Sector Search (VS)

All Turns - 120° to Starboard
Mark Datum w/Datum Marker Buoy (DMB)
1st leg in direction of Search Object’s Drift
Multi-unit Search – 2nd boat 090° to left of 1st boat (2nd boat starts after 1st boat completes 1 leg)

Expanding Square (SS)

1st leg in direction of Search Object’s Drift
All Turns - 90° to Starboard
Multi-unit Search – 2nd boat 045° to right of 1st boat

Good Visibility
PIW = .1 nautical mile (200 yards)
Boat <5’ = .5 nautical mile (1,000 yards)
Boat >5’ – 1.0 nautical mile (2,000 yards)
Same for Expanding Square

Internal Coastal Waterway (ICW)
East Coast – Returning from sea when traveling in a southerly direction
Marker w/yellow triangle should be passed by keeping it on the right side of boat
Marker w/yellow square should be passed by keeping it on the left side of boat

Fire Extinguishers
Ash – Combustible Materials
Boiling – Flammable Liquids
Current - Electrical
Metals – Combustible Metals

Williamson Turn
1. Alter course 060° from original heading
2. When compass reaches the 060° ‘mark’ turn in opposite direction on reciprocal of original heading

Example:
000° - original heading
060° - 1st turn (Port or Starboard)
180° - Reciprocal of original heading

Fire Extinguishers

Common Prowords

<table>
<thead>
<tr>
<th>Proword</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Affirmative</td>
<td>Yes</td>
</tr>
<tr>
<td>Break</td>
<td>Separation of text from other portions of message</td>
</tr>
<tr>
<td>Correction</td>
<td>An error has been made in transmission</td>
</tr>
<tr>
<td>ETA</td>
<td>Estimated Time of Arrival</td>
</tr>
<tr>
<td>ETD</td>
<td>Estimated Time of Departure</td>
</tr>
<tr>
<td>ETR</td>
<td>Estimated Time of Return or Repair</td>
</tr>
<tr>
<td>Figures</td>
<td>Numbers</td>
</tr>
<tr>
<td>I Spell</td>
<td>Spell next word phonetically</td>
</tr>
<tr>
<td>OPS Normal</td>
<td>Operations Normal</td>
</tr>
<tr>
<td>Out</td>
<td>No reply expected</td>
</tr>
<tr>
<td>Over</td>
<td>Reply expected</td>
</tr>
<tr>
<td>Negative</td>
<td>No</td>
</tr>
<tr>
<td>Roger</td>
<td>Received transmission</td>
</tr>
<tr>
<td>Wait</td>
<td>Must pause for a few seconds</td>
</tr>
<tr>
<td>Wait Out</td>
<td>Must pause longer than a few seconds</td>
</tr>
<tr>
<td>WILCO</td>
<td>Will comply w/your last</td>
</tr>
</tbody>
</table>

Phonetic Alphabet

| Alpha | November |
| Bravo | Oscar |
| Charlie | Papa |
| Delta | Quebec |
| Echo | Romeo |
| Foxtrot | Sierra |
| Golf | Tango |
| Hotel | Uniform |
| India | Victor |
| Juliet | Whiskey |
| Kilo | Xray |
| Lima | Yankee |
| Mike | Zulu |
Compass Correction

<table>
<thead>
<tr>
<th>Can</th>
<th>Compass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dead</td>
<td>Deviation</td>
</tr>
<tr>
<td>Men</td>
<td>Magnetic</td>
</tr>
<tr>
<td>Vote</td>
<td>Variance</td>
</tr>
<tr>
<td>Twice</td>
<td>True</td>
</tr>
<tr>
<td>Elections</td>
<td>+ East</td>
</tr>
</tbody>
</table>

Time/Distance

<table>
<thead>
<tr>
<th>60D Distance</th>
<th>Speed Time</th>
</tr>
</thead>
</table>

Example:

\[
60 \div S = T \\
60 \div T = S \\
S \times T = 60 = D
\]

Towing (Inland)

Masthead Lights (White)

- 2 in a row -- something in tow
- 3 in a row -- very long tow

Pushed Ahead or on Hip

- Tug - Yellow/Yellow pushy fellow

Order of Precedence

- Our
- Navy
- Requires
- Constrained by Draft
- Canned
- Fish
- Served
- Promptly
- Power
- Seven
- Seaplanes

Sound Signals

- 1 Short = 1 second
- 1 Prolong = 4 to 6 seconds

- Altering Course to
- Starboard
- Altering Course to Port
- Operating Astern
- Propulsion
- Pilot Vessel
- Danger Signal
- Man Overboard
- Narrow Channel or Fairway
- Leaving a Dock or Entering a Bend

Power Vessel – Restricted Visibility

- Making way
- (Intervals of 2 Minutes)
- Stopped Making
- no-way
- (2 seconds between)

Conversions

- 1 Nautical Mile = 2,025.37 Yards
- 1 Nautical Mile = 6,076.11 Feet
- 1 Nautical Mile = 1.15 Statute Mile
- 1 Meter = 3.3 Feet
- 1 Gallon = 128 ounces

GAR Model

Risk vs Gain (High, Medium, Low)

- Low: Situation is unclear; low probability of results
- Medium: Situation that provides immediate and real benefits that if ignored could result in the loss of life
- High: Situation that provides immediate and real benefits

Miscellaneous Formulas

- Anchoring over a Wreck
  \[
  A^2 + B^2 = C \\
  A = \text{Distance from Wreck} \\
  B = \text{Depth of Water} \\
  C = \text{Amount of Anchor Rode to Deploy}
  \]

- Fish’s Weight
  \[
  G = \text{Girth} \\
  L = \text{Length (nose to tail)} \\
  W = \text{Approx. Weight of Fish} \\
  G^2 \times L = W/800
  \]

- Diameter of Transducer Cone
  \[
  200K \text{Beam} = \text{Depth/3} \\
  (21'/3 = 7' diameter circle) \\
  50K \text{Beam} = 1:1 \text{relationship} \\
  (21' of water = 21' diameter circle)
  \]

- Boat Capacity
  \[
  \text{LOA} \times \text{Beam/15}
  \]

- Safe Towing Speed
  \[
  \sqrt{\text{WLL} \times 1.34} - 10\% \\
  \sqrt{36 \times 1.34} = 8.04 - 10\% = 7.2 \text{ knots}
  \]

- Converting Decimal Degrees to dd°mm’ss” or dd°mm.mm’
  \[
  \text{Example: 39.122N} \\
  \text{Formula} = \frac{0.122 \times 60}{10} = 7.32 \\
  \frac{0.32 \times 60}{10} = 19
  \]
  \[
  (39° 7.32’N or 39° 7° 19” N)
  \]

Beaufort Scale

- 0 – 1 Calm
- Sea Like Mirror
- 1 – 3 Light Air
- Ripples on Water w/o Foam
- 4-6 Light Breeze
- Small Wavelets; short but pronounced
- 7 – 10 Gentle Breeze
- Large Wavelets; crests begin to break
- 11 – 16 Moderate Breeze
- Small waves; becoming larger
- 17-21 Fresh Breeze
- Moderate waves
- 22 – 27 Strong Breeze
- Large waves; white foam

Phil Walmsley, Coxswain 05NR 01-04
(Updated January 2019)