LOP Procedures

Setup/common uses

Setup

- Mark N/W/E/S in top right corner for reference.
- Lat is up/down, long in left/right.
- Using known/estimated latitude
    - Mark Lat/Long on middle horizontal and vertical line.
    - On compass rose, using outer numbers that start from the horizontal line, mark **Lat** on both upper and lower part of rose.
    - Draw a vertical line through points to get **1˚ of longitude lines**
    - Use dividers to make extra longitude lines.
    - In Longitude Scale, lower right mark the latitude on the center of the sheet.

Use

- Compass rose for direction
- 1’ on vertical latitude lines = 1 NM
    - For example “23 NM” at 40˚N
    - Set dividers on center and measure out to the 23’ on the vertical
    - Dividers now set for 23NM
- Use Longitude Scale and dividers to find longitudes
    - For example 159˚23’W at 40˚N/S (no difference between N/S)
    - Use 40˚ line
    - Place divider left pin at 20’
    - Place right pin at 1 ½ mark right of 0’ (each mark = 2)
    - Dividers now set to 0˚23’ at 40˚ latitude
    - Measure off from 159˚ on the West side

Dead Reckoning (DR) Position

- Draw course line using compass rose to walk parallel rulers to previous fix (GPS, observed or DR)
- Mark the line with an arrow, heading using C123 (Compass) and S=speed in kts notes above and below.
- Using estimated time needed (eg. for sunrise/sunset/noon observations) to compute NM travelled
- Set dividers using vertical latitude line
- Mark DR pos (dot with half-circle on top), note GMT time.
- Use the protractor to read off the latitude.
- With protractor in place, set dividers from longitude line to intersection, keep E/W in mind.
- Read longitude using the set dividers on the longitude scale.

Plot Sight Reduction Result

Use the DR latitude, preferably the center.
For each reduction

- Use the longitude from (20) (the estimated + what's needed to +/- to the GHA to get a whole LHA), mark this on the latitude, mark the reduction number.
- Using the parallel rulers and compass rose, draw an **arrow** through the mark, pass the DR point and leave room on both sides the throw (towards/after).
- Set the dividers to the throw using the vertical latitude minutes (1' = 1NM) and mark that off the arrow, using the latitude line as the start.
- Using the triangular protractor, make perpendicular line at the mark extending towards the DR fix.

Approximate the center of the intersecting lines.

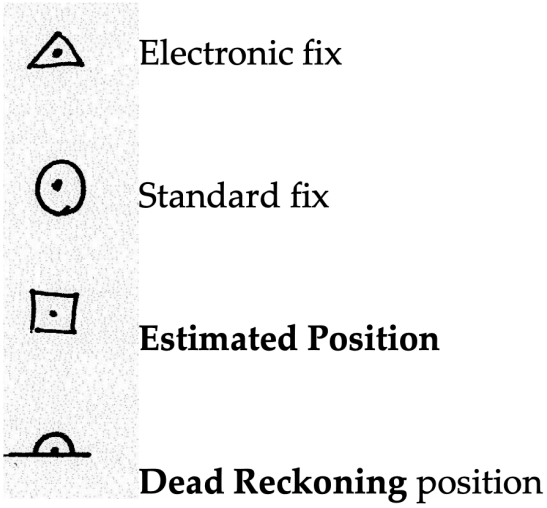
- Use the protractor to read off the latitude.
- With protractor in place, set dividers from longitude line to intersection, keep E/W in mind.
- Read longitude using the set dividers on the longitude scale.

That's the fix roughly the time of the observations.

Sun-run-sun

- Plot sight reduction for first observation
- Plot sight reduction for second observation
- Dead reckon the distance travelled between 1st and 2nd
    - Time x speed = NM
    - Set dividers to NM
    - Place divider where 1st LOP intersects course
    - Other end indicates where to move LOP to
    - Use parallel rulers to draw LOP at new position

Intersection is the fix, use steps from Plot Sight Reduction to read fix.



All positions should be labelled with the time in 24 hour format. eg. 0000 = midnight, 0920 = 9:20 AM, 1700 = 5:00 PM

Running fixes should have an R put beside them.