


SAR patterns are done using COG and SOG. It is desired to maintain a constant speed through the whole pattern which might mean increasing your speed slightly while you make a turn.

SAR Patterns are run using leg runtimes maintaining a constant speed.



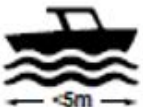
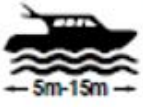
It is vital that you know the time to run the length of the tack spacing length

	TARGET TYPE	ASSUMED SPEED
	PERSON IN WATER	10 knots
	Visibility: > 3NM	SWEEP WIDTH
		60secs (0.17 nm)

- Set your speed: 10 kts
- Target type: PIW
- Sweep width: 0.17 nm
- Sweep width: 1,000 ft

Run time to go 1000 ft is 1 min

1st two legs Expanding Sq. & Sector Search: 60 sec legs

	WIND SPEED / SEA STATE ON-SCENE			
	<16kts / <0.6m Sea	16-25kts / 0.6m-1.2m	>25kts / >1.2m Sea	
	ASSUMED SPEEDS			
TARGET TYPE	20 knots	12 knots	8 knots	
PERSON IN WATER	SWEEP WIDTHS			
	Visibility <3NM	30secs (0.17 nm)	30secs (0.10 nm)	30secs (0.07 nm)
	LIFERAFT			
	Visibility 1NM	2mins 30secs (0.83 nm)	2mins (0.40 nm)	1min 30secs (0.20 nm)
	Visibility 3NM	6mins (2.00 nm)	5mins (1.00 nm)	3mins 45secs (0.50 nm)
	Visibility 5NM	8mins (2.66 nm)	6mins 45secs (1.35 nm)	5mins (0.67 nm)
	POWER AND MFV <5m			
	Visibility 1NM	1min 15secs (0.42 nm)	1min (0.20 nm)	45secs (0.10 nm)
	Visibility 3NM	2mins 30secs (0.83 nm)	2mins (0.40 nm)	1min 30secs (0.20 nm)
	POWER & MFV 5m-15m			
Visibility 1NM	2mins 30secs (0.83 nm)	2mins (0.40 nm)	1min 30secs (0.20 nm)	

Expanding Square (S)

SAR Patterns

To begin your search you need to:

- ❖ Determine the constant speed at which you will run your vessel during the search
- ❖ Calculate the time to run the first leg of your search based on this constant speed

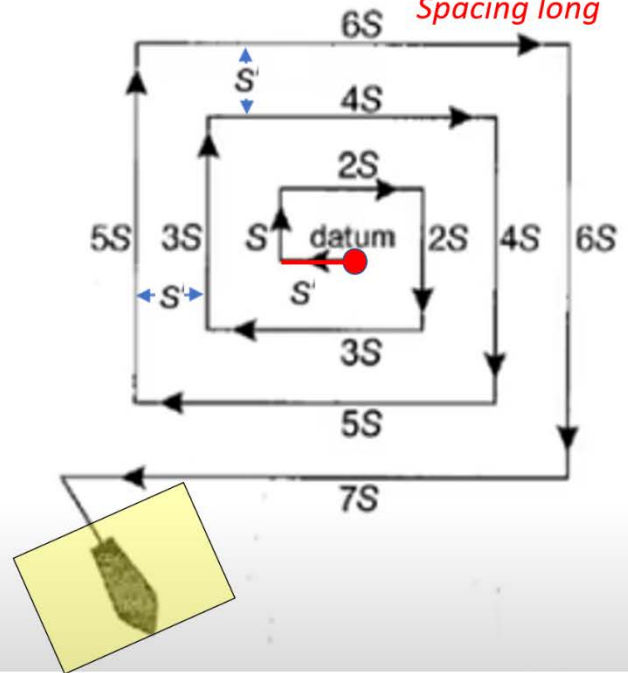
S the **track spacing** is how far apart your parallel tracks are

Sweep width is the width of the path left & right of your vessel that you are looking for the object.

(1/2 on one side of your vessel and the other 1/2 on the other side of your vessel)



Datum
1st leg is Track
Spacing long



3 equilateral TRIANGLES

SAR Patterns

Every LEG is the same length

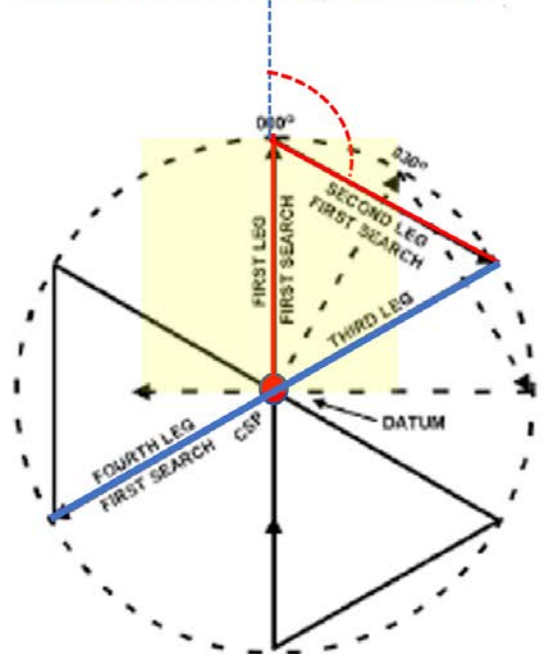
Every LEG is the same run time (length)

Sector search (V) 9 equal legs

This search pattern is used when **datum** is established with a **high degree of confidence** and the **target is difficult to detect**. The search unit passes through datum several times, each time increasing the chances of finding the target. The pattern resembles the spokes of a wheel, with the center of the wheel at datum. It is the only pattern with a circular area of coverage. *The datum may be marked with a floating object such as a DMB.*

By marking the center of the search pattern, the SRU has a chance to check its navigation each time the SRU passes near the center of the search pattern. A 60° sector search is normally used which consists of **nine equal legs**, each leg having a length equal to the radius of the search area. **The first leg is usually downdrift.** Although the center of the search area is covered very well, the outer limits of the area are not covered as well.

All turns are 120° deg to the right



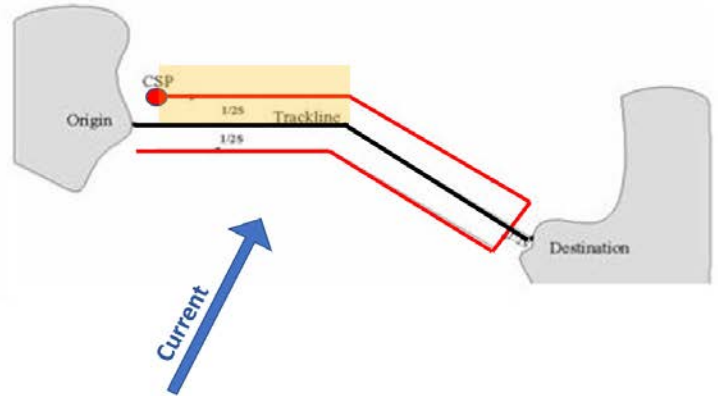
SAR Patterns

Track line: run parallel to estimated track of the lost vessel
 $\frac{1}{2}$ the sweep width offset (down current side) then return on the other side of the estimated track

TSR with Return

Track line (T)

This search pattern is used when the only information available is the search target's known or projected track line. This pattern is usually the first search action since it is assumed that the target is near track and will be easily seen or will signal the SRU. Searching a datum line (*intended track line corrected for drift*) should be evaluated as it can be a return or non-returning pattern. If a single unit non-return (TSN) is conducted, the SRU searches down the track line or datum line.

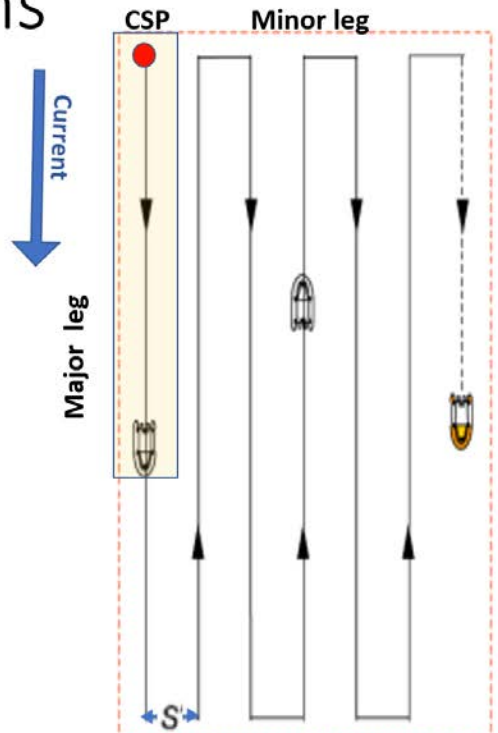


For a single-unit return pattern (TSR), offset the search legs one-half track space (S) from the track/datum line ($\frac{1}{2} S$). Start the first leg on the down current side of the track line

SAR Patterns

Parallel Track (P)

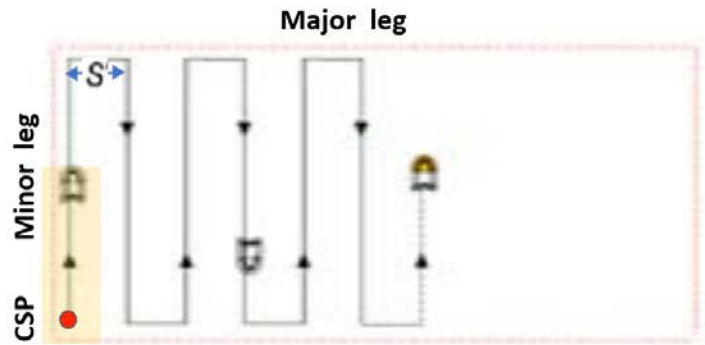
This search pattern should be used when the search area is large, there is equal probability of the target being anywhere in the search area, datum information is fair, and uniform coverage is desired throughout the area. The pattern may be used when the degree of detection may have an equal probability of being anywhere in the search area. The search legs are parallel to the search area's major axis (longest side oriented down the drift line). Commence Search Point (CSP) is located one-half track space inside the search area in the specified corner.



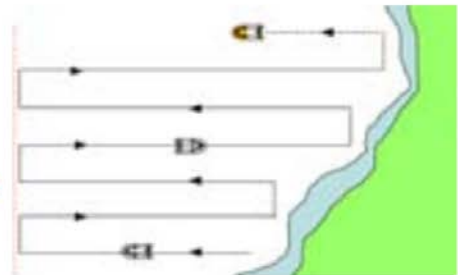
SAR Patterns

Creeping Line (C)

This search pattern is used when the search area is large, uniform coverage is desired, datum information is fair, and there is more chance of the target being in one end of the search area than the other. The search legs are parallel to the search area's minor axis (shortest side of the search area or 90° off of the major axis).



Parallel Track & Creeping line patterns can be adapted to search areas with varying size & shape



SAR Patterns

Barrier (B)

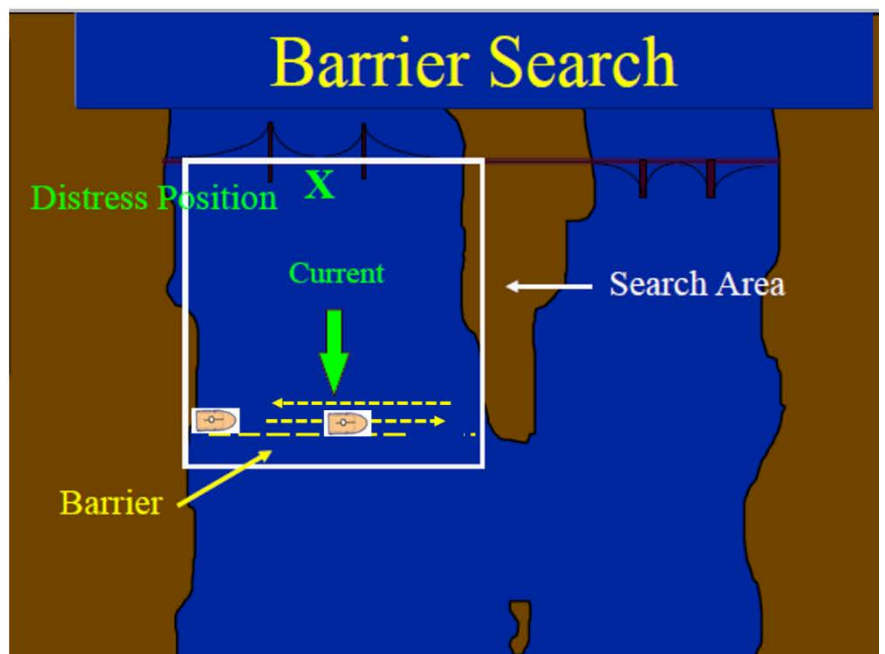
This pattern is used when you have strong currents and you want to locate the target as it is carried along.

1 SRU

The SRU goes back and forth

2 SRUs

each unit covers ½ of the distance across. When one unit is making a U turn near the shore, the other unit is making a U turn in the middle.



SPEED - DISTANCE - RUN TIMES



speeds:	Knots										
	3	4	5	6	7	8	9	10	12	15	20
Distance	run time	run time	run time	run time	run time	run time	run time	run time	run time	run time	run time
0.1	2.0	1.5	1.2	1.0	0.9	0.8	0.7	0.6	0.5	0.4	0.3
0.2	4.0	3.0	2.4	2.0	1.7	1.5	1.3	1.2	1.0	0.8	0.6
0.3	6.0	4.5	3.6	3.0	2.6	2.3	2.0	1.8	1.5	1.2	0.9
0.4	8.0	6.0	4.8	4.0	3.4	3.0	2.7	2.4	2.0	1.6	1.2
0.5	10.0	7.5	6.0	5.0	4.3	3.8	3.3	3.0	2.5	2.0	1.5
0.6	12.0	9.0	7.2	6.0	5.1	4.5	4.0	3.6	3.0	2.4	1.8
0.7	14.0	10.5	8.4	7.0	6.0	5.3	4.7	4.2	3.5	2.8	2.1
0.8	16.0	12.0	9.6	8.0	6.9	6.0	5.3	4.8	4.0	3.2	2.4
0.9	18.0	13.5	10.8	9.0	7.7	6.8	6.0	5.4	4.5	3.6	2.7
1.0	20.0	15.0	12.0	10.0	8.6	7.5	6.7	6.0	5.0	4.0	3.0
1.1	22.0	16.5	13.2	11.0	9.4	8.3	7.3	6.6	5.5	4.4	3.3
1.2	24.0	18.0	14.4	12.0	10.3	9.0	8.0	7.2	6.0	4.8	3.6
1.3	26.0	19.5	15.6	13.0	11.1	9.8	8.7	7.8	6.5	5.2	3.9
1.4	28.0	21.0	16.8	14.0	12.0	10.5	9.3	8.4	7.0	5.6	4.2
1.5	30.0	22.5	18.0	15.0	12.9	11.3	10.0	9.0	7.5	6.0	4.5
NM											
						MINUTES					

