFT: IN DIFFICULTY AND MUST LAND.
ONE WHITE, ONE GREEN	– BY PARARESCUE: READY FOR RAFT DROP.
ONE WHITE, ONE RED	– BY PARARESCUE: FLOTATION DEVICE DAMAGED. DROP ANOTHER.

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EMERGENCY VISUAL SIGNALS (Cont.)

PYROTECHNIC LIGHT SIGNALS (Cont.)

- | | |
|-------------------------|---|
| TWO WHITES
ONE GREEN | – BY SAR ACFT: RESCUE UNSUCCESSFUL. |
| TWO WHITES
ONE RED | – BY SAR ACFT: RESCUE UNSUCCESSFUL. |
| ONE YELLOW | – BY SUB: ASCENDING TO PERISCOPE DEPTH. |

FLAME SIGNALS–

- | | |
|--|---|
| FLAMES FROM
BURNING TAR OR
OIL BARRELS | – I AM IN DISTRESS AND REQUIRE
IMMEDIATE ASSISTANCE (USED BY
VESSELS) |
| THREE BONFIRES
FORMING A
TRIANGLE | – I AM IN DISTRESS AND REQUIRE
IMMEDIATE ASSISTANCE (USED BY
SURVIVORS ASHORE). |

FLASHING LIGHT SIGNALS

- | | |
|-------------------------------|--|
| SOS | – I AM IN DISTRESS AND REQUIRE
IMMEDIATE ASSISTANCE |
| F | – I AM DISABLED, COMMUNICATE WITH
ME. |
| V | – I REQUIRE ASSISTANCE. |
| W | – I REQUIRE MEDICAL ASSISTANCE. |
| TWO WHITE FLASHES | – BY SAR CRAFT: I HAVE SURVIVORS IN
SIGHT. |
| SUCCESION OF
WHITE FLASHES | – BY AIRCRAFT: IN DIFFICULTY
AND MUST LAND. |

PYROTECHNIC SMOKE SIGNALS

- | | |
|--|---|
| GREEN SMOKE | – I HAVE LAUNCHED A SIMULATED ATTACK. |
| ORANGE SMOKE | – I AM IN DISTRESS AND REQUIRE
IMMEDIATE ASSISTANCE |
| RED SMOKE | – BY SUB: ATTEMPTING EMERGENCY
SURFACING. KEEP CLEAR |
| TWO ORANGE SMOKE
FEW SECONDS APART | – BY SAR ACFT: I HAVE SURVIVORS IN
SIGHT |
| TWO WHITE OR TWO
YELLOW 3 SECONDS
APART | – BY SUB: AM SURFACING. KEEP CLEAR |
| SERIES OF BLACK OR
WHITE SMOKE
BURSTS, 10 SECONDS
APART | – BY SHIP: ALTER YOUR HEADING
TO AVOID RESTRICTED AREA |

EMERGENCY VISUAL SIGNALS (Cont.)

ROCKET OR STAR SHELL SIGNALS

- SERIES OF RED STARS, FIRED ONE AT A TIME AT SHORT INTERVALS – I AM IN DISTRESS AND REQUIRE IMMEDIATE ASSISTANCE
- TWO GREEN STARS A FEW SECONDS APART – BY SAR CRAFT: I HAVE SURVIVORS IN SIGHT.

STAINING SIGNALS

- GREEN DYE – BY SURVIVORS: I AM IN DISTRESS AND REQUIRE IMMEDIATE ASSISTANCE.
 BY SAR ACFT: THE SURVIVORS ARE LOCATED HERE.
 BY SUB: MY POSITION IS HERE.
- EJECTED OIL – BY SUB: MY POSITION IS HERE.

WAVING SIGNALS

- WAVING ONE (1) ARM OVERHEAD SIDE BY SIDE – BY SURVIVORS: I AM IN DISTRESS AND REQUIRE IMMEDIATE ASSISTANCE.

MORSE CODE

A . -	Alfa	(AL-FAH)	S . . .	Sierra	(SEE-AIR-RAH)
B - . . .	Bravo	(BRAH-VOH)	T -	Tango	(TAN-GO)
C - . . .	Charlie	(CHAR-LEE) (or SHAR-LEE)	U . . -	Uniform	(YOU-NEE-FORM) (or OO-NEE-FORM)
D - . .	Delta	(DELL-TAH)	V . . . -	Victor	(VIK-TAH)
E .	Echo	(ECK-OH)	W . - -	Whiskey	(WISS-KEY)
F . . .	Foxtrot	(FOXS-TROT)	X - . . -	X-ray	(ECKS-RAY)
G - - .	Golf	(GOLF)	Y - . - -	Yankee	(YANG-KEY)
H	Hotel	(HOH-TELL)	Z - - . .	Zulu	(ZOO-LOO)
I . .	India	(IN-DEE-AH)	1. - - - -	Wun	
J . - - -	Juliett	(JEW-LEE-ETT)	2. - - - -	Too	
K - - .	Kilo	(KEY-LOH)	3. . . - -	Tree	
L . . .	Lima	(LEE-MAH)	4. . . . -	Fow-er	
M - -	Mike	(MIKE)	5.	Fife	
N - .	November	(NO-VEM-BER)	6 -	Six	
O - - -	Oscar	(OSS-CAH)	7 - - . . .	Sev-en	
P	Papa	(PAH-PAH)	8 - - - . .	Ait	
Q - - - -	Quebec	(KEH-BECK)	9 - - - - .	Nin-er	
R . . .	Romeo	(ROW-ME-OH)	0 - - - - -	Ze-ro	

EMERGENCY VISUAL SIGNALS (Concl.)

BODY SIGNALS



NEED MEDICAL ASSISTANCE

OUR RECEIVER IS OPERATING

USE DROP MESSAGE

AFFIRMATIVE (YES)

NEGATIVE (NO)

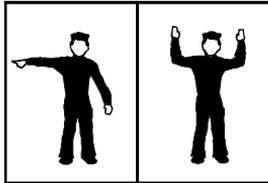


ALL OK DO NOT WAIT

DO NOT ATTEMPT TO LAND HERE

LAND HERE

NEED MECHANICAL HELP OR PARTS



CAN PROCEED SHORTLY — WAIT IF PRACTICAL

PICK US UP PLANE ABANDONED

RESCUE SWIMMERS HAND SIGNALS



1 SIGNAL: Raised arm, open hand, fingers extended

MEANING: I am all right



2 SIGNAL: Raised arm, thumb up

MEANING: Move in for pickup



3 SIGNAL: Vigorous waving of one arm

MEANING: In trouble, need assistance



4 SIGNAL: Clenched fists, arms crossed overhead

MEANING: Deploy raft



5 SIGNAL: Hand held to ear

MEANING: Deploy radio



6 SIGNAL: Clenched fist, arm pumping motion

MEANING: Deploy pneumatic webbing cutter



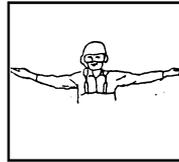
7 SIGNAL: One arm raised with open palm, fingers extended, other arm raised over the swimmer's head and touching the first arm at the elbow

MEANING: Deploy rescue litter



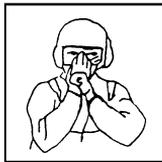
8 SIGNAL: Both arms raised, palms open, fingers extended, at 45 degree angle to the side of the swimmer's head

MEANING: Deploy rescue net



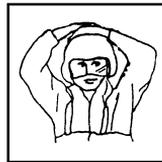
9 SIGNAL: Both arms out stretched, palms up

MEANING: Deploy forest penetrator



10 SIGNAL: One palm cupped over mouth and nose, clenched fist in front

MEANING: Deploy oxygen/suction unit



11 SIGNAL: Both arms raised, palms overlapping and touching top of head

MEANING: Deploy medical kit

RESCUE SWIMMERS HAND SIGNALS (Concl.)

AFTER HOOK UP TO RESCUE HOOK



12 SIGNAL: Raised arm, thumb up

MEANING: Ready to be hoisted



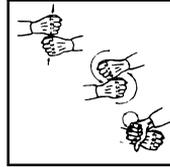
13 SIGNAL: Raised arm, clenched fist

MEANING: Stop hoisting



14 SIGNAL: Raised arm, thumb down

MEANING: Lower cable



15 SIGNAL: Clenched fist over clenched fist followed by a thumbs down by hoist operator

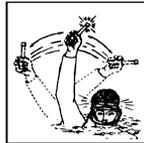
MEANING: Failed hoist

NIGHT/LOW VISIBILITY



16 SIGNAL: Swimmers lighting device on, raised arm, palm open, fingers extended

MEANING: I am all right



17 SIGNAL: Wave chemical light

MEANING: Move in for pickup



18 SIGNAL: Wave signal device

MEANING: In trouble, need assistance



19 SIGNAL: Blue strobe on

MEANING: In trouble, need assistance

INTERNATIONAL SIGNAL FLAGS

NUMERAL PENNANTS

PENNANT and NAME	Spoken	Written
 1	PENNANT ONE	p1
 2	PENNANT TWO	p2
 3	PENNANT THREE	p3
 4	PENNANT FOUR	p4
 5	PENNANT FIVE	p5
 6	PENNANT SIX	p6
 7	PENNANT SEVEN	p7
 8	PENNANT EIGHT	p8
 9	PENNANT NINE	p9
 0	PENNANT ZONE	p0
TACKLINE	TACK	—

SPECIAL FLAGS AND PENNANTS

PENNANT or FLAG	Spoken	Written	PENNANT or FLAG	Spoken	Written
 CODE or ANSWER	CODE or ANSWER	CODE or ANS	 PREPARATIVE	PREP	PREP
 CORPEN	CORPEN	CORPEN	 PORT	PORT	PORT
 DESIGNATION	DESIG	DESIG	 SCREEN	SCREEN	SCREEN
 DIVISION	DIV	DIV	 SPEED	SPEED	SPEED
 EMERGENCY	EMERGENCY	EMERG	 SQUADRON	SQUAD	SQUAD
 FLOTILLA	FLOT	FLOT	 STARBOARD	STARBOARD	STBD
 FORMATION	FORMATION	FORM	 STATION	STATION	STATION
 INTERROGATIVE	INTERROGATIVE	INT	 SUBDIVISION	SUBDIV	SUBDIV
 NEGATIVE	NEGAT	NEGAT	 TURN	TURN	TURN

SUBSTITUTES

 FIRST SUBSTITUTE	FIRST SUB	1st.	 THIRD SUBSTITUTE	THIRD SUB	3rd.
 SECOND SUBSTITUTE	SECOND SUB	2nd.	 FOURTH SUBSTITUTE	FOURTH SUB	4th.

INTERNATIONAL SIGNAL FLAGS

ALPHABETICAL AND NUMERAL FLAGS

PENNANT and NAME	Spoken	Written	FLAG and NAME	Spoken	Written	FLAG and NAME	Spoken	Written
 A	ALFA	A • —	 M	MIKE	M — —	 Y	YANKEE	Y — • —
 B	BRAVO	B — • • •	 N	NOVEMBER	N • — •	 Z	ZULU	Z — — • •
 C	CHARLIE	C — • — • •	 O	OSCAR	O — — —	 ONE	ONE	1
 D	DELTA	D — — • •	 P	PAPA	P • — — • •	 TWO	TWO	2
 E	ECHO	E •	 Q	QUEBEC	Q — — • —	 THREE	THREE	3
 F	FOXTROT	F • • — • •	 R	ROMEO	R • — •	 FOUR	FOUR	4
 G	GOLF	G — — • •	 S	SIERRA	S • • •	 FIVE	FIVE	5
 H	HOTEL	H • • • •	 T	TANGO	T —	 SIX	SIX	6
 I	INDIA	I • •	 U	UNIFORM	U • • —	 SEVEN	SEVEN	7
 J	JULIETT	J • — — —	 V	VICTOR	V • • • —	 EIGHT	EIGHT	8
 K	KILO	K • — • —	 W	WHISKEY	W • — —	 NINE	NINE	9
 L	LIMA	L • — • •	 X	XRAY	X — • • —	 ZERO	ZERO	Ø

3
MARI-
TIME
SAR

NWP 3-22.5-SAR-TAC

EMERGENCY AUDIBLE SIGNALS

CONTINUOUS SOUNDING OF WHISTLE, FOG HORN OR OTHER SOUND APPARATUS

– I AM IN DISTRESS AND REQUIRE IMMEDIATE ASSISTANCE

EXPLOSIVE SIGNAL REPEATED AT ONE-MINUTE INTERVALS

– I AM IN DISTRESS AND REQUIRE IMMEDIATE ASSISTANCE

MORSE CODE GROUP. SOS BY ANY SOUND APPARATUS

– I AM IN DISTRESS AND REQUIRE IMMEDIATE ASSISTANCE

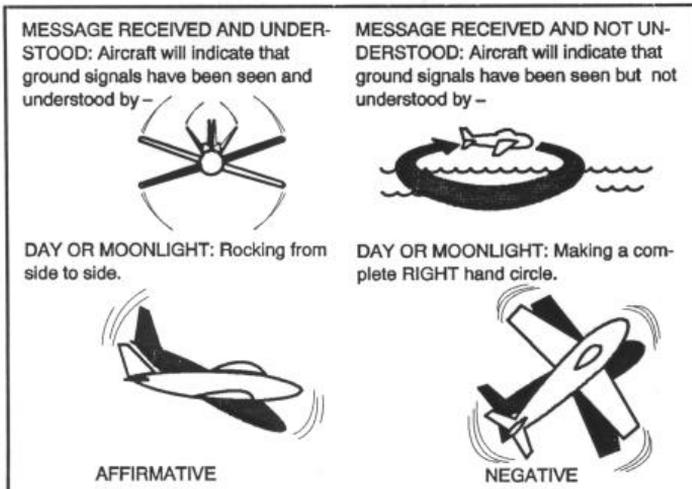
SPOKEN WORD MAYDAY BY ANY VOICE AMPLIFYING APPARATUS

– I AM IN DISTRESS AND REQUIRE IMMEDIATE ASSISTANCE

1 OR MORE UNDER-WATER SOFAR SIGNALS

– I AM IN DISTRESS AND REQUIRE IMMEDIATE ASSISTANCE

STANDARD AIRCRAFT ACKNOWLEDGEMENTS



**SECTION 3 — MARITIME SEARCH AND RESCUE
PROCEDURES**

Drift Forces 3-2

Parachute Drift Determination 3-2

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DRIFT FORCES

A basic understanding of the origins and effects of these forces is required – see Joint Pub 3-50 National Search and Rescue Manual.

1. Aerospace – trajectory (d_a)
2. Parachute drift (d_p)
3. Leeway (LW)
4. Wind-driven current (WC)
5. Sea current (SC)
6. Tidal current (TC)

STEP 1 — Determine Type Incident. If an aviation incident and a bailout or an ejection is known to have occurred, proceed to step 2. If a surface position is known or the incident involved a surface craft, proceed to step 4.

PARACHUTE DRIFT DETERMINATION

STEP 2 — If Applicable, Obtain or Estimate the Following Information

- a. Ejection position
- b. Ejection altitude
- c. Aircraft direction of travel
- d. Average wind speed and direction from parachute opening altitude to the surface.

Note

Parachute opening altitudes:

U.S. military — 14,000 feet

Canadian military — 16,000 feet

Civilian — at bailout

- e. If ejection or bailout is known to have occurred, *and the direction of travel at the time of ejection or bailout is known*, apply aerospace trajectory in that direction. Aerospace trajectory is the distance the aviator will travel due to forward momentum. The following estimations apply:
 - 1) Turboprop — 0.5 miles
 - 2) High performance jets — 0.5 miles
 - 3) High performance jets — 0.8 miles
- f. Apply the aerospace trajectory vector to the position where the incident occurred (the initial position). Proceed to step 3.

PARACHUTE DRIFT DETERMINATION (Concl.)

Step 3 — Determine Parachute Drift

- a. Enter chart at closest altitude to parachute opening (vertical column).
- b. Move across to intersection of appropriate average winds aloft speed. This number represents the distance in nautical miles the parachuter drifted.
- c. Apply drift down from the position calculated in step 2f. This is the surface position. Proceed to step 4.

PARACHUTE DRIFT TABLE

	5 KTS	10 KTS	15 KTS	20 KTS	25 KTS	30 KTS	35 KTS	40 KTS	45 KTS	50 KTS	55 KTS
14,000	1	1.9	2.8	3.8	4.7	5.7	6.7	7.7	8.6	9.5	10.4
13,500	0.9	1.7	2.7	3.7	4.6	5.5	6.4	7.3	8.3	9.2	10
13,000	0.9	1.8	2.7	3.6	4.4	5.3	6.2	7.1	7.9	8.8	9.7
12,500	0.9	1.7	2.6	3.4	4.3	5.1	6	6.8	7.7	8.5	9.3
12,000	0.9	1.7	2.5	3.4	4.2	5	5.8	6.7	7.5	8.3	8.9
11,500	0.8	1.6	2.4	3.2	4	4.8	5.6	6.4	7.2	8	8.6
11,000	0.8	1.5	2.3	3.1	3.8	4.6	5.4	6.2	6.9	7.7	8.2
10,500	0.8	1.5	2.2	3	3.7	4.4	5.1	5.9	6.6	7.3	7.8
10,000	0.7	1.4	2.1	2.8	3.5	4.2	4.9	5.6	6.3	7	7.5
9,500	0.7	1.4	2.1	2.7	3.4	4.1	4.7	5.4	6.1	6.7	7.1
9,000	0.7	1.3	2	2.6	3.3	3.9	4.6	5.2	5.9	6.5	6.7
8,500	0.7	1.3	1.9	2.5	3.1	3.7	4.3	4.9	5.5	6.1	6.4
8,000	0.6	1.2	1.8	2.4	2.9	3.5	4.1	4.7	5.2	5.8	6
7,500	0.6	1.1	1.6	2.2	2.7	3.3	3.8	4.3	4.9	5.4	5.6
7,000	0.6	1.1	1.6	2.1	2.6	3.1	3.6	4.1	4.6	5.1	5.2
6,500	0.5	1	1.5	1.9	2.4	2.9	3.3	3.8	4.2	4.7	4.9
6,000	0.5	0.9	1.3	1.8	2.2	2.7	3.1	3.5	4	4.4	4.5
5,500	0.4	0.8	1.2	1.6	2	2.4	2.8	3.2	3.6	4	4.1
5,000	0.4	0.8	1.2	1.5	1.8	2.3	2.6	3	3.3	3.7	3.8
4,500	0.4	0.7	1	1.4	1.7	2	2.3	2.7	3	3.3	3.4
4,000	0.3	0.6	0.9	1.2	1.5	1.8	2.1	2.4	2.7	3	3
3,500	0.2	0.5	0.8	1	1.3	1.6	1.8	2.1	2.3	2.6	2.7
3,000	0.2	0.5	0.7	0.9	1.1	1.4	1.6	1.8	2	2.2	2.3
2,500	0.2	0.4	0.6	0.8	1	1.2	1.3	1.5	1.7	1.9	1.9
2,000	0.2	0.3	0.5	0.6	0.8	0.9	1.1	1.2	1.4	1.5	1.6
1,500	0.1	0.2	0.3	0.4	0.5	0.7	0.8	0.9	1	1.1	1.2

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SEARCH ALTITUDE DETERMINATION

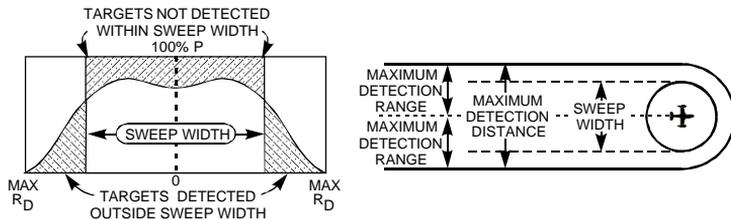
STEP 4 — Determine Search Altitude. From the Visual Search Altitude chart below, determine the recommended visual search altitude for the target that is to be searched for. Go to step 5.

Search Target	Terrain	Recommended Altitudes (ft)
Persons, one-person rafts, surfboards, light aircraft crashes	Water	200 to 500
Small to medium-sized boats, liferafts trucks, aircraft	Water	1,000 to 3,000
Distress signals	Night-all terrain	1,500 to 2,000

SWEEP WIDTH DETERMINATION

STEP 5 — Determine Uncorrected Maritime Visual Sweep Width. Sweep width is the numerical value obtained by reading the maximum detection distance of any given sweep so that scattered targets which may be detected beyond the limits of W are equal in number to those that may be missed within these limits.

A. GRAPHIC PRESENTATION OF SWEEP WIDTH: B. PICTORIAL PRESENTATION OF SWEEP WIDTH:



The tables on pages 3-5 through 3-11 present uncorrected sweep width data for various objects. Locate the chart for your type SRU, enter the column which describes your search altitude (if applicable) and visibility. Read down this column to the target type which most closely describes the search object. Interpolate as necessary. The value is the uncorrected sweep width in NM.

Note

If searching at night, or for a specific detection aid, use the detection aid or NVG sweep width tables located on pages 3-14 through 3-16 to determine most appropriate sweep width. Proceed to step 6.

**UNCORRECTED VISUAL SWEEP WIDTH — HELICOPTERS
ALTITUDES 300 TO 750 FEET**

Helicopter Searching For	Altitude 300 (ft) Visibility (NM)							Altitude 500 (ft) Visibility (NM)							Altitude 750 (ft) Visibility (NM)						
	1	3	5	10	15	20	30	1	3	5	10	15	20	30	1	3	5	10	15	20	30
Person in Water*	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Raft 1 person	0.4	0.9	1.2	1.5	1.7	1.7	1.7	0.4	0.9	1.2	1.6	1.8	1.8	1.8	0.4	0.9	1.2	1.6	1.8	1.8	1.8
Raft 4 person	0.5	1.2	1.6	2.2	2.5	2.7	2.7	0.5	1.2	1.6	2.2	2.6	2.8	2.8	0.5	1.2	1.7	2.3	2.6	2.8	2.8
Raft 6 person	0.5	1.4	1.9	2.7	3.1	3.4	3.4	0.5	1.4	1.9	2.7	3.2	3.5	3.5	0.5	1.4	2.0	2.7	3.2	3.5	3.5
Raft 8 person	0.6	1.4	2.0	2.8	3.3	3.6	3.6	0.6	1.5	2.0	2.8	3.3	3.7	3.7	0.5	1.5	2.1	2.9	3.4	3.7	3.7
Raft 10 person	0.6	1.5	2.1	3.0	3.6	3.9	3.9	0.6	1.6	2.2	3.1	3.6	4.0	4.0	0.6	1.6	2.2	3.1	3.7	4.0	4.0
Raft 15 person	0.6	1.6	2.3	3.3	3.9	4.3	4.9	0.6	1.7	2.3	3.3	4.0	4.4	5.0	0.6	1.7	2.4	3.4	4.0	4.5	5.0
Raft 20 person	0.6	1.8	2.6	3.8	4.5	5.1	5.8	0.6	1.8	2.6	3.8	4.6	5.1	5.9	0.6	1.8	2.6	3.9	4.6	5.2	5.9
Raft 25 person	0.6	1.9	2.7	4.1	4.9	5.5	6.3	0.6	1.9	2.7	4.1	5.0	5.6	6.4	0.6	1.9	2.8	4.2	5.0	5.6	6.5
Power Boat < 15 ft	0.5	1.1	1.4	1.9	2.1	2.2	2.2	0.5	1.2	1.5	1.9	2.2	2.3	2.3	0.5	1.2	1.6	2.0	2.3	2.4	2.4
Power Boat 15 to 25 ft	0.7	2.0	2.9	4.3	5.2	5.8	5.8	0.7	2.0	2.9	4.3	5.2	5.8	5.8	0.7	2.0	2.9	4.4	5.3	5.9	5.9
Power Boat 25 to 40 ft	0.8	2.5	3.8	6.1	7.7	8.9	10.6	0.8	2.5	3.9	6.2	7.8	9.0	10.7	0.7	2.5	3.9	6.2	7.8	9.0	10.7
Power Boat 40 to 65 ft	0.8	3.1	5.1	9.2	12.2	14.7	18.5	0.8	3.1	5.1	9.2	12.3	14.7	18.5	0.8	3.1	5.1	9.2	12.3	14.7	18.5
Power Boat 65 to 90 ft	0.8	3.3	5.7	10.8	15.0	18.4	23.9	0.8	3.3	5.7	10.8	15.0	18.4	23.9	0.8	3.3	5.7	10.9	15.0	18.4	23.9
Sail Boat 15 ft	0.7	1.9	2.7	3.9	4.6	5.2	5.2	0.7	1.9	2.7	3.9	4.7	5.2	5.2	0.7	1.9	2.7	4.0	4.8	5.3	5.3
Sail Boat 20 ft	0.7	2.2	3.2	4.8	5.9	6.6	6.6	0.7	2.2	3.2	4.8	5.9	6.7	6.7	0.7	2.2	3.2	4.9	6.0	6.7	6.7
Sail Boat 25 ft	0.8	2.4	3.6	5.7	7.1	8.1	8.1	0.8	2.4	3.7	5.7	7.1	8.2	8.2	0.7	2.5	3.7	5.8	7.2	8.3	8.3
Sail Boat 30 ft	0.8	2.7	4.2	6.8	8.7	10.1	12.2	0.8	2.7	4.2	6.9	8.7	10.2	12.3	0.8	2.7	4.2	6.9	8.8	10.2	12.3
Sail Boat 40 ft	0.8	3.0	4.9	8.6	11.3	13.4	16.7	0.8	3.0	4.9	8.6	11.3	13.5	16.8	0.8	3.0	4.9	8.6	11.3	13.5	16.8
Sail Boat 50 ft	0.8	3.1	5.2	9.5	12.7	15.3	19.3	0.8	3.1	5.2	9.5	12.7	15.3	19.4	0.8	3.1	5.3	9.5	12.7	15.4	19.4
Sail Boat 65 to 75 ft	0.8	3.2	5.5	10.3	14.1	17.2	22.1	0.8	3.2	5.5	10.4	14.1	17.3	22.2	0.8	3.2	5.5	10.4	14.2	17.3	22.2
Sail Boat 75 to 90 ft	0.8	3.3	5.7	11.0	15.2	18.7	24.3	0.8	3.3	5.7	11.0	15.2	18.7	24.4	0.8	3.3	5.7	11.0	15.2	18.8	24.4
Ship 90 to 150 ft	0.8	3.4	6.0	12.2	17.4	21.9	29.3	0.8	3.4	6.0	12.2	17.4	21.9	29.3	0.8	3.4	6.0	12.2	17.4	21.9	29.3
Ship 150 to 300 ft	0.8	3.4	6.3	13.6	20.4	26.6	37.3	0.8	3.4	6.3	13.6	20.4	26.6	37.3	0.8	3.4	6.3	13.6	20.4	26.6	37.3
Ship > 300 ft	0.8	3.5	6.4	14.3	22.1	29.8	43.8	0.8	3.5	6.4	14.3	22.1	29.8	43.8	0.8	3.5	6.4	14.3	22.2	29.8	43.8

*For search altitudes up to 500 feet only, the values given for sweep width for a person in water may be increased by a factor of four, if it is known that the person is wearing a personal flotation device.

SWEEP WIDTH DETERMINATION (Cont.)

NWP 3-22.5-SAR-TAC

**UNCORRECTED VISUAL SWEEP WIDTH — HELICOPTERS
ALTITUDES 1,000 TO 2,000 FEET**

Helicopter Searching For	Altitude 1,000 (ft) Visibility (NM)						Altitude 1,500 (ft) Visibility (NM)						Altitude 2,000 (ft) Visibility (NM)								
	1	3	5	10	15	20	30	1	3	5	10	15	20	30	1	3	5	10	15	20	30
Person in Water*	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Raft 1 person	0.4	0.9	1.2	1.6	1.8	1.8	1.8	0.3	0.9	1.2	1.6	1.8	1.8	1.8	0.2	0.8	1.2	1.6	1.8	1.8	1.8
Raft 4 person	0.5	1.2	1.7	2.3	2.6	2.9	2.9	0.4	1.2	1.7	2.3	2.7	2.9	2.9	0.3	1.2	1.7	2.3	2.7	3.0	3.0
Raft 6 person	0.5	1.4	2.0	2.8	3.2	3.5	3.5	0.4	1.4	2.0	2.8	3.3	3.6	3.6	0.3	1.4	2.0	2.8	3.3	3.6	3.6
Raft 8 person	0.5	1.5	2.1	2.9	3.4	3.8	3.8	0.4	1.5	2.1	3.0	3.5	3.9	3.9	0.3	1.5	2.1	3.0	3.6	3.9	3.9
Raft 10 person	0.5	1.6	2.2	3.2	3.7	4.1	4.1	0.4	1.6	2.2	3.2	3.8	4.2	4.2	0.3	1.6	2.3	3.3	3.9	4.2	4.2
Raft 15 person	0.6	1.7	2.4	3.5	4.1	4.5	5.1	0.5	1.7	2.4	3.5	4.2	4.6	5.2	0.3	1.7	2.5	3.6	4.3	4.7	5.3
Raft 20 person	0.6	1.8	2.7	3.9	4.7	5.2	6.0	0.5	1.9	2.7	4.0	4.8	5.3	6.1	0.4	1.8	2.7	4.0	4.9	5.4	6.2
Raft 25 person	0.6	1.9	2.8	4.2	5.1	5.7	6.5	0.5	2.0	2.9	4.3	5.2	5.8	6.7	0.4	1.9	2.9	4.3	5.3	5.9	6.8
Power Boat < 15 ft	0.5	1.2	1.6	2.1	2.3	2.5	2.5	0.4	1.3	1.7	2.2	2.5	2.6	2.6	0.3	1.3	1.7	2.3	2.6	2.7	2.7
Power Boat 15 to 25 ft	0.7	2.1	3.0	4.4	5.3	5.9	5.9	0.6	2.1	3.0	4.5	5.4	6.1	6.1	0.4	2.1	3.0	4.5	5.5	6.1	6.1
Power Boat 25 to 40 ft	0.7	2.5	3.9	6.3	7.9	9.1	10.8	0.6	2.6	4.0	6.3	7.9	9.2	10.9	0.5	2.6	4.0	6.4	8.0	9.3	11.0
Power Boat 40 to 65 ft	0.7	3.1	5.2	9.2	12.3	14.8	18.6	0.7	3.1	5.2	9.3	12.4	14.8	18.6	0.5	3.0	5.2	9.3	12.4	14.9	18.7
Power Boat 65 to 90 ft	0.8	3.3	5.7	10.9	15.0	18.5	23.9	0.7	3.2	5.7	10.9	15.1	18.5	24.0	0.5	3.2	5.7	10.9	15.1	18.5	24.0
Sail Boat 15 ft	0.6	1.9	2.8	4.0	4.8	5.4	5.4	0.6	2.0	2.8	4.1	4.9	5.5	5.5	0.4	1.9	2.8	4.2	5.0	5.6	5.6
Sail Boat 20 ft	0.7	2.2	3.2	4.9	6.0	6.8	6.8	0.6	2.2	3.3	5.0	6.1	6.9	6.9	0.5	2.2	3.3	5.1	6.2	7.0	7.0
Sail Boat 25 ft	0.7	2.5	3.7	5.8	7.3	8.3	8.3	0.6	2.5	3.8	5.9	7.4	8.4	8.4	0.5	2.5	3.8	6.0	7.5	8.6	8.6
Sail Boat 30 ft	0.7	2.7	4.2	6.9	8.8	10.3	12.4	0.6	2.7	4.2	7.0	8.9	10.3	12.5	0.5	2.7	4.3	7.0	9.0	10.4	12.6
Sail Boat 40 ft	0.7	3.0	4.9	8.6	11.4	13.5	16.8	0.6	3.0	4.9	8.7	11.4	13.6	16.9	0.5	3.0	4.9	8.7	11.4	13.6	17.0
Sail Boat 50 ft	0.7	3.1	5.3	9.5	12.8	15.4	19.5	0.7	3.1	5.3	9.6	12.8	15.5	19.5	0.5	3.1	5.3	9.6	12.9	15.5	19.6
Sail Boat 65 to 75 ft	0.8	3.2	5.6	10.4	14.2	17.3	22.2	0.7	3.2	5.6	10.4	14.3	17.4	22.3	0.5	3.2	5.6	10.5	14.3	17.4	22.4
Sail Boat 75 to 90 ft	0.8	3.3	5.7	11.0	15.3	18.8	24.4	0.7	3.3	5.7	11.1	15.3	18.8	24.5	0.5	3.2	5.7	11.1	15.4	18.9	24.6
Ship 90 to 150 ft	0.8	3.4	6.0	12.2	17.4	21.9	29.3	0.7	3.3	6.0	12.2	17.5	22.0	29.4	0.5	3.3	6.0	12.2	17.5	22.0	29.4
Ship 150 to 300 ft	0.8	3.4	6.3	13.6	20.4	26.6	37.3	0.7	3.4	6.3	13.6	20.4	26.6	37.3	0.5	3.4	6.3	13.6	20.4	26.6	37.4
Ship > 300 ft	0.8	3.5	6.4	14.3	22.2	29.8	43.9	0.7	3.4	6.4	14.3	22.2	29.8	43.9	0.6	3.4	6.4	14.3	22.2	29.8	43.9

SWEEP WIDTH DETERMINATION (Cont.)

**UNCORRECTED VISUAL SWEEP WIDTH —
HELICOPTERS ALTITUDES
2,500 TO 3,000 FEET**

Helicopter Searching For	Altitude 2,500 (ft) Visibility (NM)							Altitude 3,000 (ft)* Visibility (NM)						
	1	3	5	10	15	20	30	1	3	5	10	15	20	30
Person in Water	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Raft 1 person	0.1	0.8	1.1	1.6	1.8	1.8	1.8	0.1	0.7	1.0	1.5	1.8	1.8	1.8
Raft 4 person	0.2	1.1	1.6	2.3	2.7	3.0	3.0	0.1	1.0	1.6	2.3	2.7	3.0	3.0
Raft 6 person	0.2	1.3	1.9	2.8	3.3	3.7	3.7	0.1	1.2	1.9	2.8	3.3	3.7	3.7
Raft 8 person	0.2	1.4	2.1	3.1	3.6	4.0	4.0	0.1	1.3	2.1	3.1	3.6	4.0	4.0
Raft 10 person	0.2	1.5	2.2	3.3	3.9	4.3	4.3	0.1	1.4	2.2	3.3	3.9	4.3	4.3
Raft 15 person	0.2	1.7	2.5	3.6	4.3	4.8	5.4	0.2	1.6	2.4	3.7	4.4	4.9	5.5
Raft 20 person	0.3	1.8	2.7	4.1	4.9	5.5	6.3	0.2	1.7	2.7	4.1	5.0	5.6	6.3
Raft 25 person	0.3	1.9	2.9	4.4	5.3	6.0	6.9	0.2	1.9	2.9	4.4	5.4	6.0	6.9
Power Boat < 15 ft	0.2	1.2	1.7	2.3	2.6	2.8	2.8	0.1	1.1	1.7	2.3	2.7	2.9	2.9
Power Boat 15 to 25 ft	0.3	2.0	3.0	4.6	5.5	6.2	6.2	0.2	2.0	3.0	4.6	5.6	6.3	6.3
Power Boat 25 to 40 ft	0.4	2.5	4.0	6.5	8.1	9.3	11.1	0.2	2.5	4.0	6.5	8.2	9.4	11.2
Power Boat 40 to 65 ft	0.4	3.0	5.2	9.3	12.4	14.9	18.8	0.3	3.0	5.2	9.3	12.5	15.0	18.8
Power Boat 65 to 90 ft	0.4	3.2	5.7	10.9	15.1	18.6	24.1	0.3	3.1	5.7	10.9	15.1	18.6	24.1
Sail Boat 15 ft	0.3	1.9	2.8	4.2	5.1	5.6	5.6	0.2	1.9	2.8	4.3	5.1	5.7	5.7
Sail Boat 20 ft	0.3	2.2	3.3	5.1	6.3	7.1	7.1	0.2	2.1	3.3	5.2	6.3	7.1	7.1
Sail Boat 25 ft	0.4	2.5	3.8	6.1	7.6	8.7	8.7	0.2	2.4	3.9	6.1	7.7	8.8	8.8
Sail Boat 30 ft	0.4	2.7	4.3	7.1	9.0	10.5	12.6	0.2	2.6	4.3	7.1	9.1	10.6	12.7
Sail Boat 40 ft	0.4	2.9	4.9	8.7	11.5	13.7	17.0	0.3	2.9	4.9	8.7	11.5	13.7	17.1
Sail Boat 50 ft	0.4	3.1	5.3	9.6	12.9	15.6	19.7	0.3	3.0	5.3	9.7	13.0	15.6	19.7
Sail Boat 65 to 75 ft	0.4	3.1	5.6	10.5	14.3	17.5	22.4	0.3	3.1	5.6	10.5	14.4	17.5	22.5
Sail Boat 75 to 90 ft	0.4	3.2	5.7	11.1	15.4	18.9	24.6	0.3	3.1	5.7	11.1	15.4	19.0	24.7
Ship 90 to 150 ft	0.4	3.3	6.0	12.2	17.5	22.0	29.4	0.3	3.2	6.0	12.2	17.5	22.0	29.5
Ship 150 to 300 ft	0.4	3.3	6.3	13.6	20.4	26.6	37.4	0.3	3.3	6.3	13.6	20.4	26.6	37.4
Ship > 300 ft	0.5	3.4	6.4	14.3	22.2	29.8	43.9	0.3	3.3	6.4	14.3	22.2	29.8	43.9

*Visual searches are seldom conducted from altitudes above 3,000 feet; however, *for altitudes up to 5,000 feet where visibility exceeds 3 NM and target size exceeds *25 feet, the sweep widths given for 3,000 feet remain applicable.

**UNCORRECTED VISUAL SWEEP WIDTH — FIXED-WING AIRCRAFT
ALTITUDES 300 to 750 feet**

Fixed-Wing Searching For	Altitude 300 (ft) Visibility (NM)							Altitude 500 (ft) Visibility (NM)							Altitude 750 (ft) Visibility (NM)						
	1	3	5	10	15	20	30	1	3	5	10	15	20	30	1	3	5	10	15	20	30
Person in Water*	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Raft 1 person	0.3	0.7	0.9	1.2	1.3	1.3	1.3	0.3	0.7	0.9	1.2	1.4	1.4	1.4	0.3	0.7	0.9	1.2	1.4	1.4	1.4
Raft 4 person	0.4	0.9	1.3	1.7	2.0	2.2	2.2	0.4	1.0	1.3	1.8	2.0	2.2	2.2	0.4	1.0	1.3	1.8	2.1	2.2	2.2
Raft 6 person	0.4	1.1	1.5	2.1	2.5	2.7	2.7	0.4	1.1	1.5	2.2	2.5	2.8	2.8	0.4	1.1	1.6	2.2	2.6	2.8	2.8
Raft 8 person	0.4	1.2	1.6	2.3	2.6	2.9	2.9	0.4	1.2	1.6	2.3	2.7	2.9	2.9	0.4	1.2	1.7	2.3	2.7	3.0	3.0
Raft 10 person	0.4	1.2	1.7	2.4	2.9	3.2	3.2	0.4	1.2	1.7	2.5	2.9	3.2	3.2	0.4	1.3	1.8	2.5	3.0	3.3	3.3
Raft 15 person	0.5	1.3	1.9	2.7	3.2	3.5	4.0	0.5	1.3	1.9	2.7	3.3	3.6	4.0	0.4	1.4	1.9	2.8	3.3	3.7	4.1
Raft 20 person	0.5	1.4	2.1	3.1	3.7	4.2	4.8	0.5	1.5	2.1	3.2	3.8	4.2	4.8	0.5	1.5	2.2	3.2	3.8	4.3	4.9
Raft 25 person	0.5	1.5	2.2	3.4	4.1	4.6	5.2	0.5	1.6	2.3	3.4	4.1	4.6	5.3	0.5	1.6	2.3	3.5	4.2	4.7	5.4
Power Boat < 15 ft	0.4	0.8	1.1	1.4	1.6	1.7	1.7	0.4	0.9	1.2	1.5	1.7	1.8	1.8	0.4	0.9	1.2	1.6	1.8	1.9	1.9
Power Boat 15 to 25 ft	0.5	1.6	2.4	3.5	4.3	4.8	4.8	0.5	1.7	2.4	3.6	4.3	4.8	4.8	0.5	1.7	2.4	3.6	4.4	4.9	4.9
Power Boat 25 to 40 ft	0.6	2.1	3.3	5.3	6.6	7.6	9.1	0.6	2.1	3.3	5.3	6.7	7.7	9.1	0.6	2.1	3.3	5.3	6.7	7.7	9.2
Power Boat 40 to 65 ft	0.6	2.6	4.5	8.1	10.9	13.1	16.4	0.6	2.7	4.5	8.1	10.9	13.1	16.5	0.6	2.7	4.5	8.2	10.9	13.1	16.5
Power Boat 65 to 90 ft	0.6	2.8	5.0	9.7	13.5	16.6	21.6	0.6	2.8	5.0	9.8	13.5	16.7	21.7	0.6	2.8	5.0	9.8	13.5	16.7	21.7
Sail Boat 15 ft	0.5	1.5	2.2	3.2	3.8	4.3	4.3	0.5	1.6	2.2	3.2	3.9	4.3	4.3	0.5	1.6	2.3	3.3	3.9	4.4	4.4
Sail Boat 20 ft	0.6	1.8	2.6	4.0	4.9	5.6	5.6	0.6	1.8	2.7	4.1	5.0	5.6	5.6	0.5	1.8	2.7	4.1	5.0	5.7	5.7
Sail Boat 25 ft	0.6	2.0	3.1	4.8	6.0	6.9	6.9	0.6	2.0	3.1	4.9	6.1	7.0	7.0	0.6	2.1	3.1	5.0	6.2	7.0	7.0
Sail Boat 30 ft	0.6	2.3	3.6	5.9	7.5	8.8	10.6	0.6	2.3	3.6	5.9	7.6	8.8	10.6	0.6	2.3	3.6	6.0	7.6	8.9	10.7
Sail Boat 40 ft	0.6	2.6	4.3	7.5	10.0	11.9	14.8	0.6	2.6	4.3	7.6	10.0	11.9	14.8	0.6	2.6	4.3	7.6	10.0	11.9	14.9
Sail Boat 50 ft	0.6	2.7	4.6	8.4	11.3	13.6	17.3	0.6	2.7	4.6	8.4	11.3	13.7	17.3	0.6	2.7	4.6	8.5	11.4	13.7	17.4
Sail Boat 65 to 75 ft	0.6	2.8	4.9	9.3	12.7	15.5	20.0	0.6	2.8	4.9	9.3	12.7	15.5	20.0	0.6	2.8	4.9	9.3	12.7	15.6	20.0
Sail Boat 75 to 90 ft	0.6	2.8	5.1	9.9	13.7	16.9	22.1	0.6	2.8	5.1	9.9	13.7	17.0	22.1	0.6	2.8	5.1	9.9	13.8	17.0	22.2
Ship 90 to 150 ft	0.6	2.9	5.4	11.1	15.9	20.0	26.9	0.6	2.9	5.4	11.1	15.9	20.1	26.9	0.6	2.9	5.4	11.1	15.9	20.1	27.0
Ship 150 to 300 ft	0.6	3.0	5.7	12.5	18.8	24.7	34.8	0.6	3.0	5.7	12.5	18.9	24.7	34.8	0.6	3.0	5.7	12.5	18.9	24.7	34.9
Ship > 300 ft	0.7	3.0	5.8	13.2	20.6	27.9	41.4	0.7	3.0	5.8	13.2	20.6	27.9	41.4	0.7	3.0	5.8	13.2	20.6	27.9	41.4

*For search altitudes up to 500 feet only, the values given for sweep width for a person in water may be increased by a factor of four, if it is known that the person is wearing a personal flotation device.

**UNCORRECTED VIUAL SWEEP WIDTH — FIXED-WING AIRCRAFT
ALTITUDES 1,000 TO 2,000 FEET**

Fixed-Wing Searching For	Altitude 1,000 (ft) Visibility (NM)							Altitude 1,500 (ft) Visibility (NM)							Altitude 2,000 (ft) Visibility (NM)						
	1	3	5	10	15	20	30	1	3	5	10	15	20	30	1	3	5	10	15	20	30
Person in Water*	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Raft 1 person	0.3	0.7	0.9	1.2	1.4	1.4	1.4	0.2	0.7	0.9	1.3	1.4	1.4	1.4	0.1	0.6	0.9	1.2	1.4	1.4	1.4
Raft 4 person	0.3	1.0	1.3	1.8	2.1	2.3	2.3	0.3	1.0	1.3	1.9	2.1	2.3	2.3	0.2	0.9	1.3	1.9	2.2	2.3	2.3
Raft 6 person	0.4	1.1	1.6	2.2	2.6	2.8	2.8	0.3	1.1	1.6	2.3	2.6	2.9	2.9	0.2	1.1	1.6	2.3	2.7	2.9	2.9
Raft 8 person	0.4	1.2	1.7	2.4	2.8	3.0	3.0	0.3	1.2	1.7	2.4	2.8	3.1	3.1	0.2	1.2	1.7	2.5	2.9	3.2	3.2
Raft 10 person	0.4	1.3	1.8	2.6	3.0	3.3	3.3	0.3	1.3	1.8	2.6	3.1	3.4	3.4	0.2	1.2	1.8	2.7	3.1	3.5	3.5
Raft 15 person	0.4	1.4	2.0	2.8	3.4	3.7	4.2	0.3	1.4	2.0	2.9	3.4	3.8	4.3	0.2	1.4	2.0	3.0	3.5	3.9	4.4
Raft 20 person	0.4	1.5	2.2	3.2	3.9	4.3	4.9	0.4	1.5	2.2	3.3	4.0	4.4	5.1	0.3	1.5	2.2	3.4	4.0	4.5	5.1
Raft 25 person	0.4	1.6	2.3	3.5	4.2	4.7	5.4	0.4	1.6	2.4	3.6	4.3	4.8	5.6	0.3	1.6	2.4	3.6	4.4	4.9	5.7
Power Boat < 15 ft	0.4	1.0	1.3	1.7	1.8	2.0	2.0	0.3	1.0	1.3	1.7	2.0	2.1	2.1	0.2	1.0	1.3	1.8	2.0	2.2	2.2
Power Boat 15 to 25 ft	0.5	1.7	2.5	3.7	4.4	5.0	5.0	0.4	1.7	2.5	3.7	4.5	5.1	5.1	0.3	1.7	2.5	3.8	4.6	5.1	5.1
Power Boat 25 to 40 ft	0.5	2.2	3.4	5.4	6.8	7.8	9.3	0.5	2.2	3.4	5.5	6.8	7.9	9.4	0.3	2.2	3.4	5.5	6.9	8.0	9.5
Power Boat 40 to 65 ft	0.6	2.7	4.5	8.2	10.9	13.1	16.6	0.5	2.6	4.5	8.2	11.0	13.2	16.6	0.4	2.6	4.5	8.3	11.0	13.3	16.7
Power Boat 65 to 90 ft	0.6	2.8	5.1	9.8	13.6	16.7	21.7	0.5	2.8	5.1	9.8	13.6	16.7	21.8	0.4	2.8	5.0	9.8	13.6	16.8	21.8
Sail Boat 15 ft	0.5	1.6	2.3	3.3	4.0	4.4	4.4	0.4	1.6	2.3	3.4	4.1	4.5	4.5	0.3	1.6	2.3	3.5	4.1	4.6	4.6
Sail Boat 20 ft	0.5	1.8	2.7	4.2	5.1	5.7	5.7	0.4	1.8	2.8	4.2	5.2	5.8	5.8	0.3	1.8	2.8	4.3	5.2	5.9	5.9
Sail Boat 25 ft	0.5	2.1	3.2	5.0	6.2	7.1	7.1	0.5	2.1	3.2	5.1	6.3	7.2	7.2	0.3	2.1	3.3	5.2	6.4	7.3	7.3
Sail Boat 30 ft	0.6	2.3	3.6	6.0	7.6	8.9	10.7	0.5	2.3	3.7	6.1	7.7	9.0	10.8	0.3	2.3	3.7	6.1	7.8	9.1	10.9
Sail Boat 40 ft	0.6	2.6	4.3	7.6	10.9	12.0	14.9	0.5	2.6	4.3	7.6	10.1	12.0	14.9	0.4	2.5	4.3	7.7	10.1	12.1	15.0
Sail Boat 50 ft	0.6	2.7	4.6	8.5	11.4	13.7	17.4	0.5	2.7	4.6	8.5	11.4	13.8	17.5	0.4	2.7	4.6	8.6	11.5	13.9	17.5
Sail Boat 65 to 75 ft	0.6	2.8	4.9	9.3	12.8	15.6	20.1	0.5	2.8	4.9	9.4	12.8	15.7	20.2	0.4	2.7	4.9	9.4	12.9	15.7	20.2
Sail Boat 75 to 90 ft	0.6	2.8	5.1	9.9	13.8	17.0	22.2	0.5	2.8	5.1	10.0	13.8	17.1	22.3	0.4	2.8	5.1	10.0	13.9	17.1	22.3
Ship 90 to 150 ft	0.6	2.9	5.4	11.1	15.9	20.1	27.0	0.5	2.9	5.4	11.1	16.0	20.1	27.0	0.4	2.9	5.4	11.1	16.0	20.1	27.1
Ship 150 to 300 ft	0.6	3.0	5.7	12.5	18.9	24.7	34.9	0.5	3.0	5.7	12.5	18.9	24.7	34.9	0.4	2.9	5.7	12.5	18.9	24.7	34.9
Ship > 300 ft	0.6	3.0	5.8	13.2	20.6	27.9	41.4	0.6	3.0	5.8	13.2	20.7	27.9	41.4	0.5	3.0	5.8	13.2	20.7	27.9	41.5

SWEEP WIDTH DETERMINATION (Cont.)

NWP 3-22.5-SAR-TAC

NWP 3-22.5-SAR-TAC

SWEEP WIDTH DETERMINATION (Cont.)

**UNCORRECTED VISUAL SWEEP WIDTH —
FIXED-WING AIRCRAFT
ALTITUDES 2,500 TO 3,000 FEET**

Fixed-Wing Searching For	Altitude 2,500 (ft) Visibility (NM)							Altitude 3,000 (ft)* Visibility (NM)							
	1	3	5	10	15	20	30	1	3	5	10	15	20	30	
Person in Water	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Raft 1 person	0.1	0.5	0.8	1.2	1.4	1.4	1.4	0.1	0.5	0.8	1.1	1.3	1.3	1.3	
Raft 4 person	0.1	0.8	1.3	1.8	2.2	2.4	2.4	0.1	0.7	1.2	1.8	2.1	2.3	2.3	
Raft 6 person	0.1	1.0	1.5	2.3	2.7	2.9	2.9	0.1	0.9	1.5	2.2	2.7	2.9	2.9	
Raft 8 person	0.1	1.1	1.7	2.5	2.9	3.2	3.2	0.1	1.0	1.6	2.5	2.9	3.2	3.2	
Raft 10 person	0.2	1.2	1.8	2.7	3.2	3.5	3.5	0.1	1.1	1.8	2.7	3.2	3.5	3.5	
Raft 15 person	0.2	1.3	2.0	3.0	3.6	4.0	4.5	0.1	1.2	2.0	3.0	3.6	4.0	4.5	
Raft 20 person	0.2	1.4	2.2	3.4	4.1	4.6	5.2	0.1	1.4	2.2	3.4	4.1	4.6	5.3	
Raft 25 person	0.2	1.5	2.4	3.7	4.5	5.0	5.7	0.1	1.5	2.4	3.7	4.5	5.1	5.8	
Power Boat < 15 ft	0.1	0.9	1.3	1.8	2.1	2.2	2.2	0.1	0.8	1.3	1.8	2.1	2.3	2.3	
Power Boat 15 to 25 ft	0.2	1.6	2.5	3.8	4.6	5.2	5.2	0.1	1.6	2.5	3.9	4.7	5.3	5.3	
Power Boat 25 to 40 ft	0.2	2.1	3.4	5.6	7.0	8.1	9.6	0.2	2.1	3.4	5.6	7.1	8.1	9.7	
Power Boat 40 to 65 ft	0.3	2.6	4.5	8.3	11.3	13.3	16.7	0.2	2.5	4.5	8.3	11.1	13.4	16.8	
Power Boat 65 to 90 ft	0.3	2.7	5.0	9.8	13.6	16.8	21.9	0.2	2.7	5.0	9.9	13.7	16.8	21.9	
Sail Boat 15 ft	0.2	1.5	2.3	3.5	4.2	4.7	4.7	0.1	1.5	2.3	3.5	4.3	4.7	4.7	
Sail Boat 20 ft	0.2	1.8	2.8	4.3	5.3	6.0	6.0	0.1	1.7	2.8	4.4	5.3	6.0	6.0	
Sail Boat 25 ft	0.2	2.1	3.3	5.2	6.5	7.5	7.5	0.2	2.0	3.3	5.3	6.6	7.5	7.5	
Sail Boat 30 ft	0.2	2.2	3.7	6.1	7.8	9.1	11.0	0.2	2.2	3.7	6.2	7.9	9.2	11.1	
Sail Boat 40 ft	0.3	2.5	4.3	7.7	10.2	12.1	15.1	0.2	2.4	4.3	7.7	10.2	12.1	15.1	
Sail Boat 50 ft	0.3	2.6	4.6	8.6	11.5	13.9	17.6	0.2	2.6	4.6	8.6	11.6	14.0	17.7	
Sail Boat 65 to 75 ft	0.3	2.7	4.9	9.4	12.9	15.8	20.3	0.2	2.6	4.9	9.4	13.0	15.8	20.3	
Sail Boat 75 to 90 ft	0.3	2.8	5.1	10.0	13.9	17.2	22.4	0.2	2.7	5.1	10.0	14.0	17.2	22.5	
Ship 90 to 150 ft	0.3	2.8	5.4	11.1	16.0	20.2	27.1	0.2	2.8	5.3	11.1	16.0	20.2	27.1	
Ship 150 to 300 ft	0.3	2.9	5.6	12.5	18.9	24.8	35.0	0.2	2.8	5.6	12.5	18.9	24.8	35.0	
Ship > 300 ft	0.3	2.9	5.7	13.2	20.7	27.9	41.5	0.2	2.9	5.7	13.2	20.7	27.9	41.5	

*Visual searches are seldom conducted from altitudes above 3,000 feet; however, *for altitudes up to 5,000 feet where visibility exceeds 3 NM and target size exceeds *25 feet, the sweep widths given for 3,000 feet remain applicable.

SWEEP WIDTH DETERMINATION (Cont.)

**UNCORRECTED VISUAL SWEEP WIDTH —
VESSELS AND SMALL BOATS**

Search Object	Vessel SRU (90 Feet WPB) Visibility (NM)						Small Boat SRU (41 Feet UTB) Visibility (NM)					
	1	3	5	10	15	20	1	3	5	10	15	20
Person in Water	0.3	0.4	0.5	0.5	0.5	0.5	0.2	0.2	0.3	0.3	0.3	0.3
Raft 1 person	0.9	1.8	2.3	3.1	3.4	3.7	0.7	1.3	1.7	2.3	2.6	2.7
Raft 4 person	1.0	2.2	3.0	4.0	4.6	5.0	0.7	1.7	2.2	3.1	3.5	3.9
Raft 6 person	1.1	2.5	3.4	4.7	5.5	6.0	0.8	1.9	2.6	3.6	4.3	4.7
Raft 8 person	1.1	2.5	3.5	4.8	5.7	6.2	0.8	2.0	2.7	3.8	4.4	4.9
Raft 10 person	1.1	2.6	3.6	5.1	6.1	6.7	0.8	2.0	2.8	4.0	4.8	5.3
Raft 15 person	1.1	2.8	3.8	5.5	6.5	7.2	0.9	2.2	3.0	4.3	5.1	5.7
Raft 20 person	1.2	3.0	4.1	6.1	7.3	8.1	0.9	2.3	3.3	4.9	5.8	6.5
Raft 25 person	1.2	3.1	4.3	6.4	7.8	8.7	0.9	2.4	3.5	5.2	6.3	7.0
Power Boat < 15 ft	0.5	1.1	1.4	1.9	2.1	2.3	0.4	0.8	1.1	1.5	1.6	1.8
Power Boat 15 to 25 ft	1.0	2.0	2.9	4.3	5.2	5.8	0.8	1.5	2.2	3.3	4.0	4.5
Power Boat 25 to 40 ft	1.1	2.5	3.8	6.1	7.7	8.8	0.8	1.9	2.9	4.7	5.9	6.8
Power Boat 40 to 65 ft	1.2	3.1	5.1	9.1	12.1	14.4	0.9	2.4	3.9	7.0	9.3	11.1
Power Boat 65 to 90 ft	1.2	3.2	5.6	10.7	14.7	18.1	0.9	2.5	4.3	8.3	11.4	14.0
Sail Boat 15 ft	1.0	1.9	2.7	3.9	4.7	5.2	0.8	1.5	2.1	3.0	3.6	4.0
Sail Boat 20 ft	1.0	2.2	3.2	4.8	5.9	6.6	0.8	1.7	2.5	3.7	4.6	5.1
Sail Boat 25 ft	1.1	2.4	3.6	5.7	7.0	8.1	0.9	1.9	2.8	4.4	5.4	6.3
Sail Boat 30 ft	1.1	2.7	4.1	6.8	8.6	10.0	0.9	2.1	3.2	5.3	6.6	7.7
Sail Boat 40 ft	1.2	3.0	4.9	8.5	11.2	13.3	0.9	2.3	3.8	6.6	8.6	10.3
Sail Boat 50 ft	1.2	3.1	5.2	9.4	12.5	15.0	0.9	2.4	4.0	7.3	9.7	11.6
Sail Boat 65 to 75 ft	1.2	3.2	5.5	10.2	13.9	16.9	0.9	2.5	4.2	7.9	10.7	13.1
Sail Boat 75 to 90 ft	1.2	3.3	5.7	10.8	15.0	18.4	0.9	2.5	4.4	8.3	11.6	14.2
Ship 90 to 150 ft	1.8	3.3	6.0	12.0	17.1	21.5	1.4	2.5	4.6	9.3	13.2	16.6
Ship 150 to 300 ft	1.8	3.4	6.3	13.4	20.1	26.1	1.4	2.6	4.9	10.3	15.5	20.2
Ship > 300 ft	1.8	3.4	6.4	14.1	21.8	29.2	1.4	2.6	4.9	10.9	16.8	22.5

SWEEP WIDTH CORRECTION FACTORS

STEP 6 — Apply Correction Factors to the Uncorrected Sweep Width. Correct the sweep width for weather, fatigue, and aircraft speed as applicable. Tables for determining the correction factors are also included.

Note

These corrections do not apply to the visual detection aid or NVG sweep width tables. Correction factors for these tables should be applied as shown on the specific table. Go to step 7.

Target Type	Winds > 15 kts Seas 2 to 3 ft	Winds > 25 kts Seas > 4 ft
Person in water, or <30 — ft Length Boat	.5	0.25
Other Targets	0.9	0.9
<p>1. Correcting for Weather. If weather on-scene is a factor, reduce sweep width values by multiplying by the above values.</p> <p>2. Correcting for Fatigue. If feedback from on-scene search rescue units (SRUs) indicate search crews were excessively fatigued, reduce sweep width values by 10 percent (multiply by 0.9).</p> <p>3. Correcting for Search Aircraft Speed Correction. Enter the speed correction table (page 3-13) with aircraft type (fixed-wing or helicopter) and the speed flown. Read down the column to the search object. This value is the speed correction. Interpolate as required. There is no speed correction for surface SRUs.</p>		

SWEEP WIDTH DETERMINATION (Cont.)

SPEED CORRECTION FACTORS

SEARCH AIRCRAFT SPEED CORRECTION TABLE

Search Object	Fixed-Wing Speed (knots)			Helicopter Speed (knots)			
	150 or less	180	210	60	90	120	140
Person in water	1.2	1.0	0.9	1.5	1.0	0.8	0.7
Raft — 1 to 4 man	1.1	1.0	0.9	1.3	1.0	0.9	0.8
Raft — 6 to 25 man	1.1	1.0	0.9	1.2	1.0	0.9	0.8
Power Boat — to 25 ft	1.1	1.0	0.9	1.2	1.0	0.9	0.8
Power Boat — 25 to 40 ft	1.1	1.0	0.9	1.1	1.0	0.9	0.9
Power Boat — 40 to 65 ft	1.1	1.0	1.0	1.1	1.0	0.9	0.9
Power Boat — 65 to 90 ft	1.1	1.0	1.0	1.1	1.0	1.0	0.9
Sail Boat — to 26 ft	1.1	1.0	0.9	1.2	1.0	0.9	0.9
Sail Boat — 30 to 52 ft	1.1	1.0	1.0	1.1	1.0	0.9	0.9
Sail Boat — 65 to 90 ft	1.1	1.0	1.0	1.1	1.0	1.0	0.9
Ship — over 90 ft	1.0	1.0	1.0	1.1	1.0	1.0	0.9

SWEEP WIDTH DETERMINATION (Cont.)

DAYLIGHT		
Device	Estimated Sweep Width (NM)	SRU Type
Red/orange balloon	0.5	Air or surface
Orange flight suit	0.5	Air
Red hand flare (500 candlepower) ¹	0.5	Air or surface
Day/night flare	0.5	Air or surface
Red pen gun flare	0.75	Air or surface
Red/orange flag (3 ft X 3 ft) ¹	1.0	Air or surface
Red reflective paulin	2.0	Air or surface
Tracer bullets	2.0	Air or surface
Green dye marker ²	2.0	Air
Red meteor (star) or parachute ¹ flare (10,000 candlepower)	4.0	Air or surface
Sun signal mirror	5.0	Air or surface
White parachute	5.0	Air or surface
Orange smoke ^{1,3}	6.0	Air or surface
<p>1. These estimates were derived from test data collected only on surface searches.</p> <p>2. Greatly reduced in heavy seas.</p> <p>3. Applies in winds under 6 knots only; degrades to less than 2 NM in winds over 10 knots.</p>		

SWEEP WIDTH DETERMINATION (Cont.)

DARKNESS		
Device	Estimated Sweep Width (NM)	SRU Type
Strobe (2,000 candlepower peak)	0.5	Air or surface
Cyalume personnel marker light	1.0	Air or surface
Electric flashing SOS lantern or hand flashlight ¹	3.0	Air or surface
Strobe lifejacket light	3.5	Air or surface
Tracer bullets	4.0	Air or surface
Red hand flare (500 candlepower)	6.0	Air or surface
Red Very signals	8.0	Air or surface
Aircraft marine markers	8.0	Air or surface
Red pen gun flare	8.0	Air or surface
Red meteor (star) or parachute flare (10,000 candlepower)	10.0 or limit of SRU visibility	Air or surface
<p>1. These estimates were derived from test data collected only on surface searches.</p>		

SWEEP WIDTH DETERMINATION (Cont.)

NVG SWEEP WIDTH TABLES

TARGET	MOON LIGHTED VISIBILITY > 8 NM	NO MOON OR VISIBILITY < =8 NM
PIW with PFD and reflective tape	0.31	0.21
1-Person Life raft	0.51,2	0.3 1,2
4-Person Life raft	0.6 1, 2	0.4 1,2
6-Person Life raft	0.8 2	0.5 2
8-Person Life raft	0.9 2	0.6 2
10-Person Life raft	1.0 2	0.72
12-Person Life raft	1.12	0.82
Skiff <10ft	0.4 ¹	0.3 ¹
Skiff 15-25ft	1.2	0.8
Skiff 25ft & larger	1.5	1.0
Sailboat <10ft	0.41	0.31
Sailboat 15-25ft	1.3	0.8
Sailboat 25ft & larger	1.7	1.0

1. If seas are above 2.5 feet or there is moderate whitecap activity, this number should be multiplied by 0.75.
2. If retroreflective tape is known to be applied to the raft, this number should be multiplied by 1.1.

Note

- During searches from helicopters for objects lighted by the red chemical Red Safety Lights, the sweep widths used should be the larger of those from the corrected tabulated sweep widths above or, 1.3 NM in no moon light situations and 0.3 NM in moon lighted situations.
- During searches with NVGs for lighted targets, the sweep width should be a value equal to the lesser of the distance to the visual horizon or the estimated meteorological visibility.
- During searches for the green chemical Personal Marker Lights, NVGs should not be used because the filters used filter green chemical light wave length.
- The use of NVGs during searches from UTBs has been found to be of limited value. Night searches should not be conducted from UTBs with NVGs used as the primary search sensor.

SWEEP WIDTH DETERMINATION (Cont.)

ELT/EPIRB DETECTION RANGES

MANUFACTURER AND MODEL	TYPE	FREQ (MHZ)	AVERAGE DETECTION RANGE 3,000 FT	AVERAGE DETECTION RANGE 10,000 FT
Microelectronics Type 1146	P	121.5 243.0	40.5 2.5	65.0 **
Ball Brothers (Not Type Indicated)	P	121.5 243.0	37.0 10.5	049.5 **
Emergency Beacon Group Model 202	P	121.5 243.0	34.5 15.0	67.0 23.0
Martech EP-2B	P	121.5 243.0	42.0 2.0	71.0 **
Emergency Beacon Corp Model 102	P	121.5 243.0	21.5 17.0	44.5 26.5
Microelectronics Type 1146 (2nd Unit)	P	121.5 243.0	32.0 9.5	63.0 **
Aero Flash Signal Corp (No Type Indicated)	AF	121.5 243.0	43.5 12.0	75.0 **
Leigh Instruments LTD "SHARC"	AF	121.5 243.0	42.5 7.0	86.0 **
Garrett Corp Rescu 99 DAL	AF	121.5 243.0	40.5 16.5	73.0 **
EBC/Whelen, Acft MTD EPC 222 HS	AF	121.5 243.0	35.0 17.5	65.0 22.0

** Test data incomplete

Type code: P - Personnel (carried on person)
 AF - Automatic - fixed
 AD - Automatic - deployable
 S - Survival (carried in liferaft)

THIS TABLE TO BE USED ONLY FOR SPECIFIC DEVICES LISTED

Ranges and sweep widths are in nautical miles
 Best search results are normally obtained at 10,000 feet on 121.5 MHz

NOTE

If information identifying the specific manufacturer of the ELT/EPIRB is not available. A search on 121.5 MHz at 3,000 feet should yield a detection range of approximately 30 NM. A search at 3,000 feet on 243.0 MHz should yield a detection range of approximately 10 NM.

A search at 10,000 feet on 121.5 MHz should yield a detection range of approximately 70 NM. A search at 10,000 feet on 243.0 MHz will yield a detection range of approximately 20 NM. Once a signal is detected an arc should be commenced for 90 degrees about the signal to obtain lines of bearing. The lines of bearing should be converted to obtain a cross fix and positions.

SWEEP WIDTH DETERMINATION (Cont.)

ELT/EPIRB DETECTION RANGES

MANUFACTURER AND MODEL	TYPE	FREQ (MHZ)	AVERAGE DETECTION RANGE 3,000 FT	AVERAGE DETECTION RANGE 10,000 FT
Leigh Instruments LTD "DAPI"	AD	121.5 243.0	32.0 8.5	63.0 **
Granger Corp Type 142	S	121.5 243.0	53.5 13.5	101.0 **
Garrett Corp Rescu 99	S	121.5 243.0	47.0 18.0	83.0 **
Garrett Corp Rescu 99 H	S	121.5 243.0	54.5 20.0	93.0 **

** Test data incomplete

Type code: **P - Personnel (carried on person)**
 AF - Automatic - fixed
 AD - Automatic - deployable
 S - Survival (carried in liferaft)

THIS TABLE TO BE USED ONLY FOR SPECIFIC DEVICES LISTED

Ranges and sweep widths are in nautical miles
 Best search results are normally obtained at 10,000 feet on 121.5 MHz

NOTE

If information identifying the specific manufacturer of the ELT/EPIRB is not available. A search on 121.5 MHz at 3,000 feet should yield a detection range of approximately 30 NM. A search at 3,000 feet on 243.0 MHz should yield a detection range of approximately 10 NM. A search at 10,000 feet on 121.5 MHz should yield a detection range of approximately 70 NM. A search at 10,000 feet on 243.0 MHz will yield a detection range of approximately 20 NM. Once a signal is detected an arc should be commenced for 90 degrees about the signal to obtain lines of bearing. The lines of bearing should be converted to obtain a cross fix and positions.

SWEEP WIDTH DETERMINATION (Concl.)

FORWARD-LOOKING INFRARED (FLIR) SWEEP WIDTHS

Sweep widths should be approximated, using the operator’s best estimate of effective detection ranges for other target types and field of view/scan width limits. Operators should be told the effective detection range is the range at which they believe the target will certainly be detected under prevailing conditions. Sweep width should not exceed the effective azimuthal coverage of the FLIR system in use, regardless of target size. Additional information is available in JCS 3-50, Vol. I, CH 5.

ALTITUDES AND SWEEP WIDTHS FOR FORWARD-LOOKING INFRARED

Target Type	Altitudes (FT)	
	Recommended Range of Altitude	Preferred Altitude
Persons in the Water	200 to 500	None determined
Vessels and life rafts	500 to 1,000	1,000
	Sweep Width (NM)	
	Douglas Sea State 0 to 1	Douglas Sea State 2
Persons in the water	0.3	0
Small boats and life rafts	1	0.5

STEP 7 — Determine Track Spacing And Coverage Factor

Coverage Factor (C) $C=W/S$

Where:

W=Corrected Sweep Width

and:

S=Track Spacing

Note

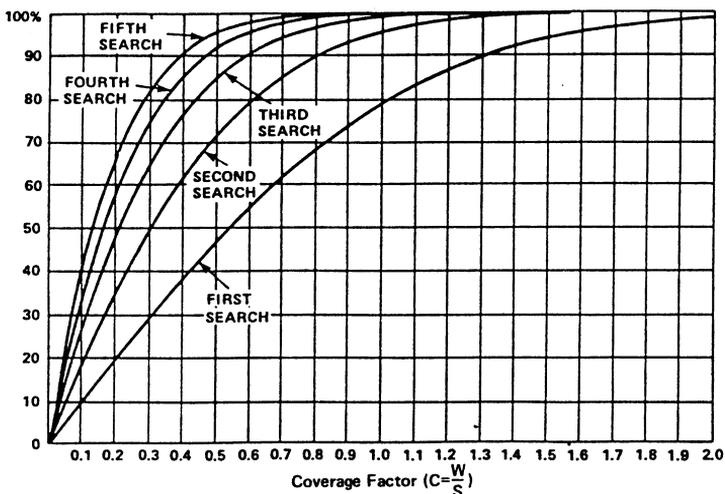
Track Spacing is the distance between two parallel search legs. It directly influences target detectability. Optimum track spacing yields maximum POD during the time available, consistent with the economical use of available SRUs. Go to step 8.

PROBABILITY OF DETECTION

STEP 8 — Determine Probability of Detection. From the table below, determine probability of detection as follows:

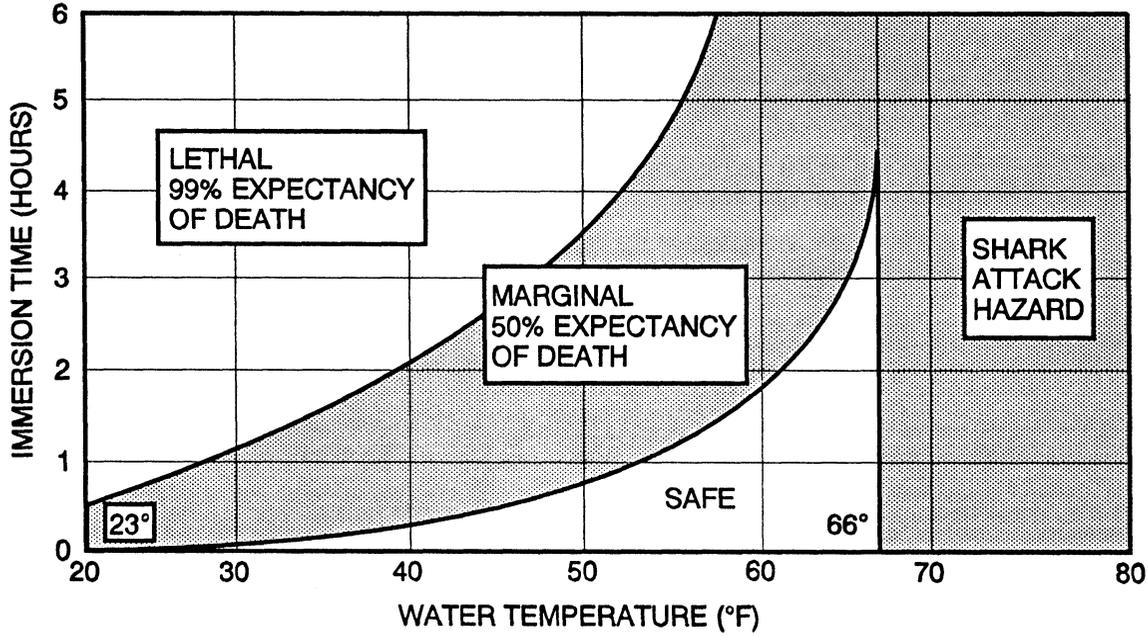
1. First search — Enter the “Probability of Detection in Visual Search” chart with C. Move vertically to first search curve, then left to read P.
2. Second through fifth searches — Enter “Probability of Detection in Visual Search” chart with the average coverage factor for all searches conducted. Move vertically to the curve for the number of searches conducted, then left to read accumulated P.

PROBABILITY OF DETECTION IN VISUAL SEARCHES



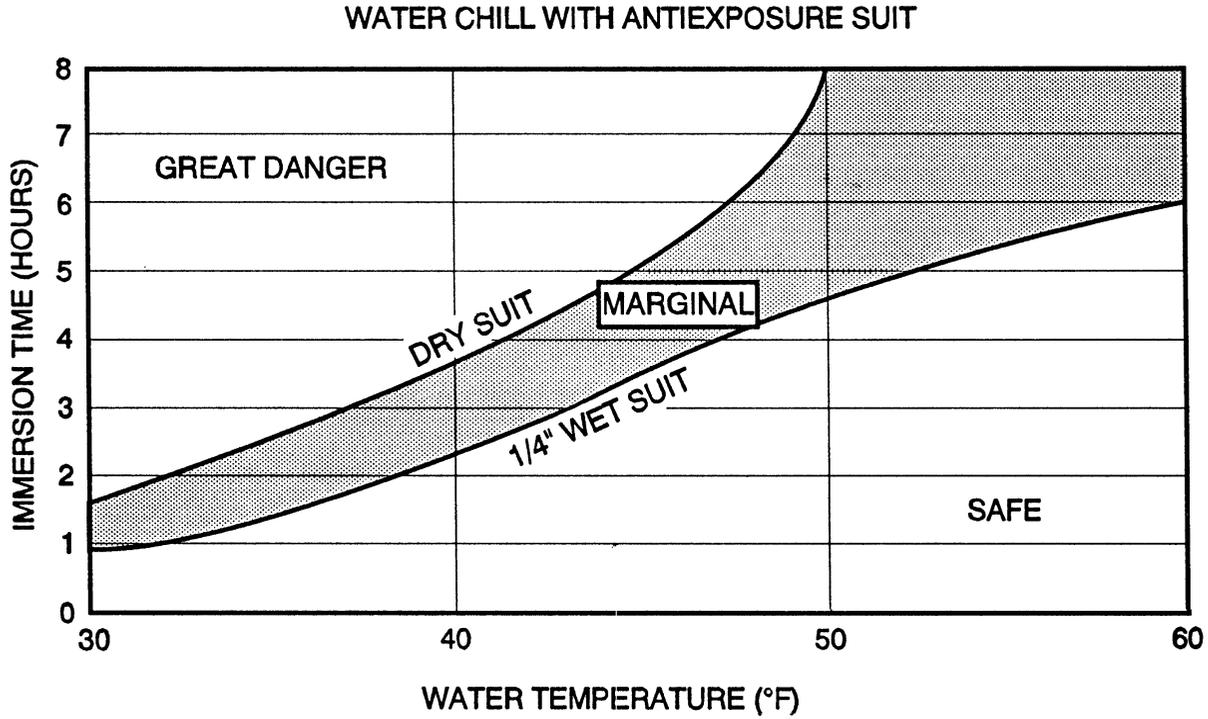
STEP 9 — Select a Search Pattern. Proceed to Section 5 and determine an applicable search pattern. Once on scene, begin search. Continue to monitor the situation on scene as it develops. Adjust search plan as necessary.

WATER CHILL WITHOUT ANTIEXPOSURE SUIT



WATER AND WIND CHILL FACTORS

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COOLING POWER OF WIND ON EXPOSED FLESH EXPRESSED AS AN EQUIVALENT TEMPERATURE

ESTIMATED WIND SPEED (IN MPH)	ACTUAL THERMOMETER READING (F)											
	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
	EQUIVALENT TEMPERATURE (F.)											
Calm	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
5	48	37	27	16	6	-5	-15	-26	-36	-47	-57	-68
10	40	28	16	4	-9	-24	-33	-46	-58	-70		
15	36	22	9	-5	-18	-32	-45	-58	-72			
20	32	18	4	-10	-25	-39	-53	-67				
25	30	16	0	-15	-29	-44	-59					
30	28	13	-2	-18	-33	-48	-63					
35	27	11	-4	-20	-35	-51	-67					
40	26	10	-6	-21	-37	-53	-69					
WIND SPEEDS GREATER THAN 40 MPH HAVE LITTLE ADDED EFFECT.	LITTLE DANGER (FOR PROPERLY CLOTHED PERSON) MAXIMUM DANGER OF FALSE SENSE OF SECURITY.			INCREASING DANGER: DANGER FROM FREEZING OF EXPOSED FLESH.				GREAT DANGER				
	SOURCE: NAVMED BULLETIN 5052-29											

WATER AND WIND CHILL FACTORS (Concl.)

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3-23 (Reverse Blank)

ORIGINAL

SECTION 4 — OVERLAND SEARCH AND RESCUE

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OVERLAND SEARCH AND RESCUE

SAR operations conducted overland present numerous challenges not normally encountered by Naval SAR units. Thorough planning and preparation is required prior to conducting overland operations. Some things that should be considered are:

1. The full attention of one pilot should be dedicated to flying.
2. The effects of altitude as well as convective and orographic turbulence should be considered prior to executing any mountainous terrain flight.
3. Areas of possible turbulence should be identified prior to descending to search altitude or flying close to mountains.
4. Flight in mountainous areas where the wind exceeds 30kts should be avoided.
5. Cross mountain peaks and ridges downwind where down drafts will be met after the terrain is crossed. If this is not practical, increase altitude or cross at an angle so that a shallow descending turn away from higher terrain may be made.
6. Turbulence from wind blowing across a narrow canyon or gorge will normally be found near the middle and downwind side.

STEP 1 — Determine Type Incident. If an aviation incident and a bailout or an ejection is known to have occurred, proceed to step 2. If a surface position is known, proceed to step 4.

STEP 2 — If Applicable, Obtain or Estimate the Following Information

- a. Ejection position
- b. Ejection altitude
- c. Aircraft direction of travel
- d. Average wind speed and direction from parachute opening altitude to the surface.

Note

Parachute opening altitudes:
U.S. military — 14,000 feet
Canadian military — 16,000 feet
Civilian — at bailout.

OVERLAND SEARCH AND RESCUE (Cont.)

- e. If ejection or bailout is known to have occurred *and the direction of travel at the time of ejection or bailout is known*, apply aerospace trajectory in that direction. Aerospace trajectory is the distance the aviator will travel due to forward momentum. The following estimations apply:
 - 1) Turboprop — 0.5 miles
 - 2) Medium performance jets — 0.5 miles
 - 3) High performance jets — 0.8 miles
- f. Apply the aerospace trajectory rector to the position where the incident occurred (the initial position.) Proceed to step 3.

STEP 3 — Determine Parachute Drift

- a. Enter chart at closest altitude to parachute opening (vertical column.)
- b. Move across to intersection of appropriate average winds aloft speed. This number represents the distance in nautical miles the parachuter drifted.
- c. Apply drift down wind from the position calculated in step 2f. This is datum. Proceed to step 4.

PARACHUTE DRIFT TABLE

	5 kts	10 kts	15 kts	20 kts	25 kts	30 kts	35 kts	40 kts	45 kts	50 kts	55 kts
14,000	1	1.9	2.8	3.8	4.7	5.7	6.7	7.7	8.6	9.5	10.4
13,500	0.9	1.7	2.7	3.7	4.6	5.5	6.4	7.3	8.3	9.2	10
13,000	0.9	1.8	2.7	3.6	4.4	5.3	6.2	7.1	7.9	8.8	9.7
12,500	0.9	1.7	2.6	3.4	4.3	5.1	6	6.8	7.7	8.5	9.3
12,000	0.9	1.7	2.5	3.4	4.2	5	5.8	6.7	7.5	8.3	8.9
11,500	0.8	1.6	2.4	3.2	4	4.8	5.6	6.4	7.2	8	8.6
11,000	0.8	1.5	2.3	3.1	3.8	4.6	5.4	6.2	6.9	7.7	8.2
10,500	0.8	1.5	2.2	3	3.7	4.4	5.1	5.9	6.6	7.3	7.8
10,000	0.7	1.4	2.1	2.8	3.5	4.2	4.9	5.6	6.3	7	7.5
9,500	0.7	1.4	2.1	2.7	3.4	4.1	4.7	5.4	6.1	6.7	7.1
9,000	0.7	1.3	2	2.6	3.3	3.9	4.6	5.2	5.9	6.5	6.7
8,500	0.7	1.3	1.9	2.5	3.1	3.7	4.3	4.9	5.5	6.1	6.4
8,000	0.6	1.2	1.8	2.4	2.9	3.5	4.1	4.7	5.2	5.8	6
7,500	0.6	1.1	1.6	2.2	2.7	3.3	3.8	4.3	4.9	5.4	5.6
7,000	0.6	1.1	1.6	2.1	2.6	3.1	3.6	4.1	4.6	5.1	5.2
6,500	0.5	1	1.5	1.9	2.4	2.9	3.3	3.8	4.2	4.7	4.9
6,000	0.5	0.9	1.3	1.8	2.2	2.7	3.1	3.5	4	4.4	4.5
5,500	0.4	0.8	1.2	1.6	2	2.4	2.8	3.2	3.6	4	4.1
5,000	0.4	0.8	1.2	1.5	1.8	2.3	2.6	3	3.3	3.7	3.8
4,500	0.4	0.7	1	1.4	1.7	2	2.3	2.7	3	3.3	3.4
4,000	0.3	0.6	0.9	1.2	1.5	1.8	2.1	2.4	2.7	3	3
3,500	0.2	0.5	0.8	1	1.3	1.6	1.8	2.1	2.3	2.6	2.7
3,000	0.2	0.5	0.7	0.9	1.1	1.4	1.6	1.8	2	2.2	2.3
2,500	0.2	0.4	0.6	0.8	1	1.2	1.3	1.5	1.7	1.9	1.9
2,000	0.2	0.3	0.5	0.6	0.8	0.9	1.1	1.2	1.4	1.5	1.6
1,500	0.1	0.2	0.3	0.4	0.5	0.7	0.8	0.9	1	1.1	1.2

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OVERLAND SEARCH AND RESCUE (Cont.)

STEP 4 — Determine Search Altitude. Determine the recommended visual search altitude for the target that is to be searched for from table below:

Visual Search Altitude

RECOMMENDED VISUAL SEARCH ALTITUDES		
TARGET	TERRAIN	ALTITUDE (ft)
Persons cars, light aircraft crash	Flat or moderate	200 to 500
Trucks, large aircraft	Moderate	400 to 500
Trucks, aircraft crash	Flat	1,000 to 3,000
Distress signals	Night, all, terrain	1,500 to 2,000

STEP 5 — Determine best sweep width from Inland Sweep Width Table page 4-5.

STEP 6 — Calculate Probability of Detection. From Terrain Type chart, calculate probability of detection. Determine cumulative probability of detection from Cumulative Probability of Detection chart, page 4-6.

OVERLAND SEARCH AND RESCUE (Cont.)

INLAND SWEEP WIDTH TABLES

OPEN FLAT TERRAIN

LIGHT AIRCRAFT SITE						MAN ON FOOT			
MI	200'	300'	500'	700'	1,000'	200'	300'	400'	500'
1	.16	.20	.23	.25	.27	.10	.10	.10	.10
2	.33	.36	.43	.46	.50	.23	.23	.26	.30
3	.47	.57	.67	.73	.77	.33	.33	.37	.40
5	.63	.67	.73	.80	.80	-	-	-	-

MODERATE GROUND COVER (REDUCED BY 50%)

LIGHT AIRCRAFT SITE						MAN ON FOOT			
MI	200'	300'	500'	700'	1,000'	200'	300'	400'	500'
1	.08	.10	.11	.12	.14	.05	.05	.05	.05
2	.17	.18	.22	.23	.25	.12	.12	.13	.15
3	.24	.28	.34	.37	.38	.17	.17	.19	.20
5	.32	.34	.37	.40	.45	-	-	-	-

HEAVY GROUND COVER (TIMBER)(REDUCED BY 75%)

LIGHT AIRCRAFT SITE						MAN ON FOOT			
MI	200'	300'	500'	700'	1,000'	200'	300'	400'	500'
1	.04	.05	.06	.06	.07	.03	.03	.03	.03
2	.08	.09	.11	.11	.12	.05	.05	.06	.07
3	.11	.14	.16	.18	.19	.08	.08	.09	.10
5	.15	.16	.18	.20	.22	-	-	-	-

HEAVY ROCK TERRAIN (REDUCED BY 85%)

LIGHT AIRCRAFT SITE						MAN ON FOOT			
MI	200'	300'	500'	700'	1,000'	200'	300'	400'	500'
1	.02	.03	.03	.04	.04	.01	.01	.01	.01
2	.04	.05	.06	.06	.07	.03	.03	.04	.04
3	.07	.08	.10	.11	.11	.04	.04	.05	.06

The above inland sweep width tables were prepared by the United States Civil Air Patrol. The tables have taken the correction factors into account for degrees of ground cover, so corrected sweep width (W_c) can be obtained directly from the chart. This table is to provide only a rough guide. To use, enter the search altitude, the visibility at search area, and the object of the search. Read the corrected sweep width in nautical miles. For example, the sweep width for a light aircraft, open terrain, 300-foot search altitude, 3 miles visibility is .57 nautical miles.

TERRAIN TYPE

Open Flat Terrain					Moderate Tree Cover or Hilly				Heavy Tree Cover or Very Hilly			
Track Space (mi)	Search Visibility				Search Visibility				Search Visibility			
	1 mi	2 mi	3 mi	4 mi	1 mi	2 mi	3 mi	4 mi	1 mi	2 mi	3 mi	4 mi
500 feet												
.5	35	60	75	75	20	35	50	50	10	20	30	30
1.0	20	35	50	50	10	20	30	30	5	10	15	15
1.5	15	25	35	40	5	15	20	20	5	5	10	10
2.0	10	20	30	30	5	10	15	20	5	5	10	10
700 feet												
.5	40	60	75	75	20	35	50	55	10	20	30	35
1.0	20	35	50	55	10	20	30	35	5	10	15	20
1.5	15	25	40	40	10	15	20	25	5	5	10	15
2.0	10	20	30	35	5	10	15	20	5	5	10	10
1,000 feet												
.5	40	65	80	85	25	40	55	60	15	20	30	35
1.0	25	40	55	60	15	20	30	35	5	10	15	20
1.5	15	30	40	45	10	15	20	25	5	10	10	15
2.0	15	20	30	35	5	10	15	20	5	5	10	10

TO CALCULATE INLAND PROBABILITY DETECTION

1. Enter table at appropriate terrain type (top of chart), move down vertically to choose 500 feet, 700 feet or 1,000 feet which ever is closest to the altitude actually used during the search.
2. Within the applicable altitude block cross reference visibility (horizontal axis) with the track spacing closest to the one used during the search (vertical axis).
3. This is the percent probability of detection.

OVERLAND SEARCH AND RESCUE (Concl.)

Cumulative Probability of Detection

This table is used to determine the probability of detection after multiple searches of the *SAME* area.

1. Enter vertical left hand column. Move down to the line which contains the POD from the first search or previous cumulative POD.
2. Move right to intersect POD for this search (very bottom scale). This intersection is the cumulative POD.

CUMULATIVE PROBABILITY OF DETECTION

Previous or Cumulative POD	Cumulative POD Chart									
5 to 10%	15									
11 to 20%	20	25								
21 to 30%	30	35	45							
31 to 40%	40	45	50	60						
41 to 50%	50	55	60	65	70					
51 to 60%	60	65	65	70	75	80				
61 to 70%	70	70	75	80	80	85	90			
71 to 80%	80	80	80	85	85	90	90	95		
over 80%	85	85	90	90	90	95	95	95	95	95+
	5	11	21	31	41	51	61	71	80%	
	to	to	to	to	to	to	to	to	to	+
	10%	20%	30%	40%	50%	60%	70%	80%		
	POD This search									

STEP 7 — Select a Search Pattern. Proceed to Section 5 and determine an applicable search pattern. Once on scene, begin search. Continue to monitor the situation on scene as it develops. Adjust search plan as necessary.

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OVERLAND RESCUE METHODS

LAND AND RECOVER

If the survivors position is beyond the sight of the aircraft, the travel between the two should be kept to a minimum. Rescue personnel should take a hand held radio, first aid kit and rescue litter/SAR medevac litter on the first trip.

WARNING

Personnel shall avoid entering and exiting the aircraft in the direction of rising terrain.

HOIST RECOVERY

WARNING

Only as a last resort should the crewman be lowered through dense foliage to the survivor.

ONE WHEEL/SKID LANDING

This method can be used when topography precludes landing. It is executed by placing one wheel/skid in close proximity to the terrain or obstruction.

WARNING

When performing a rescue via one wheel/skid, caution should be used when placing a wheel or skid in direct contact with terrain due to the possibility of dynamic rollover.

RAPPELLING

Note

Only rappel qualified crewman shall conduct SAR rappel operations.

OVERLAND RESCUE METHODS (Cont.)

SHORT HAUL

Note

Aircraft speed should not exceed 40 kts during short haul operations.

POWER CHECKS

Power checks per applicable NATOPS manual should be conducted prior to attempting any overland rescue to ensure power available exceeds power required. When possible, power checks should be re-verified after any change in on scene conditions.

LANDING ZONE EVALUATION

Normally at least one high and low pass of the intended landing area is conducted. These approaches are normally done along the intended approach and departure route. Evaluation criteria should include but is not limited to:

1. Power available
2. Landing zone obstacles and topography
3. Height of obstacles
4. Potential loss of wind effect
5. Departure route
6. Waveoff

CRASH SITE/WRECKAGE PRECAUTIONS



Crash sites may pose extreme danger to rescue personnel. Rescue personnel should use extreme caution when approaching, investigating or securing crash sites.

CARBON FIBER

Many military and civilian aircraft contain composite fiber construction. These fibers can be extremely sharp and may be poisonous if inhaled as smoke or dust.

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OVERLAND RESCUE METHODS (Concl.)

UNEXPLODED ORDNANCE, UNUSED FUEL, CHEMICALS, AND SHARP EDGES.

These items may seriously injure rescue personnel. Rescue personnel should not disturb aircraft wreckage except to assist in the recovery of survivors. The *crash site should be secured* after removing any survivors. *Charts, flight plans* and other documents should be preserved if threatened with destruction.

LOST PERSON BEHAVIOR

The behavior of a lost person will vary greatly with age, experience, familiarity with their surroundings, and the environment. There are several indepth studies on this behavior. The following is a summarization of available data. In any case involving lost personnel, all available data about the individual, environment, and applicable case histories should be obtained. *Some lost people may not want to be found. This may be true if survivors were involved in illegal activities and may pose a danger to SAR personnel.*

1. Hikers — Generally rely on trails and are dependent on travel aids. Many times they become confused or lost when conditions change or trails become obscured.
2. Children (1 to 3 years) — Unaware of the concept of being lost. Normally will seek out the most convenient location to lie down and go to sleep; i.e., under a picnic table, an overhanging rock, a thick bush, etc.
3. Children (3 to 6 years) — Generally try and return home or to familiar surroundings. They have interests and may be drawn away by animals, or by just exploring. They may have been instructed to stay away from strangers and may not respond to searchers.
4. Children (6 to 12 years) — May intentionally run away to avoid punishment, gain attention, or sulk, and may not answer when called. Darkness usually brings on willingness to accept help and be found.
5. Elderly (65 +) — Often persons suffering from senility or Alzheimer's may be easily attracted by something which strikes their fancy. The more active and lucid ones are likely to over-extend and exhaust themselves rapidly which may result in fatal complications. May pose some of the same problems as children.
6. Climbers — Generally well-equipped and self-sufficient. Tend to remain near designated routes. Hazardous weather is normally a factor in these incidents. Technical expertise is generally needed both for the search and recovery.
7. Fishermen — Generally well oriented because of direction of river flow. They are overdue most often because of accidents such as slipping into the water, being swept off their feet in fast moving water, or falling off cliffs while trying to move up or down stream.

5
SRCH
PATRN

SECTION 5 — SAR SEARCH PATTERNS

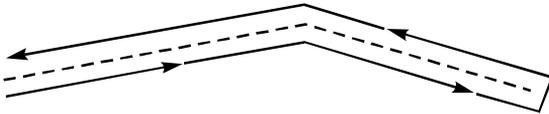
Trackline Search Patterns 5-2
Parallel Search Patterns 5-3
Creeping Line Search Pattern 5-4
Square Search Pattern 5-6
Sector Search Pattern 5-7
Flare Search Pattern 5-8
Homing Signal Search Patterns 5-9
Search Evolution/Area Designations 5-11
Aircraft Groundspeed - Distance - Time Table 5-12

SEARCH PATTERNS

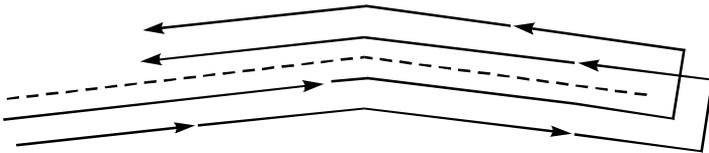
TRACKLINE SEARCH PATTERNS

Trackline patterns are used when a craft or person is missing and the intended route of the missing craft or person is the only search lead.

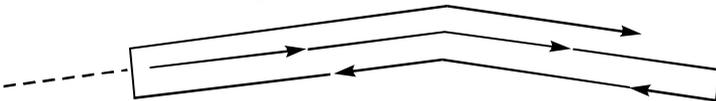
1. Trackline — single unit return (TSR)



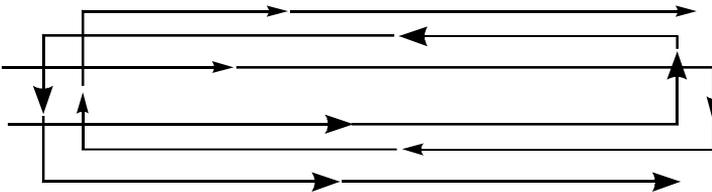
2. Track crawl return multiunit (TMR) — two or more search units used in an abeam formation to afford greater width coverage along track.



3. Track crawl non-return single unit (TSN) — same as TSR except search terminates at opposite end of track from which it was begun.



4. Track crawl non-return multiunit (TMN) — same as TMR except search terminates at opposite end of track from which it was begun.

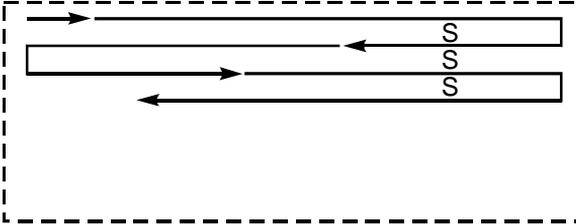


SEARCH PATTERNS (Cont.)

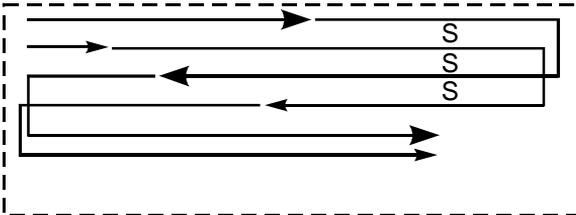
PARALLEL SEARCH PATTERNS

Parallel patterns are normally used in the maritime region when the search area is large, only the approximate position of the target is known, and a uniform coverage is desired.

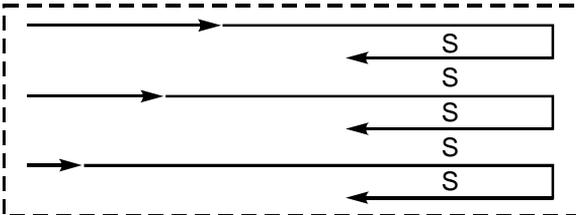
1. Parallel track single unit (PS)



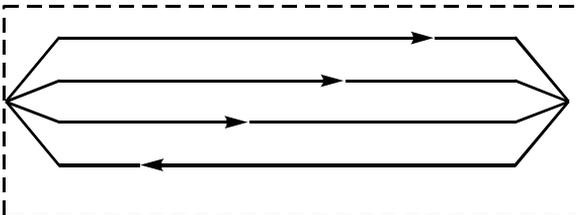
2. Parallel track multiunit (PM)



3. Parallel track multiunit return (PMR)



4. Parallel track multiunit non-return (PMN)



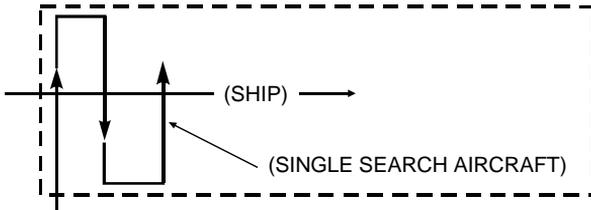
SEARCH PATTERNS (Cont.)

CREeping LINE SEARCH PATTERN (Cont.)

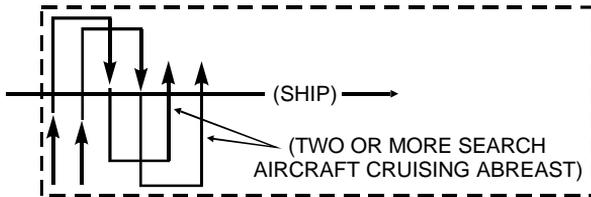
2. Creeping line — multiunit (CM) — this pattern is the same as CS except two or more units are used cruising abreast with turns and control in the same manner as (PM).



3. Coordinated creeping line — single unit (CSC).



4. Coordinated creeping line — multiunit (CMC) — this type pattern provides a more accurate search with faster coverage. This pattern is the same as CSC except two or more aircraft are used cruising abreast with cross legs being flown equal to track spacing multiplied by the number of aircraft (as in CM).



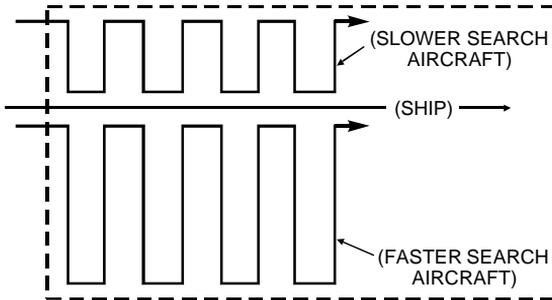
5. Creeping line single unit radar (CSR) — same as CSC except the ship assists the aircraft with radar advisories.
6. Creeping line multiunit radar — (CMR) — same as CMC except the ship assists the aircraft with radar advisories.

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SEARCH PATTERNS (Cont.)

CREEPING LINE SEARCH (Cont.)

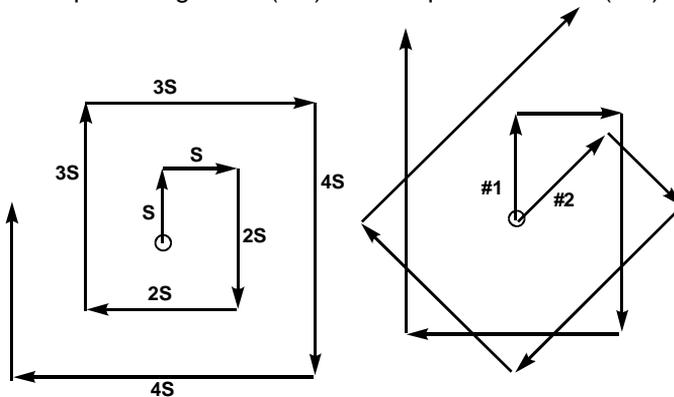
7. Creeping line multiunit coordinated split (CMCS) — used when search aircraft have different search speeds.



SQUARE SEARCH PATTERN

Square patterns are used for concentrated search of small areas where the position of survivors is known within close limits and the area to be searched is not extensive.

1. Square single unit (SS)
2. Square multiunit (SM)

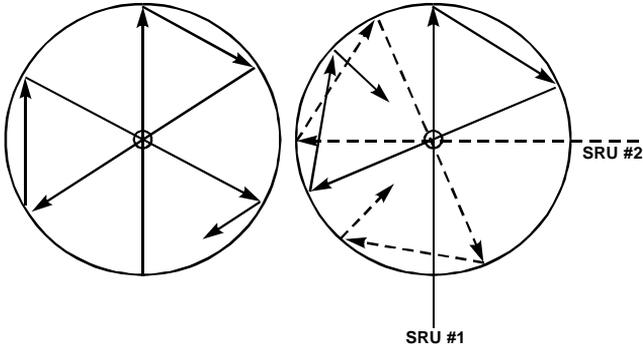


SECTOR SEARCH PATTERN (Cont.)

SECTOR SEARCH PATTERN

Sector patterns are used when the position of distress is known within close limits and the area to be searched is not extensive.

1. Sector single unit (VS)
2. Sector multiunit (VM)



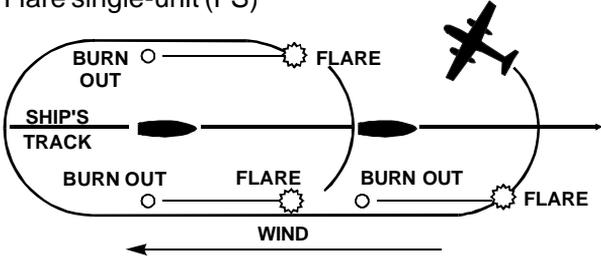
3. Sector single unit radar (VSR) — same as VS search except a vessel in the center of the pattern provides the search aircraft with radar advisories.
4. Sector multiunit radar (VMR) — same as VM search except a vessel in the center of the pattern provides the search aircraft with radar advisories.

SEARCH PATTERNS (Cont.)

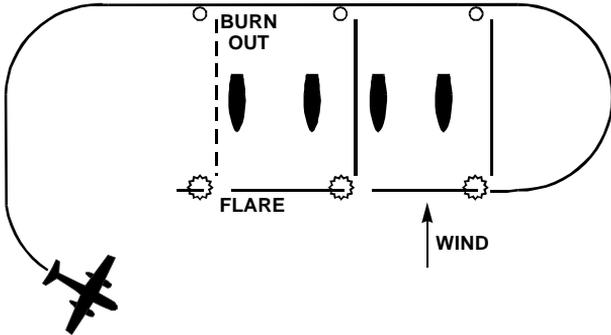
FLARE SEARCH PATTERN

Flare patterns are used in searches for large objects located in well-defined search areas.

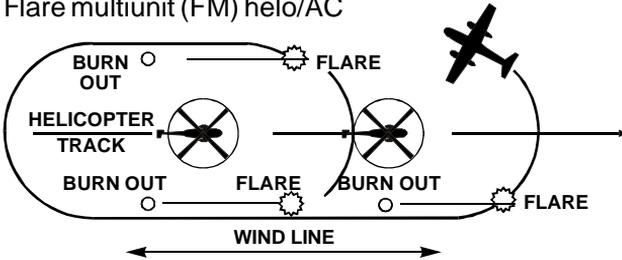
- 1. Flare single-unit (FS)



- 2. Flare multiunit (FM) AC/Ship



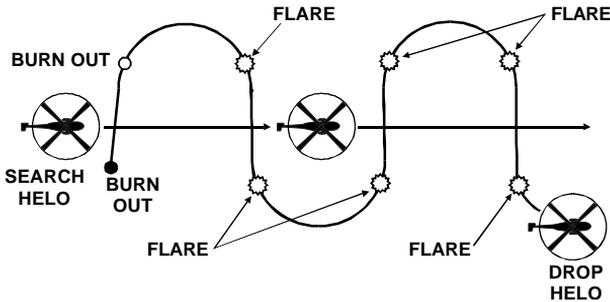
- 3. Flare multiunit (FM) helo/AC



SEARCH PATTERNS (Cont.)

FLARE SEARCH PATTERN (Cont.)

4. Helo/helo

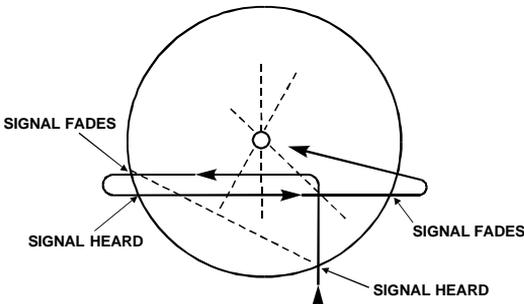


Helicopter search operations at low altitudes prohibit close monitoring of flare positions. Parachute flares pose a severe danger to helicopter rotors. A flare must never be dropped in such a way that the flare or its casing and parachute pass directly over in front of a search unit.

HOMING SIGNAL SEARCH PATTERNS

Homing patterns are used to locate emergency locator transmitters or other radio/electronic emissions from survivors or distressed craft. They are designated for search aircraft not equipped with homing devices, or when the signal is too weak to detect with such devices.

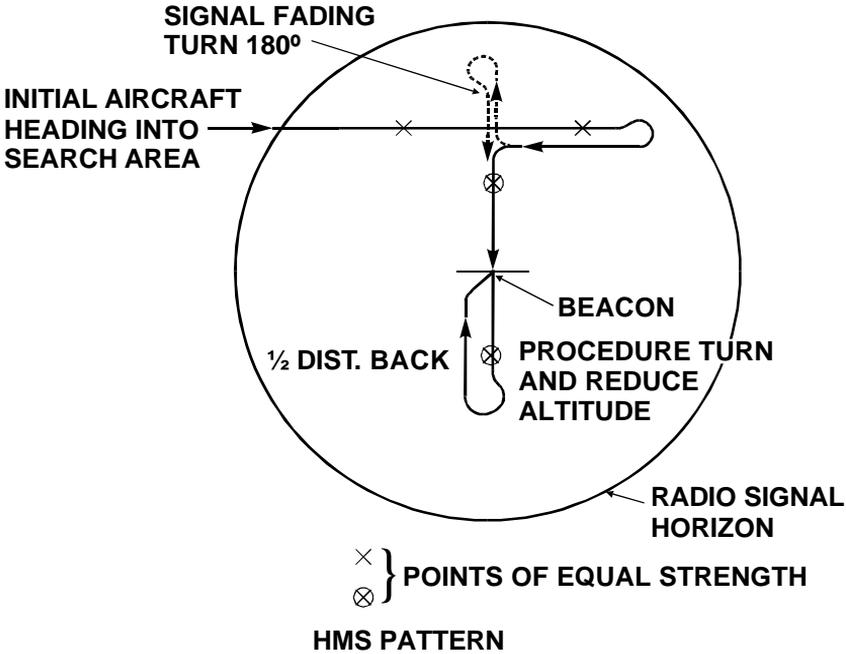
1. Homing single-unit aural (HSA)



SEARCH PATTERNS (Concl.)

HOMING SIGNAL SEARCH PATTERN (Cont.)

2. Homing Single-Unit Meter (HSM)



SEARCH EVOLUTION/AREA DESIGNATIONS

The National Search and Rescue Manual does not define the procedures of search area designation in detail. The following is that procedure recommended by the National SAR School.

FIRST LETTER: ALPHA, BRAVO, ETC., ARE INDICATIONS OF THE NUMERICAL SEQUENCE OF A SEARCH FOR A SPECIFIC SEARCH OBJECT. THE SECOND SEARCH FOR A 40 FOOT BOAT IS A BRAVO SEARCH, AND A LATER SEARCH OF THE SAME AREA FOR A LIFERAFT IS AN ALPHA SEARCH SINCE IT IS THE FIRST SEARCH FOR THAT SEARCH OBJECT. TO AVOID CONFUSION WHEN THERE ARE TWO OR MORE SEARCH OBJECTS, THE SEARCH OBJECT SHOULD BE ADDED TO THE SEARCH AREA NAME (I.E., ALPHA-LIFE RAFT)

SECOND NUMBER: ONE, TWO, ETC. ARE SUBDIVISIONS OF A LETTERED SEARCH AREA. ALPHA ONE AND ALPHA TWO ARE TWO SUBDIVISIONS OF THE ALPHA SEARCH AREA. THIS ALLOWS A SUBDIVISION OF THE SEARCH AREA TO BE ASSIGNED TO EACH SRU.

Defining the limits of a search area may be given in various ways. The preferred methods are listed below.

**6
MISC.**

SECTOR SEARCH AREAS (CIRCLES) – These are most easily given by reference to a mid-point or datum followed by the search radius.

RECTANGULAR OR SQUARE SEARCH AREAS – These may be given by (a) the coordinates of the four corners, or in some cases, geographical points located at one or more of the corners. (b) a center line, or primary axis with a certain amount of miles either side of this line.

IRREGULAR SHAPED SEARCH AREAS – In some cases the areas are geometrical in shape and the SMC or OSC may have to use his better judgment in defining the limits thereof. In some cases latitude and longitude may be used, the mile point of a river, etc.

**AIRCRAFT
GROUNDSPEED-DISTANCE-TIME TABLE**

SPEED							
SEARCH LEG IN NAUTICAL MILES	60KT	80KT	90KT	120KT	140KT	180KT	210KT
0.5	:30	:23	:20	:15	:13	:10	:08
1.0	1:00	:45	:40	:30	:26	:20	:17
1.5	1:30	1:08	1:00	:45	:39	:30	:26
2.0	2:00	1:30	1:20	1:00	:51	:40	:34
2.5	2:30	1:56	1:40	1:15	1:04	:50	:43
3.0	3:00	2:18	2:00	1:30	1:17	1:00	:51
3.5	3:30	2:40	2:20	1:45	1:30	1:10	1:00
4.0	4:00	3:03	2:40	2:00	1:42	1:20	1:08
4.5	4:30	3:26	3:00	2:15	1:56	1:30	1:17
5.0	5:00	3:48	3:20	2:30	2:09	1:40	1:26
6.0	6:00	4:33	4:00	3:00	2:34	2:00	1:48
7.0	7:00	5:18	4:40	3:30	3:00	2:20	2:00
8.0	8:00	6:03	5:20	4:00	3:25	2:40	2:34
Note: Time to complete one leg (T) in minutes and seconds							

SECTION 6 — MISCELLANEOUS

Surface Vessel Identification	6-2
Merchant Ship Identification	6-2
Common Sailing Rigs	6-5
Navy Aircraft	6-6
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Beaufort Sea State Table	6-10
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SURFACE VESSEL IDENTIFICATION

MERCHANT SHIP IDENTIFICATION

SUPERSTRUCTURE GROUP

1. Exceeds 1/3 ship's length



2. Less than 1/3 ship's length



3. Stack aft



HULL PROFILE OR RAISED SECTION (Circle one)

1. Flush



2. Raised 1



3. Raised 1 & 2



4. Raised 1 & 3



5. Raised 1 & 2 & 3



6. Raised 1 & long 2 & 3



7. Raised 1 & 2 & 3



8. Raised 1 & 2 & 3



9. Raised 2 & 3



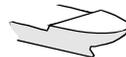
10. Raised 3



STERN TYPE (Circle one)



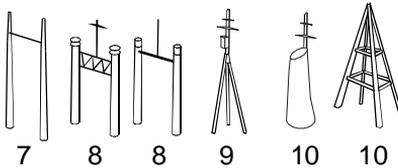
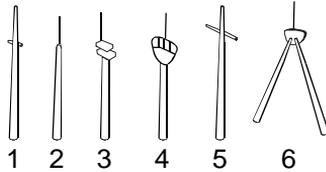
Cruiser



Counter

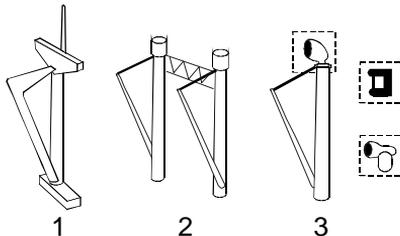
SURFACE VESSEL IDENTIFICATION (Cont.)
MERCHANT SHIP IDENTIFICATION (Cont.)

MASTS



1. SINGLE MAST, COMMON TO PASSENGER SHIPS
2. TELESCOPIC TYPE, BECOMING MORE COMMON
3. KINGPOST WITH WARSHIP TYPE TOPMAST
4. KINGPOST WITH HEAVY CROSSTREE AND TOPMAST
5. LIGHT CROSSTREE, OR YARDED MAST
6. INVERTED "Y"
7. TWIN MASTS
8. GOALPOSTS WITH TOPMAST
9. TRIPOD MAST
10. TOWER

KINGPOSTS

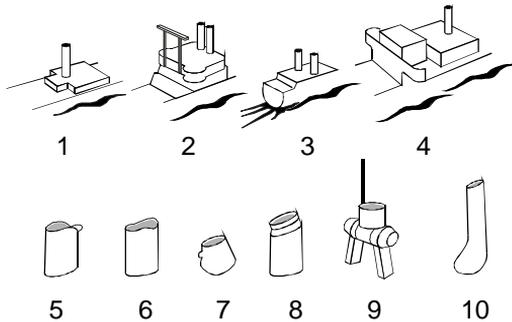


1. LOWER MAST TYPE
2. GOALPOST TYPE
3. VENTILATOR TYPE

SURFACE VESSEL IDENTIFICATION (Cont.)

MERCHANT SHIP IDENTIFICATION (Concl.)

FUNNELS

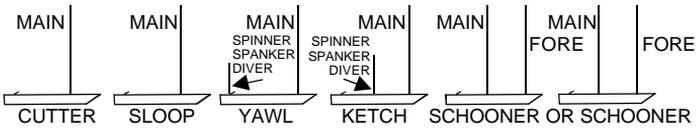


1. SMALL PIPE
2. KINGPOST TYPE FUNNEL
3. FUNNELS PAIRED ATHWARTSHIPS
(WHALE FACTORIES)
4. HIGH THIN CYLINDRICAL FUNNEL
(OLDER SHIP)
5. FUNNEL WITH SMOKE DEFLECTOR
6. BROAD FUNNEL
7. TAPERED FUNNEL
8. FUNNEL WITH CAP
9. BIPOD FUNNEL
10. MAST FUNNEL

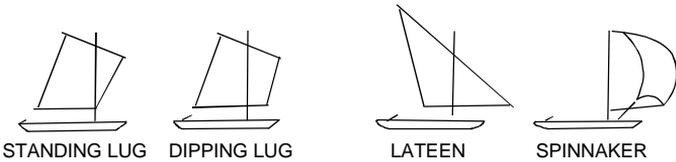
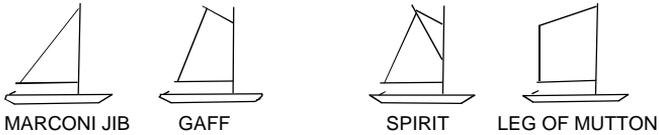
SURFACE VESSEL IDENTIFICATION (Concl.)

COMMON SAILING RIGS

FORE AND AFT RIGGING BY MASTS



FORE AND AFT RIGGING BY SAILS



SQUARE RIGGING



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NAVY AIRCRAFT

TYPE AC	NO ENGINES	MAX SPEED (KIAS)	*MAX RANGE (NM)	** CREW	COMMUNICATION	REMARKS/ MISSION
C-2A	2	306	1,550	3	VHF, HF, UHF	Carrier on-board delivery Passengers - 32 Litters - 20 Cargo - 10,000 lbs
UC-128/F/M	2	270	1,760	2	UHF, VHF	Administrative Support Passengers - 8
C-20D	2	340	3,800	4	UHF, VHF, FM, HF	Transport Passengers - 13
C-20G	2	340	4,200	4	UHF, VHF, FM, HF	Transport Passengers - 26
C-98	2	500	2,538	5	HF, VHF, UHF	Transport Passengers - 90 Cargo - 32,500 lbs
C-130/T	4	303	3,734	5	HF, VHF, UHF	Transport Passengers - 92 Paratroop - 62 Litters - 74 Cargo 32,000 lbs
KC-130F	4	330	2,000	7	HF, VHF, UHF	Aerial Refueling Passengers - 92 Litters - 74 Cargo - 28,000 lbs
TA-4F/J	1	488	260	2	UHF	Trainer, Close Support
EA-6B	2	550	2,400	4	UHF, VHF, HF	Electronic Warfare
ES-3A	2	450	2,500	4	UHF, VHF, HF, SATCOM	Electronic Warfare
EP-3E	4	330	3,500	20	UHF, VHF, HF, SATCOM	Electronic Surveillance
EP-3J	4	330	3,500	20	UHF, VHF, HF, SATCOM	Electronic Surveillance
AV-8A	1	585	2,000	1	UHF	ATTACK
TAV-8B	1	585	2,000	2	UHF	Attack/Trainer
E-2C	2	326	1,525	5	UHF, HF	Carrier-Based AEW/CIC
RF-4B	2	735	1,600	2	UHF	Reconnaissance
F-4J	2	750	2,300	2	UHF	Fighter
F-4N	2	750	2,300	2	UHF	Fighter
F-5E	2	875	1,750	1	UHF	Fighter Weapons School
F-14B	2	800+	2000	2	UHF	Fighter Interceptor

NAVY AIRCRAFT (Cont.)

TYPE AC	NO ENGINES	MAX SPEED (KIAS)	*MAX RANGE (NM)	** CREW	COMMUNICATION	REMARKS/ MISSION
F/A-18A C E	2	800+	1,600	1	UHF , VHF	Multirole Fighter
F/A-18B D F	2	800+	1,600	2	UHF, VHF	Helicopter troop - 12 Litters-6 Multirole Fighter
UH-1N	2	130	360	3	UHF, FM, HF	Observation/Recon Utility Medevac Sar Troops-12 Litters-6
AH-1W	2	165	240	2	UHF, FM, VHF	Armed Helo Escort
SH-2G	2	143	445	3	UHF	(LAMPS) ASW/ ASMO
UH-3H	2	120	450	4	UHF, HF	Utility/Noncombat Sar Passengers-13
CH-46D	2	145	300	4	UHF, VHF	VERTREP/Cargo Assault Troop Transport Passengers-20 Litters-15 Cargo-4,000 lbs
UH-46D	2	145	300	3	UHF, VHF	VERTREP/Cargo Assault Troop Transport Passengers-20 Litters-15 Cargo-4,000 lbs
CH-46E	2	130	250	3	UHF, HF, FM	VERTREP/Cargo Assault Troop Transport Passengers-20 Litters-15 Cargo-6,700 lbs
CH-46E SRM	2	145	660	3	UHF, HF, FM	Amphibious Assault Movement of Troops and Movement of Cargo
HH-46D	2	145	660	3	UHF, FM, VHF	Search and Rescue Passengers-17 Litters-12 Cargo-4,000 lbs
CH-53D	2	130	600	3	FM, HF, UHF	Assault Troop Transport Passengers-37 Litters-24 Cargo-18,800 lbs
SH-60B	2	180	480	4	DATA LINK (ARQ-14), UHF, VHF, FM, HF	ASW/ASST

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NAVY AIRCRAFT (Concl.)

TYPE AC	NO ENGINES	MAX SPEED (KIAS)	*MAX RANGE (NM)	** CREW	COMMUNICATION	REMARKS/ MISSION
SH-60F	2	180	640	4	UHF, VHF, HF, FM	ASW/SAR and Logistics and Medevac
RH-53D	2	430	600	3	FM, HF, UHF	AMCM/Assault Troop Transport Passengers - 37 Litters-24 Cargo-18,800 lbs
CH-53E	3	150	1,000	3	UHF, VHF, FM, HF	Assault Troop Transport Passengers-55 Cargo-32,000 lbs Litters-24
TH-57B/C	1	130	275	2	UHF, VHF	Training Passengers-3 Cargo-950 lbs
P-3C	4	410	4,500	111	UHF, HF, VHF SATCOM	Antisubmarine Warfare, Aerial Mine Warfare Passengers- 20
S-3B	2	450	2,500	4	UHF, HF	ASW
T-2C	2	433	909	2	UHF	Trainer
T-34C	1	220	700	2	UHF, VHF	Trainer
T-44	2	222	1,200	2	UHF, VHF	Trainer
T-39D	2	350	2,500	2	UHF	Trainer
T-45A	1	450	800	2	UHF/VHF	Trainer
CT-39G	2	360	2,500	2	UHF	Transport Passengers-7
HH-60H	2	180	640	4	UHF, VHF, HF, FM, SATCOM	Strike Rescue/ Special Warfare Support, Logisits and Medevac Passengers-10
<p>*MAX RANGE INDICATES THE MAXIMUM RANGE ATTAINABLE (FERRY RANGE) AND WILL VARY BECAUSE OF CONFIGURATION</p> <p>** THE NUMBER OF CREW AND PASSENGERS ON BOARD MAY VARY DEPENDING UPON A PARTICULAR AIRCRAFT'S CONFIGURATION AND ITS ASSIGNED MISSION</p>						

DOUGLAS SEA STATE TABLE

Douglas Sea State	Description	Wave Height
0	Calm	-----
1	Smooth	0 to 1 feet
2	Slight	1 to 3 feet
3	Moderate	3 to 5 feet
4	Rough	5 to 8 feet
5	Very Rough	8 to 12 feet
6	High	12 to 20 feet
7	Very High	20 to 40 feet
8	Precipitous	over 40 feet
9	Confused	-----

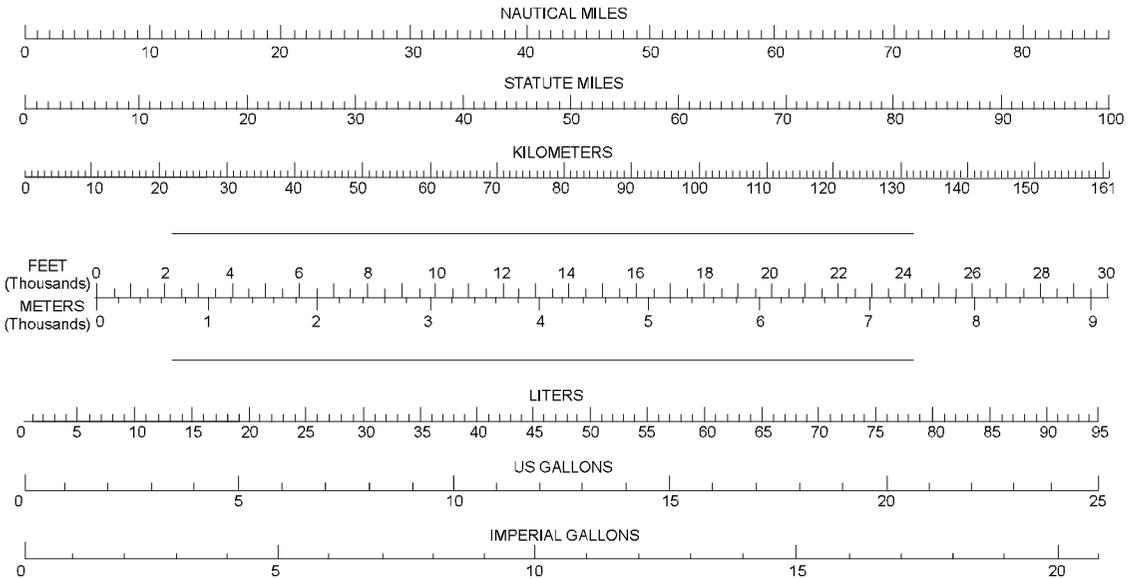
BEAUFORT NUMBER	MAP SYMBOL	TERMS USED BY U.S. WEATHER BUREAU	VELOCITY M.P.H.	VELOCITY KNOTS	ESTIMATING VELOCITIES ON SEA	PROBABLE MEAN HEIGHT OF WAVES IN FEET*	DESCRIPTION OF SEA
0		Calm	Less than 1	Less than 1	Sea like a mirror		Calm (glassy)
1		Light	1-3	1-3	Ripples with the appearance of scales are formed but without foam crests.	½	Rippled
2			4-7	4-6	Small wavelets, still short but more pronounced, crests have a glossy appearance and do not break	1	Smooth
3		Gentle	8-12	7-10	Large wavelets. Crests begin to break. Foam of glassy appearance. Perhaps scattered white caps.	2½	
4		Moderate	13-18	11-16	Small waves, becoming longer; fairly frequent white caps	5	Slight
5		Fresh	19-24	17-21	Moderate waves, taking a more pronounced long form; many white caps are formed. (Chance of some spray)	10	Moderate
6		Strong	25-31	22-27	Large waves begin to form; the white foam crests are more extensive everywhere (Probably some spray)	15	Rough
7			32-36	28-33	Sea heaps up and white foam from breaking waves begins to be blown in streaks along the direction of the wind.	20	Very rough
8			39-46	34-40	Moderately high waves of greater length; edges of crests break into spindrift. The foam is blown in well-marked streaks along the direction of the wind.	25	High
9		Gale	47-54	41-47	High waves. Dense streaks of foam along the direction of the wind. Sea begins to roll. Spray may affect visibility.	30	
10			55-63	48-55	Very high waves with long, overhanging crests. The resulting foam, in great patches, is blown in dense white streaks along the direction of the wind. On the whole, the surface of the sea takes a white appearance. The rolling of the sea becomes heavy and shocklike. Visibility is affected.	35	Very high
11		Whole Gale	64-73	56-63	Exceptionally high waves. (Small and medium-sized ships might for a long time be lost to view behind the waves.) The sea is completely covered with long white patches of foam lying along the direction of the wind. Everywhere edges of the wave crests are blown into froth. Visibility affected.	40	
12		Hurricane	74-82	64-71	The air is filled with foam and spray. Sea completely white with driving spray; visibility very seriously affected.	45 or more	Phenomenal

* Height in open seas with time for wind to build waves.

BEAUFORT SCALE (and its meaning)

DISTANCE AND VOLUME CONVERSION CHART

To use the chart: Apply vertically a rule or straight-edge, bisecting lines for which conversions are sought.



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HEIGHT OF EYE VERSUS HORIZON RANGE

Height feet	Nautical miles	Statute miles	Height feet	Nautical miles	Statute miles	Height feet	Nautical miles	Statute miles
1	1.1	1.3	120	12.5	14.4	940	35.1	40.4
2	1.6	1.9	125	12.8	14.7	960	35.4	40.8
3	2.0	2.3	130	13.0	15.0	980	35.8	41.2
4	2.3	2.6	135	13.3	15.3	1,000	36.2	41.6
5	2.6	2.9	140	13.5	15.6	1,100	37.9	43.7
6	2.8	3.2	145	13.8	15.9	1,200	39.6	45.6
7	3.0	3.5	150	14.0	16.1	1,300	41.2	47.5
8	3.2	3.7	160	14.5	16.7	1,400	42.8	49.3
9	3.4	4.0	170	14.9	17.2	1,500	44.3	51.0
10	3.6	4.2	180	15.3	17.7	1,600	45.8	52.7
11	3.8	4.4	190	15.8	18.2	1,700	47.2	54.3
12	4.0	4.6	200	16.2	18.6	1,800	48.5	55.9
13	4.1	4.7	210	16.6	19.1	1,900	49.9	57.4
14	4.3	4.9	220	17.0	19.5	2,000	51.2	58.9
15	4.4	5.1	230	17.3	20.0	2,100	52.4	60.4
16	4.6	5.3	240	17.7	20.4	2,200	53.7	61.8
17	4.7	5.4	250	18.1	20.8	2,300	54.9	63.2
18	4.9	5.6	260	18.4	21.2	2,400	56.0	64.5
19	5.0	5.7	270	18.8	21.6	2,500	57.2	65.8
20	5.1	5.9	280	19.1	22.0	2,600	58.3	67.2
21	5.2	6.0	290	19.5	22.4	2,700	59.4	68.4
22	5.4	6.2	300	19.8	22.8	2,800	60.5	69.7
23	5.5	6.3	310	20.1	23.2	2,900	61.6	70.9
24	5.6	6.5	320	20.5	23.6	3,000	62.7	72.1
25	5.7	6.6	330	20.8	23.9	3,100	63.7	73.3
26	5.8	6.7	340	21.1	24.3	3,200	64.7	74.5
27	5.9	6.8	350	21.4	24.6	3,300	65.7	75.7
28	6.1	7.0	360	21.7	25.0	3,400	66.7	76.8
29	6.2	7.1	370	22.0	25.3	3,500	67.7	77.9
30	6.3	7.2	380	22.3	25.7	3,600	68.6	79.0
31	6.4	7.3	390	22.6	26.0	3,700	69.6	80.1
32	6.5	7.5	400	22.9	26.3	3,800	70.5	81.2
33	6.6	7.6	410	23.2	26.7	3,900	71.4	82.2
34	6.7	7.7	420	23.4	27.0	4,000	72.4	83.3
35	6.8	7.8	430	23.7	27.3	4,100	73.3	84.3
36	6.9	7.9	440	24.0	27.6	4,200	74.1	85.4
37	7.0	8.0	450	24.3	27.9	4,300	75.0	86.4
38	7.1	8.1	460	24.5	28.2	4,400	75.9	87.4
39	7.1	8.2	470	24.8	28.6	4,500	76.7	88.3
40	7.2	8.3	480	25.1	28.9	4,600	77.6	89.3
41	7.3	8.4	490	25.3	29.2	4,700	78.4	90.3
42	7.4	8.5	500	25.6	29.4	4,800	79.3	91.2
43	7.5	8.6	520	26.1	30.0	4,900	80.1	92.2
44	7.6	8.7	540	26.6	30.6	5,000	80.9	93.1
45	7.7	8.8	560	27.1	31.2	6,000	88.6	102.0
46	7.8	8.9	580	27.6	31.7	7,000	95.7	110.2
47	7.8	9.0	600	28.0	32.3	8,000	102.3	117.8
48	7.9	9.1	620	28.5	32.8	9,000	108.5	124.9
49	8.0	9.2	640	28.9	33.3	10,000	114.4	131.7
50	8.1	9.3	660	29.4	33.8	15,000	140.1	161.3
55	8.5	9.8	680	29.8	34.3	20,000	161.8	186.3
60	8.9	10.2	700	30.3	34.8	25,000	180.9	208.2
65	9.2	10.6	720	30.7	35.3	30,000	198.1	228.1
70	9.6	11.0	740	31.1	35.8	35,000	214.0	246.4
75	9.9	11.4	760	31.5	36.3	40,000	228.8	263.4
80	10.2	11.8	780	31.9	36.8	45,000	242.7	279.4
85	10.5	12.1	800	32.4	37.3	50,000	255.8	294.5
90	10.9	12.5	820	32.8	37.7	60,000	280.2	322.6
95	11.2	12.8	840	33.2	38.2	70,000	302.7	348.4
100	11.4	13.2	860	33.5	38.6	80,000	323.6	372.5
105	11.7	13.5	880	33.9	39.1	90,000	343.2	395.1
110	12.0	13.8	900	34.3	39.5	100,000	361.8	416.5
115	12.3	14.1	920	34.7	39.9			

SECTION 7 – DEFINITIONS

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DEFINITIONS AND SAR TERMS

Advanced SAR Staging Base – A suitable preselected location near possible SAR incidents for staging an SMC, SRUs, and supporting staffs.

Aerospace Position – The position of a distressed aircraft or space craft at the time of reentry, engine failure, aircrew ejection, or bailout.

Aerospace Trajectory Drift (d_a) – That drift caused by bailout trajectory or by glide of a disabled aircraft.

Airspace Reservations – Temporary airspace or altitude, reservations for the purpose of preventing unessential non-SAR aircraft from entering airspace being used by aircraft for SAR operations.

Alert Notice (ALNOT) – An alerting message used for U.S. domestic flights. Corresponds to the declaration of the Alert phase.

Alert Phase – An emergency phase which is assigned when apprehension exists for the safety of a craft or person because of definite information that serious difficulties exist which do not amount to a distress, or because of a continued lack of information concerning progress or position.

Automated Mutual-Assistance Vessel Rescue System (AMVER) – A computerized system for maintaining the dead reckoning navigation position of merchant vessels which voluntarily participate. Operated by the U.S. Coast Guard from the AMVER Center in New York.

Average Sea Current (SC) – That current present in the open sea which is caused by factors other than local winds. Found by using HO 700, Atlas of Surface Currents, Pilot Charts, and/or local knowledge.

Computer Assisted Search Planning System (CASP) – A computer search planning system which uses simulation techniques to produce many datum points which are displayed as a map of all possible locations.

DEFINITIONS AND SAR TERMS (Cont.)

Coriolis Force – An apparent force acting on a body in motion, due to the rotation of the earth, causing a deflection to the right in the northern hemisphere and to the left in the southern hemisphere.

Coverage Factor (C) — A measure of the search effectiveness or its quality. It equals sweep width divided by track spacing.

$$\left(\frac{w}{s}\right)$$

Cumulative Probability of Detection (P_c) – Accumulated total probability of detection for repeated searches of the same area found by averaging the individual coverage factors for the completed searches to obtain a Mean Coverage Factor (C_m).

Datum – The probable location of the search object corrected for drift at any particular moment during the mission.

Datum Area – An area in which the search object is initially assumed to be located with equal probability throughout the area.

Datum Line – The line connecting two or more datum points computed for the same specified time, along which the search object is assumed to be located with equal probability.

Datum Point – The datum developed when the initial position of the search object is known.

Dead Reckoning (DR) – Determination of position by advancing a previous position for course and distances.

Distress Phase – An emergency phase which is assigned when immediate assistance is threatened by grave or imminent danger, or because of continued lack of information concerning progress or position after procedures for the Alert Phase have been executed.

Drift – The vectorial movement (direction and distance) of the search object caused by momentum, drag, wind, water or other external forces.

Drift Error-Total (D_e) – The probable error in drift assumed or calculated from the surface position to the latest datum.

DEFINITIONS AND SAR TERMS (Cont.)

Effective Visibility – The term used to determine sweep widths over land. Effective visibility is the approximate distance that an automobile may be recognized from an aircraft at a particular search altitude.

Emergency Locator Transmitter (ELT) — Small emergency radios which are required on most non-commercial aircraft registered in the U.S. They emit a distress on 121.5 MHz and/or 243.0 MHz either when turned on manually or when subjected to G-Forces, such as an aircraft crash.

Emergency Position Indicating Radio Beacon (EPIRB) – An emergency radio beacon used by survivors to assist in their location. This term is used mainly in the international marine field.

EXCOM – Extended Communications Search. Is normally conducted after a PRECOM has yielded no results, and consists of contacting all possible sources of information on the missing craft, including physically checking possible locations, such as harbors, marinas, and airport ramps. An EXCOM is normally conducted when the mission is upgraded to the Alert Phase.

FIX – A relatively accurate position determined without reference to any former position.

GEOREF – A code reference system for reporting geographic positions.

Information Request (INREQ) – A message request for information about an unreported or overdue aircraft in U.S. domestic airspace. Corresponds to the declaration of the Uncertainty Phase.

Initial Position Error (X) – The assumed error of the initially reported position of a SAR incident.

DEFINITIONS AND SAR TERMS (Cont.)

Last Known Position (LKP) – The last known position of a missing person, aircraft, or vessel.

Leeway (LW) – The movement of a search object caused by being pushed through the water by local winds blowing against the exposed surfaces of the search object.

Local Wind Current (WC) – The current generated by the wind acting upon the surface of the water for a period of time.

Minimax Plotting – A means of obtaining datum and drift error when both a minimum and a maximum drift is calculated.

On-Scene Commander (OSC) – The official designated by the SMC for coordinating and controlling a specific SAR mission on scene.

Parachute Drift (d_p) – The drift caused by a parachute's glide ratio (if any) and its displacement due to winds aloft as the parachute is descending.

Parachute Opening Position – The position of the search object at the time of parachute opening.

PRECOM – Preliminary Communications Check – Consists of contacting and checking major facilities within the areas where the craft might be or might have been seen, and is normally conducted during the Uncertainty Phase.

Probability of Detection (P) – The probability that the search object will be detected under given conditions if it is in the area searched.

Rescue Coordination Center (RCC) – A center established by each SAR Coordinator within his area of operations for the purpose of coordinating and controlling SAR operations.

Rescue Sub-Center (RSC) – A center subordinate to an RCC established when it is found that the RCC cannot exercise complete control and coordination in certain sections of its area.

DEFINITIONS AND SAR TERMS (Cont.)

SAR Area – A general term for any geographically defined area of SAR responsibility. Also a term used by the International Civil Aviation Organization (ICAO) to describe its areas of international SAR responsibility. ICAO uses the abbreviation SRR.

SAR Coordinator (SC) – The official (or agency in the case of Regions) responsible for the SAR organization within a given area and for the coordination of SAR operations within that area.

SAR Incident – Any situation which requires notification and alerting of the SAR system and which may require SAR operations.

SAR Mission Coordinator (SMC) – The official designated by the SAR Coordinator for coordinating and controlling a specific SAR mission.

SAR Region – A region described in the National SAR Plan in which a single Federal agency coordinates all Federal SAR operations.

SAR Subregion – A subdivision of a SAR region.

SAR Sector – A subdivision of a SAR subregion.

SAR Stage – A stage of a SAR operational problem.

Awareness Stage – That stage when the SAR System becomes aware of an incident.

Initial Action Stage – That stage when preliminary action is taken to alert SAR facilities and obtain amplifying information.

Planning Stage – That stage when an effective plan of operations is developed.

Operations Stage – That stage when 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.

Mission Conclusion Stage – That stage when SAR facilities return to their regular location and are prepared for another mission.

DEFINITIONS AND SAR TERMS (Cont.)

SAR Unit (SRU) – A resource performing search, rescue, or similar operations.

Sea Current (SC) – That current present in the open sea that is caused by factors other than local winds.

Search and Rescue (SAR) — The use of available resources to assist persons and property in potential or actual distress.

Search Area – That area designated to be searched by competent authority.

Search Craft Error (Y) – The error in position assumed for the search craft based on its navigational accuracy.

Search Pattern – A methodical way of conducting the search of an area, usually fitting some standard shape, trackline and procedure.

Search Radius (R) – The radius of a circle centered on a datum point, having a length equal to the Total Probable Error plus an additional safety length to insure a greater than 50 percent probability that the target is in the search area.

Set – The direction toward which a current flows or direction toward which an object moves under the influence of wind or current.

Splash Point – The surface position in a case of bailout.

Surface Drift (d) (This term is sometimes called Resultant Drift.) – The vector sum of average sea current, local wind current and leeway (previously called survival craft drift or total drift).

Surface Picture (SURPIC) – A print-out from the AMVER computer of predicted position information on participating vessels within a defined area and of the characteristics of the vessels useful in SAR operations.

Surface Position – The position of the search effort on the earth's surface at the time of initial distress on the surface, or first contact with the earth's surface.

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DEFINITIONS AND SAR TERMS (Concl.)

Sweep Width (W) – A mathematically expressed measure of detection capability due to target characteristics, weather, and other limitations. It is the numerical value obtained by reducing the maximum detection distance of any given sweep so that scattered targets which may be detected beyond the limits of W are equal in number to those which may be missed within those limits.

Tidal Current (TC) – Currents caused by the tidal effect of the sea.

Total Drift Error (D_e) – The sum of all individual drift errors during a time interval (T).

Track – The horizontal direction of a path over the ground accomplished by a craft or person.

Track Spacing (S) – The distance between adjacent search tracks.

Uncertainty Phase – An emergency phase which is assigned when *doubt* exists as to the safety of a craft or person because of knowledge of possible difficulties, or because of lack of information concerning progress or position.

Wind Corrected Heading – The actual heading an aircraft is required to fly to make good an intended course.

Wind Current (WC) – The horizontal movement of water on the surface caused by the wind blowing on it.

SAR ACRONYMS AND ABBREVIATIONS

AFRCC	Air Force Rescue Coordination Center
ALERFA	Alert phase (ICAO)
AMVER	Automated mutual-assistance vessel rescue
ARC	American Red Cross
ARS	Aerospace Rescue Service
ARTCC	Air routing and traffic control center
ATC	Air traffic control
AUTOVON	Automated voice network
BC	Bottom current
BO	Bailout position
C	Coverage factor
C _m	Mean coverage factor
CAP	Civil Air Patrol
CASP	Computer assisted search planning
CB	Citizens band radio
CDC	Combat direction center
CGAUX	Coast Guard auxiliary
CHO	Change of Operation
CIRM	International Radio Medical Center
CP	Center Point
CSP	Commence search point
DP	Datum position
d _a	Aerospace trajectory
D _e	Total drift error
DETRESFA	Distress phase (ICAO)
DF NET	Direction finding network
d _{max}	Maximum drift position
DMB	Datum marker buoy
d _{min}	Minimum drift position
D _{minimax}	Datum minimax position
DOC	Department of Commerce
DOD	Department of Defense
DOT	Department of Transportation
d _p	Parachute drift
DR	Dead reckoning

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SAR ACRONYMS AND ABBREVIATIONS (Cont.)

E	Total probable error
ELT	Emergency locator transmitter
EPIRB	Emergency position indicating radio beacon
ETA	Estimated time of arrival
ETD	Estimated time of departure
EXCOM	Extended communications search
FSS	Flight service station
GS	Ground speed
HDFD	High frequency direction finding
ICSA	Interagency Committee on Search and Rescue
ICAO	International Civil Aviation Organization
INCERFA	Uncertainty phase (ICAO)
INREQ	Information request
ITU	International Telecommunications Union
KT	Knot or nautical miles per hour
LC	Lake current
LKP	Last known position
LORAN	Long range aid to navigation
LSC	Long-shore current
LW	Leeway
MARAD	Maritime Administration
MAC	U.S. Air Force Military Airlift Command
MAROP	Marine operator
MAST	Military assistance to safety and traffic
MEDICO	International word meaning – a radio medical situation
MEDEVAC	Medical evacuation
MERSAR	Merchant search and rescue
N	No of SRUs
NASA	National Aeronautical and Space Administration
NASAR	National Association for Search and Rescue
NATO	North Atlantic Treaty Organization
NAWAS	National warning system
NM	Nautical miles

SAR ACRONYMS AND ABBREVIATIONS (Cont.)

NOAA	National Oceanic and Atmospheric Administration
OAC	Ocean air controller
OARTCC	Ocean Air Route Traffic Control Center
OSC	On-scene commander
POB	Persons on board
P or POD	Probability of detection
POS	Probability of success
PRECOM	Preliminary communications check
R	Search radius
RC	River current
RCC	Rescue Coordination Center (Coast Guard, Air Force, etc.)
R & D	Research and development
REACT	Radio emergency associated citizens team
RDF	Radio direction finder
RSC	Rescue Sub Center
S	Track spacing
SARP	Search and rescue planning system
SARTEL	SAR Telephone (private line)
SC	SAR coordinator
SC	Sea current
SE	Search Effectiveness
SIF	Selection identification feature
SITREP	Situation report
SMC	SAR mission coordinator
SOLAS	Safety of life at sea
SP	Splash point
SRR	Search and rescue region
SRU	Search and rescue unit
SUBSAR	Submersible search and rescue
SUC	Surf current
SURPIC	Surface picture
SWC	Swell/wave current
T	Time
TACAN	Tactical air navigation
TC	Tidal current
UPU	Universal postal union

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SAR ACRONYMS AND ABBREVIATIONS (Cont.)

USPHS	United States Public Health Service
V	Velocity or speed in knots
W	Sweep width
WC	Wind current
WHEC	CG high endurance cutter
WHO	World Health Organization
WMEC	CG medium endurance cutter
WMO	World Meteorological Organization
WPB	CG patrol boat

ORGANIZATION

SAR MISSION ORGANIZATION (USUAL)

SAR COORDINATOR (SC)

1. Designates and supervises SMC.

SAR MISSION COORDINATOR (SMC)

1. Controls a specific SAR mission.
2. Evaluates information.
3. Dispatches SAR facilities.
4. Plans operations
5. Designates OSC.
6. Designates communication channels.
7. Maintains continuous plot of search effort.

ON-SCENE COMMANDER (OSC)

1. Executes action plans of SMC.
2. Modifies plans to cope with changing on-scene conditions.
3. Designates search patterns if SMC has not done so.
4. Advises SMC of SAR conditions, weather, sea state, flight endurance of SRUs.
5. Require OPS normal and position reports of SRUs.
6. Ensure SRUs have altitude or search area separation.

SEARCH AND RESCUE UNIT (SRU)

1. Executes action plans as directed by OSC.
2. Notifies OSC of ETA on scene, special limitations, search speed, and on-scene endurance.
3. Make OPS normal reports.
4. Advises OSC of SAR progress or probability of detection.

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