

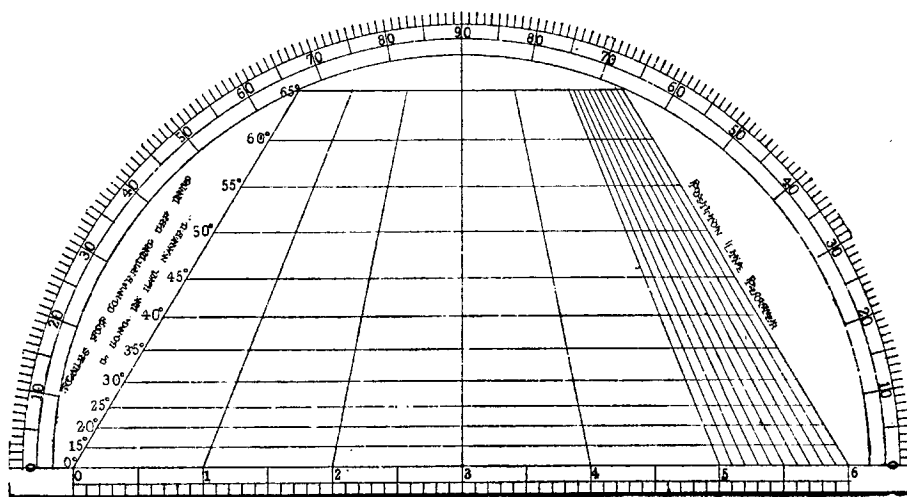
POSITION LINE PLOTTER

Designed by LIEUTENANT J. D. L. WILLIAMS, R. N. R.

The instrument is designed to facilitate the plotting of position lines in the work-book, which is necessary when the chart in use is on too small a scale for the direct plotting of small intercepts to be accurate.

Given the D. R. position, bearings and intercepts, the observed position may be found without calculation or reference to tables.

The instrument is a transparent semi-circular protractor, with the foot marked in inches, bearing on its face scales for converting miles of departure into minutes of longitude. These scales are described in detail below.



DESCRIPTION OF THE DEPARTURE DIFFERENCE LONGITUDE CONVERSION SCALES :

Two parallel straight lines are divided into an equal number of parts, the parts of the base line being each equal to one unit and those of the other equal to 0.42 units. In the diagram the unit used is the inch and the number of parts is six. The lines are 5.8 half-units apart and the centre of the one is perpendicularly over the centre of the other.

The centres are joined and diagonals are drawn as shown between the other divisions of base and top line.

Ten lines are drawn parallel to the base at distances from it respectively .3 .6 .9 1.3 1.8 2.3 2.9 3.6 4.3 and 5 half-units (half-inches in diagram) and are therefore divided by the transverse lines into lengths respectively .97 .94 .91 .87 .82 .77 .71 .64 .57 and .5 units. It may be seen that these are the lengths in miles of departure, of minutes of longitude in latitudes 15° 20° 25° 30° 35° 40° 45° 50° 55° and 60° respectively, and the lines are numbered accordingly. The base line is numbered 0°, for in lat. 0° miles of departure and minutes of longitude are equal, and the top line 65°, as in lat. 65° one minute of longitude equals 0.42 miles of departure.

The right hand division of each scale is subdivided into tenths.

METHOD OF USE :

On a clean page in the work-book, a suitable point is chosen to represent the D. R. position, a meridian ruled through it, bearings laid down and intercepts marked off, and position lines drawn. The instrument is used as necessary, as ruler, protractor, T square or scale. Next a perpendicular is drawn from the intersection of the position lines, i. e. the observed position, to the D. R. meridian. Its length, measured on the appropriate departure difference longitude conversion scale, is the diff. long. between the observed and D. R. positions. The corresponding difference latitude is also measured direct, from the same inch scale, at the foot of the instrument, as was used for measuring the intercepts.

The Position Line Plotter may be obtained from Messrs. Henry HUGHES & Son, Ltd., 59, Fenchurch Street, London, E. C. 3. Price 4s. 6d.

