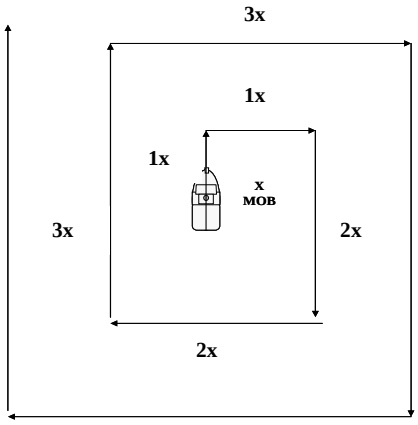
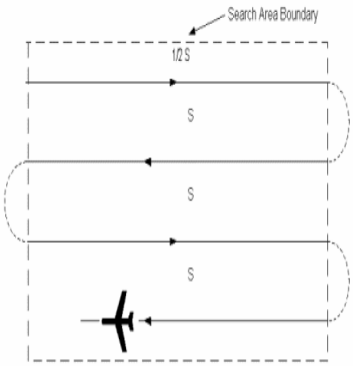
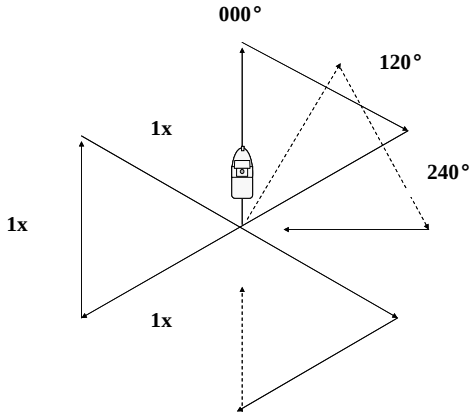
SARCC NAV EX 6 – SEARCH PATTERNS

Purpose: To familiarise radio operators with common search patterns and the use of sweep width tables.

A search vessel's planned track is spaced so that during its search it will not exceed the visual detection distance of the casualty taking into account the meteorological visibility, the size of the object and the sea state. This information is supplied overleaf in the Sweep width tables and in the NATSAR 2003 Manual.





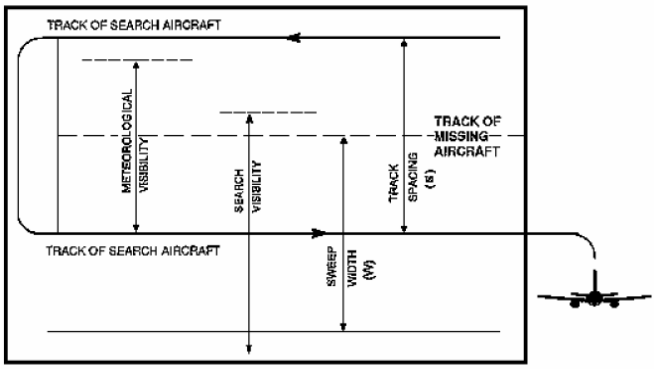


Expanding square

The RV approaches the search datum into the drift, passes on by twice the sweep width (twice the detection range), then works around the compass, increasing lengths of subsequent pairs of legs by another initial run distance. This can be plotted or determined informally by the search vessel timing its runs of a constant speed.

Parallel track

Most commonly used by planes or in situations of assumed drift.



Sector search pattern

The RVl approaches the wreckage into the drift, passes it by the sweep width, then works around the compass with turns of 120° relative to each heading to return through the wreckage. This capitalises on repeated investigation of the datum.

SEACH PLOTTING TASKS: **Using the Sweep width table & weather corrections overleaf, plan a search pattern for one search vessel for each of the three scenarios below. Your chart plan may be tested in Motorboat Simulator.**		
A blue 6mtr yacht is missing at search datum: **31° 28´.63 S 152° 58´.00 E**	No sails up, 17Kt winds 5 Kilometres visibility	Motorboat Simulator Situation **Sarcc Ex6a** Yacht @31° 29´.7 S 152° 58´.35 E 0.7
Swamped boat 2 POB missing at search datum: **31° 22´.28 S 152° 56´.00 E**	Southerly current, 1.6mtr seas. 1.5NM visibility	Motorboat Simulator Situation **Sarcc Ex6b** Pob1 @31° 22´.43 S 152° 55´.80 E Pob2 @31° 22´.38 S 152° 55´.09 E 0.05
Crashed planes yellow EPIRB buoy **31° 19´.6 S 152° 59´.6 E** Note –3 persons missing	No wind, 1.0 -1.5mtr seas. 20 Kilometres visibility	Motorboat Simulator Situation **Sarcc Ex6c** EPIRB @ 31° 19´.3 S 152° 59´.6 E 0.15

Sweep Width Tables For Visual Search Over Water

Table I-3. Uncorrected visual sweep width for vessels and small boats (NM)

SEARCH OBJECT	Height of eye 8' Visibility in kilometres						Height of eye 14' Visibility in kilometres					
	2	5	10	15	20	>25	2	5	10	15	20	>25
Person in water	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.4	0.5	0.6	0.6	0.6
Raft 1 Person	0.7	1.2	1.8	2.1	2.4	2.5	1.0	1.6	2.5	2.9	3.2	3.3
Raft 4 Person	0.8	1.5	2.3	2.9	3.2	3.4	1.1	2.0	3.1	3.8	4.2	4.4
Raft 6 Person	0.9	1.7	2.7	3.4	3.8	4.1	1.2	2.2	3.5	4.4	5.0	5.3
Raft 8 Person	0.9	1.7	2.8	3.5	4.0	4.2	1.2	2.3	3.6	4.5	5.1	5.4
Raft 10 person	0.9	1.8	2.9	3.7	4.2	4.6	1.2	2.3	3.7	4.7	5.4	5.8
Raft 15 Person	1.0	2.0	3.2	4.0	4.5	4.9	1.2	2.5	4.0	5.1	5.7	6.2
Raft 20 Person	1.0	2.1	3.5	4.4	5.1	5.6	1.3	2.6	4.3	5.7	6.4	6.9
Raft 25 Person	1.0	2.2	3.7	4.7	5.5	6.0	1.3	2.7	4.3	5.8	6.7	7.5
Power Boat <5m (15 ft)	0.5	0.7	1.0	1.2	1.3	1.4	0.5	1.0	1.5	1.8	1.9	2.0
Power Boat 5-8m (15-25 ft)	0.8	1.4	2.3	2.9	3.4	3.8	1.0	1.9	3.0	3.9	4.5	5.0
Power Boat 8-12m (25-40 ft)	0.8	1.8	3.1	4.1	4.9	5.6	1.2	2.3	4.0	5.3	6.4	7.3
Power Boat 12-20m (40-65 ft)	0.9	2.2	4.2	5.9	7.4	8.7	1.2	3.0	5.4	7.6	9.6	11.3
Power Boat 20-27m (65-90 ft)	0.9	2.3	4.6	6.8	8.8	10.6	1.2	3.0	6.0	8.7	11.3	13.6
Sail Boat 5m (15 ft)	0.8	1.4	2.2	2.7	3.1	3.4	1.0	1.8	2.8	3.5	4.1	4.5
Sail Boat 6m (20 ft)	0.8	1.6	2.6	3.3	3.9	4.4	1.1	2.0	3.3	4.3	5.0	5.6
Sail Boat 8m (25 ft)	0.9	1.8	2.9	3.9	4.6	5.1	1.1	2.2	3.8	5.0	5.9	6.7
Sail Boat 9m (30 ft)	0.9	2.0	3.4	4.6	5.5	6.3	1.2	2.5	4.4	5.9	7.1	8.1
Sail Boat 12m (40 ft)	0.9	2.2	4.1	5.7	7.0	8.1	1.3	2.8	5.2	7.2	9.0	10.5
Sail Boat 15m (50 ft)	0.9	2.2	4.3	6.1	7.7	9.1	1.2	2.9	5.2	7.9	9.9	11.7
Sail Boat 20-23m (65-75 ft)	0.9	2.3	4.5	6.5	8.3	9.9	1.2	3.0	5.8	8.4	10.8	12.9
Sail Boat 23-17m (75-90 ft)	0.9	2.4	4.7	6.8	8.9	10.7	1.2	3.1	6.1	8.9	11.5	13.8

Note: A sailboat is only a sailboat if the sails are up. If the sails are down, the craft should be classed as a powerboat.

Table I-4. Visual sweep widths for merchant ships (NM)

Height of eye correlates to bridge of a merchant ship	Meteorological visibility [km]				
Search Object	5 km	10 km	20 km	30 km	40 km
Person in water	0.4	0.5	0.6	0.7	0.7
4-person liferaft	2.3	3.2	4.2	4.9	5.5
6-person liferaft	2.5	3.6	5.0	6.2	6.9
15-person liferaft	2.6	4.0	5.1	6.4	7.3
25-person liferaft	2.7	4.2	5.2	6.5	7.5
Boat <5m (17ft)	1.1	1.4	1.9	2.1	2.3
Boat <7m (23ft)	2.0	2.9	4.3	5.2	5.8
Boat <12m (40ft)	2.8	4.5	7.6	9.4	11.6
Boat <24m (79ft)	3.2	5.6	10.7	14.7	18.1

Table I-7. Weather correction factors for all types of search facilities

	Search Object	
Weather: winds km/h (kt) or seas m (ft)	Person in water, raft or boat < 10m (33ft)	Other search objects
Winds <28 km/h (<15 kt) or seas 0-1 m (0-3ft)	1.0	1.0
Winds 28-46 km/h (15-25 kt) or seas 1-1.5 m (3-5ft)	0.5	0.8
Winds >46 km/h (> 25 kt) or seas > 1.5 m (> 5ft)	0.25	0.5

Note: Table I-7 differs from IAMSAR for other search objects in winds above 15 kts. The correction factors are based on a combination of the values previously used by AusSAR and observations of the reported effect of high winds on sweep width values in actual SAR incidents.

Training resources:

Workbook- "Basic facts of SAR".
Presentation- CD Index>Rad Op.. Lessons> Supervise response >"SAR practice"
Presentation- PMSRG Coastal orientation.
Motorboat Sim.- Port Scenery>Situation> Sarcc Ex 6a, 6b, & 6c.