

Subject: Visual search patterns

Reference: <http://www.nesa.cap.gov/mascurr.htm> - or - www.nesa.cap.gov then select "enter", "MAS" > "Curriculum Material", "Operational Mission – Inflight Guide" (last item in list)

Object: Cover MO and MS SQTR requirements for visual search patterns. ("Assist in planning and performing a _____ search.")

Points:

1. Intro

- object of search (typically a downed a/c)
- what we will cover
 - describe the various visual search patterns
 - discuss how the MO/MS can "assist in planning and performing"

2. Search patterns

- route searchfirst search – quick **Illustration 1**
- grid (parallel track).most common. **Illustration 2**
- creeping line.a more thorough route search. **Illustration 3**
- expanding squareapproximate target location is know **Illustration 4**
- sector search.target location closely known. **Illustration 5**

3. Review lat/ long & track spacing during above **Illustration 6**

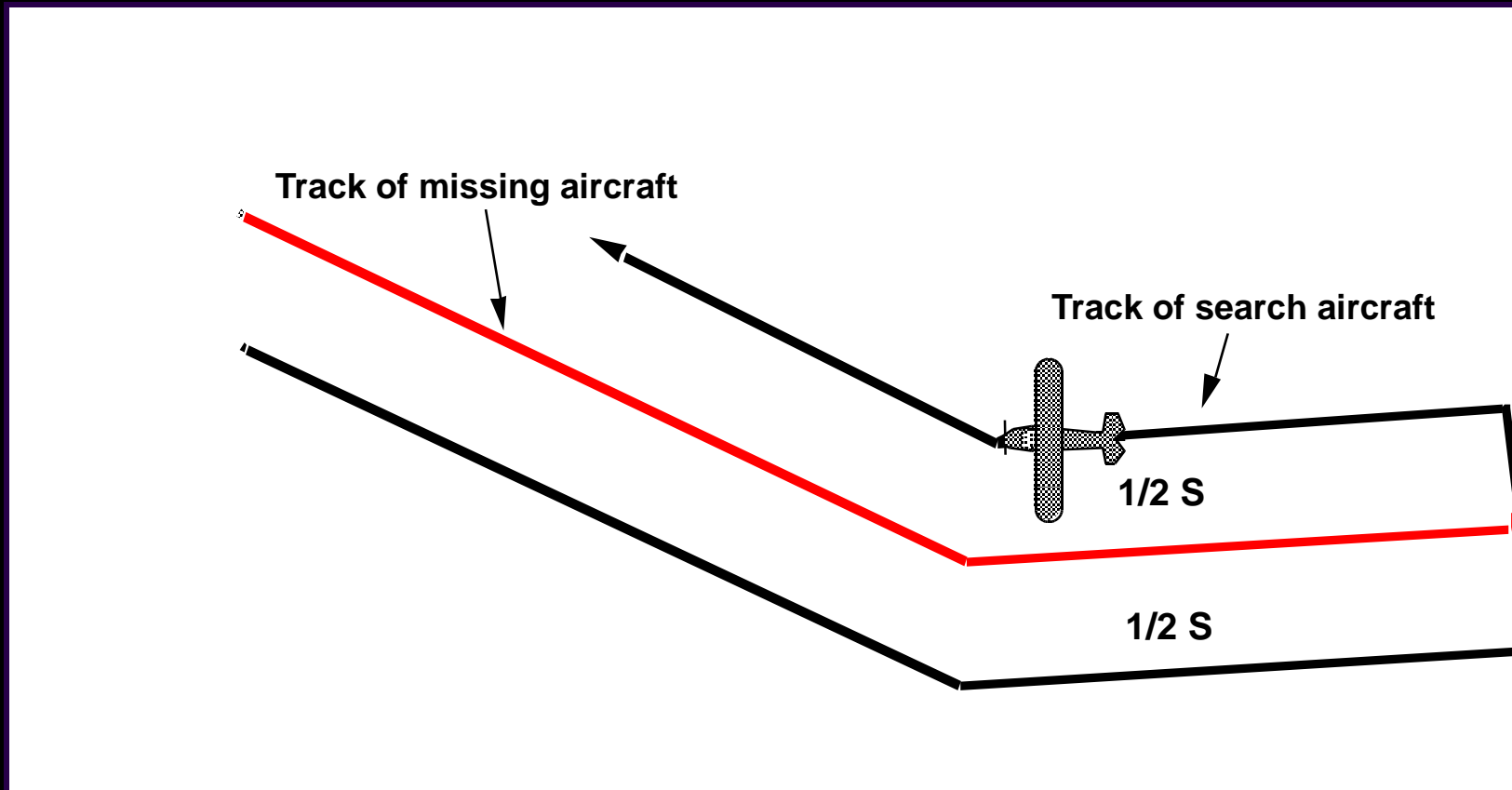
4. What the MO/MS can do to assist and perform

- plot the search on a sectional chart (a current chart and ID risk areas) **Illustrations 7 & 8**
- set up a GPS waypoint for the starting point
(we'll cover setting up a waypoint another time)
- set up the GPS (or sometimes the nav radio) to navigate to the starting point
(we covered a GPS Direct To in March, 2009)
- assist pilot by providing lat/long or distance along track or other info needed to fly the search
sample worksheets from the reference
 - grid search worksheet **Illustration 9**
 - expanding square worksheet **Illustration 10**

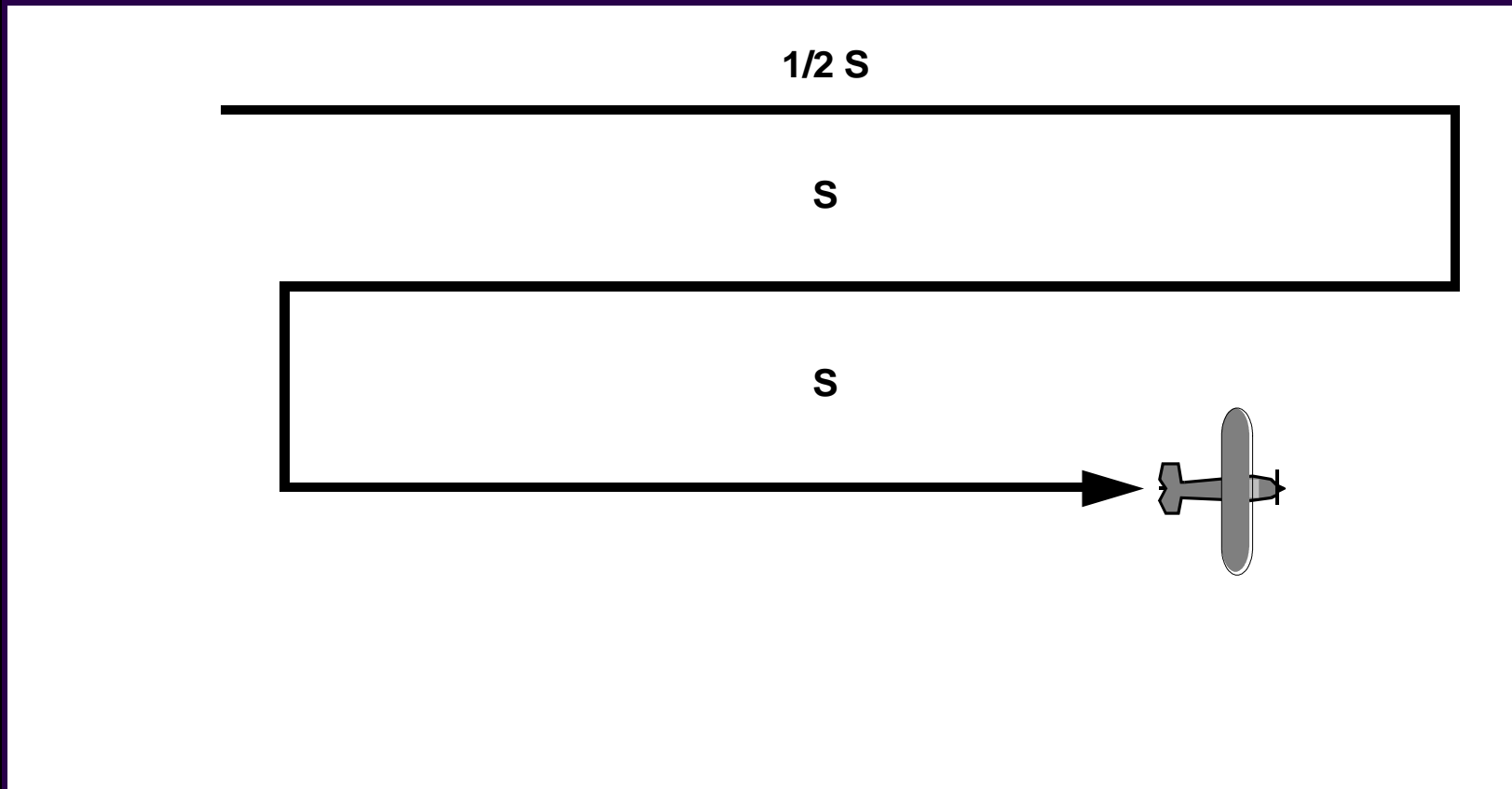
5. Note: The SQTRs include some other items, but we'll cover those separately another time. E.g.

- estimate time to and from and in search area
- estimate fuel requirements
- fill out Form 104
- operate comm/nav radios and make reports to Mission Base

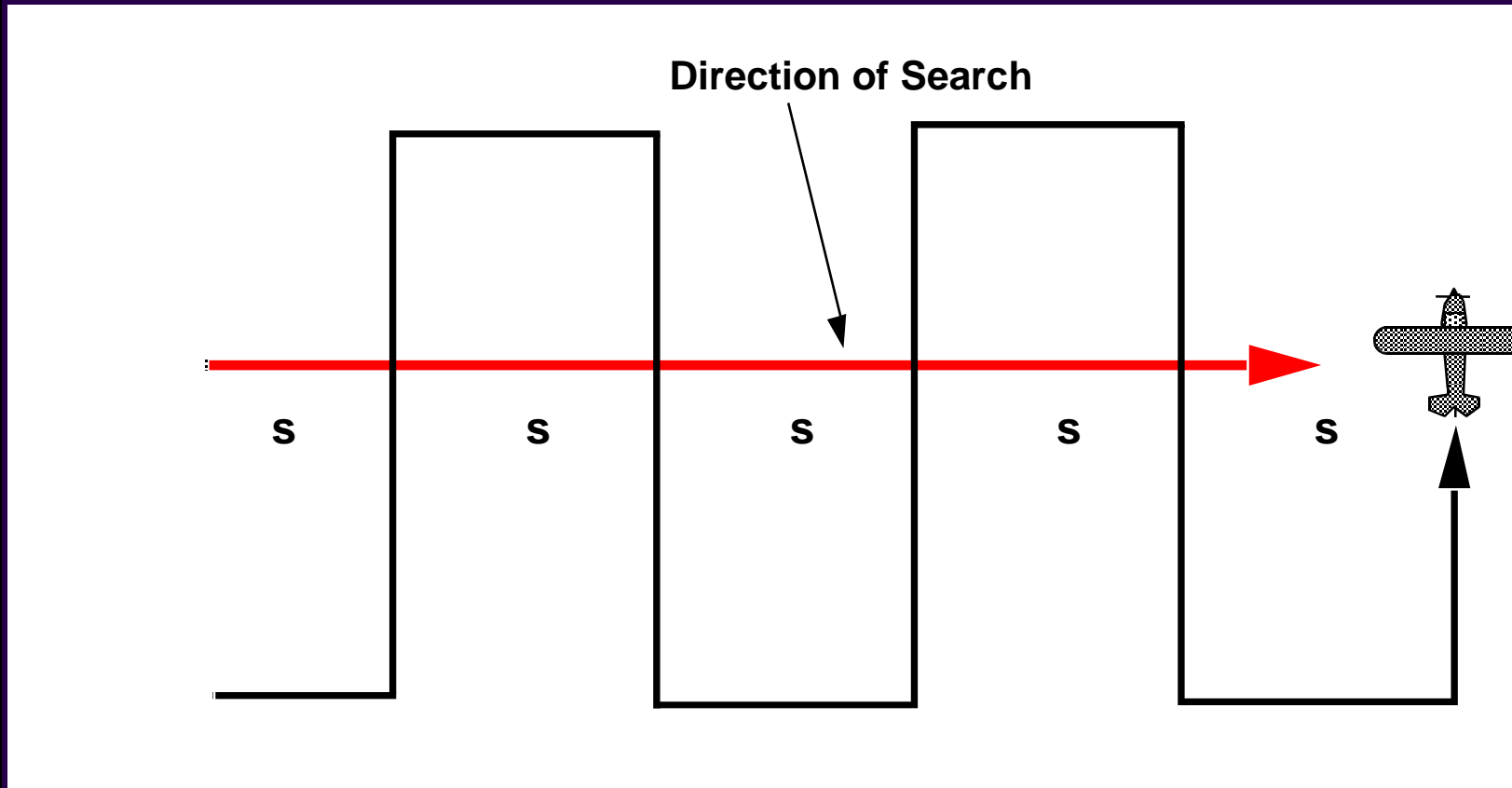
Route Search Pattern



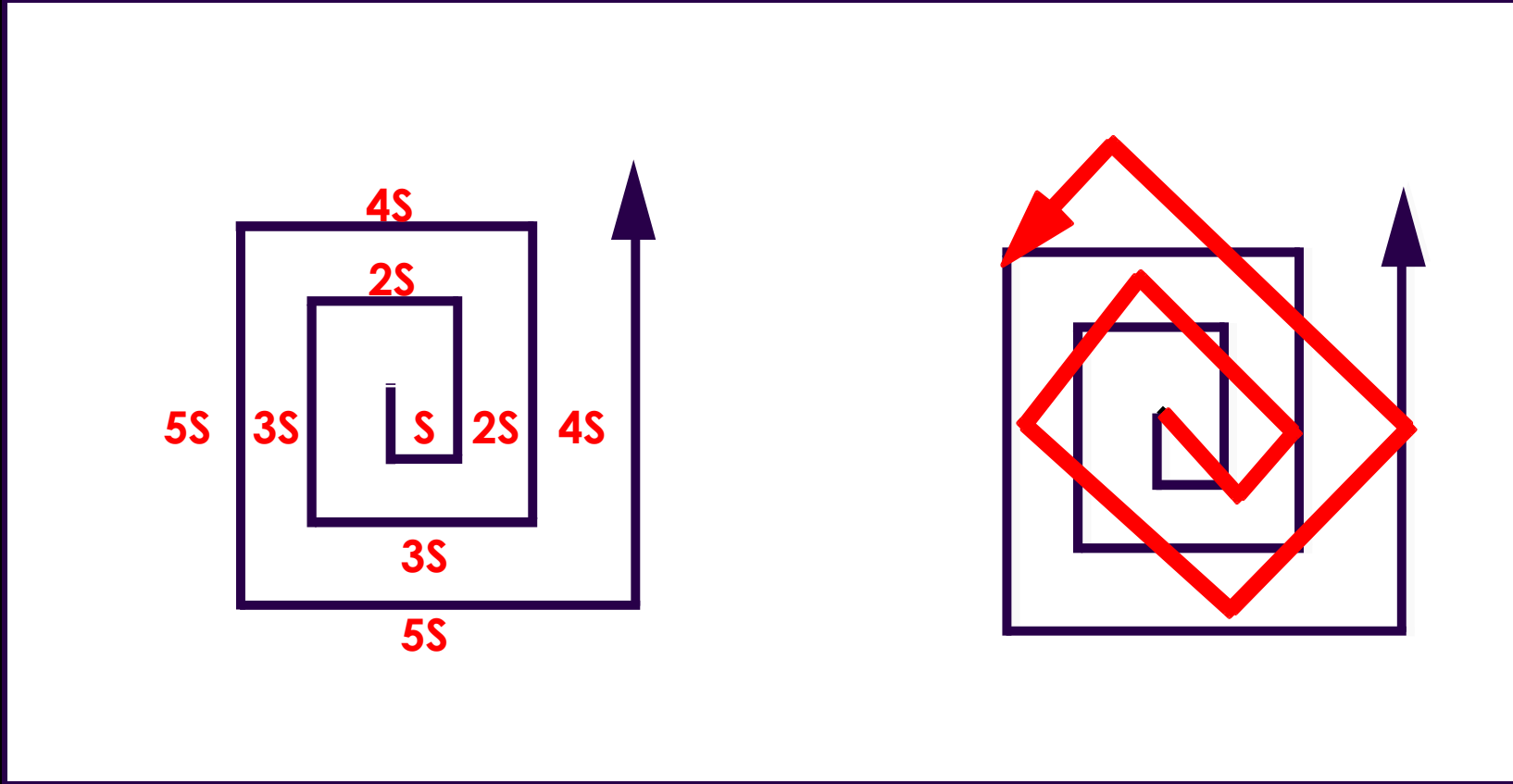
Parallel Track Search Pattern



Creeping Line Search Pattern



Point Based (Expanding Square) Search Pattern (Second pass rotated 45°)



Point Based (Sector) Search Pattern

The pattern and headings are planned in advance

Sector search is easier to fly than expanding square

This pattern is used when an electronic search has led the crew to a general area to find the exact location visually

The pattern provides concentrated coverage near the center of the area

The diagram illustrates a point-based sector search pattern within a hexagonal boundary. A central point is connected to the vertices of the hexagon by solid lines, dividing the area into six sectors. A red arrow points from the center towards the right side of the hexagon. Two blue double-headed arrows indicate search radii: 'S max' spans the width of the hexagon, and 'S mean' is a smaller radius. Eight aircraft icons are positioned at various points within the hexagon, with red curved arrows indicating their search paths. Dotted lines represent the search paths of two aircraft starting from the center and moving towards the bottom-left and bottom-right vertices.

Plotted Search – example 1



Plotted Search – example 2



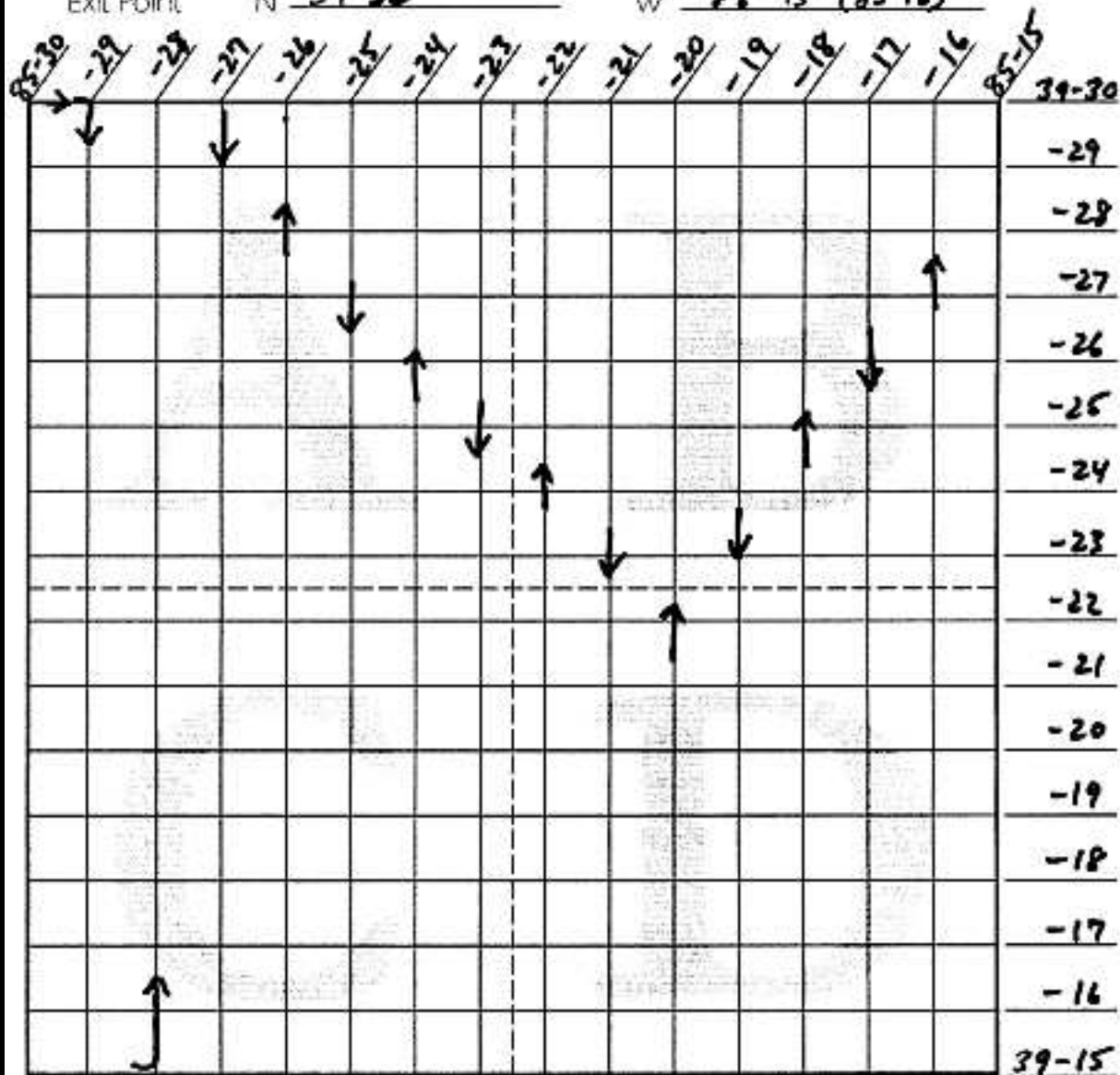
Grid Search Worksheet

Illustration 9

Grid Coordinates

Date: 19 Sep 09

Sectional: St. Louis Grid #: 39-85 DA (S=1nm)
 Entry Point: N 39-30 W 85-30 (85-29)
 Exit Point: N 39-30 W 85-15 (85-16)



NAVIGATIONAL AIDS

IDENTIFIER

SHB

FREQUENCY

112.0

RADIAL

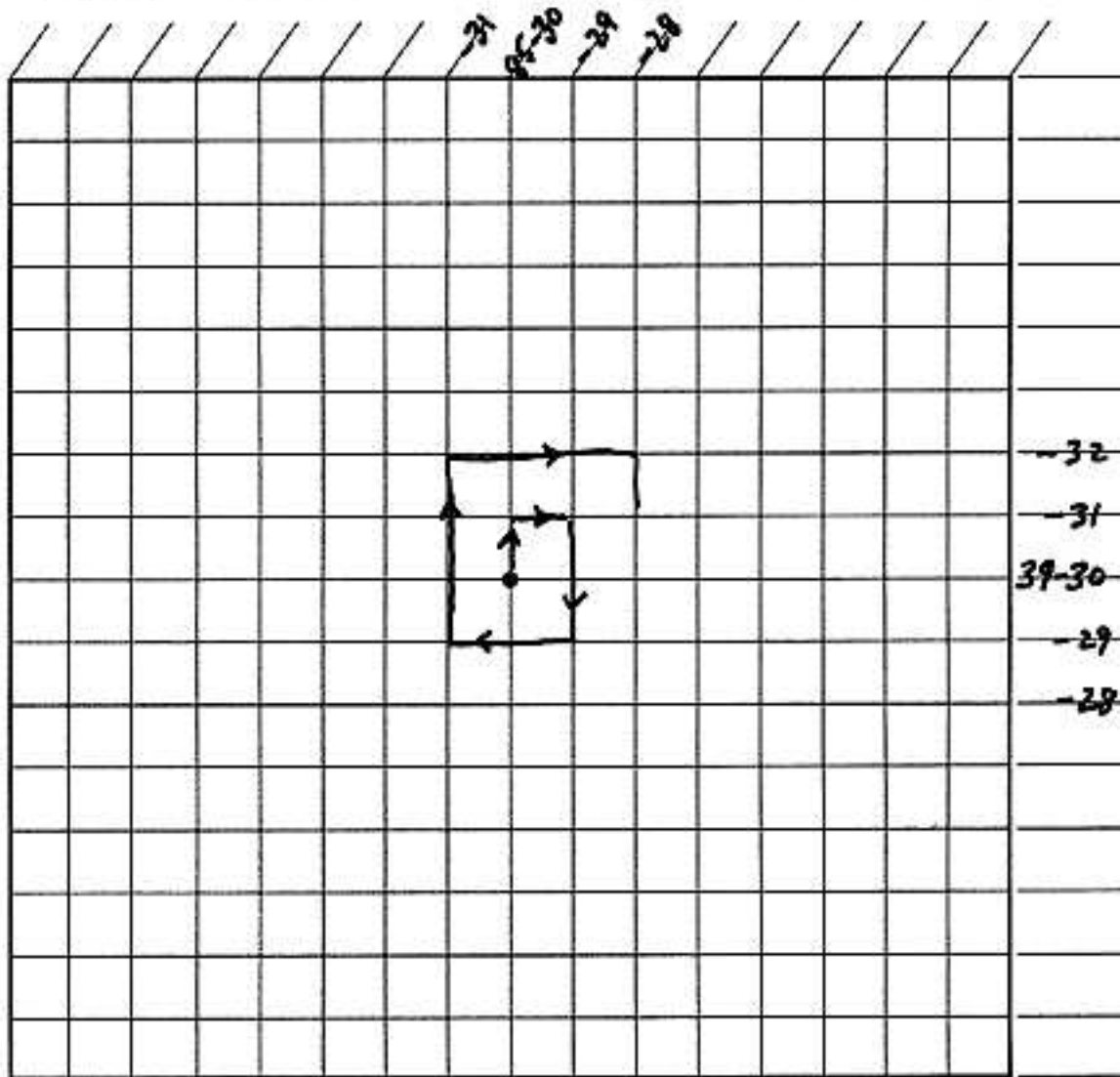
120/17 nm

Expanding Square Search Worksheet

Expanding Square Coordinates

Date: 19 Sep 09

Sectional: St. Louis Grid #: _____ (S = 1 NM)
 Entry Point: N 39-30 W 85-30
 Exit Point: N _____ W _____



NAVIGATIONAL AIDS

	IDENTIFIER	FREQUENCY	RADIAL
1:	<u>SHB</u>	<u>112.0</u>	<u>120/17nm</u>
2:	_____	_____	_____