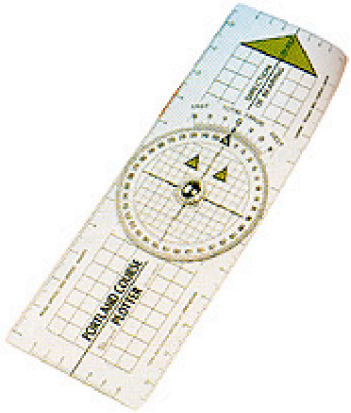
Chartwork

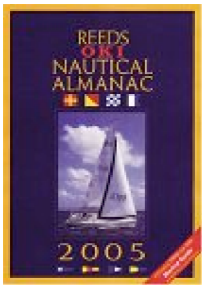
Learn the basics for position fixing using a number of techniques and a simple equation for speed, distance and time.

Chartwork

Chartwork Tools

Accurate chart work is the basis for good navigation. Some charting instruments will be required, these include the Breton or Portland plotter dividers, pencil and rubber

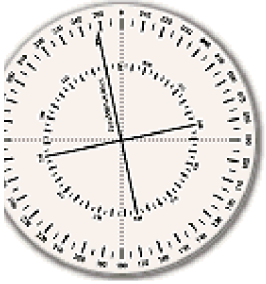




Before going to sea, a course is plotted on a chart noting bearings, distances and expected times for each leg of the trip. While at sea, position is fixed at regular intervals and the course adjusted when necessary. This is safe, sensible practice. It is a 'general safety obligation' of the person in control of the vessel and applies to both large ships and smaller recreational craft.

Some important points to note about working with charts are:

1. Latitude and longitude scales are divided into minutes and then tenths of minutes (seconds are not used on charts). So a latitude may be given as 34°28.5' and this should be able to be determined from the scale on the side of the chart.
2. When determining distances on the chart use only the latitude scale on the side of the chart.
3. Remember one minute of latitude equals one nautical mile, i.e., 1.852 Kilometres



4. Transfer distances to the latitude scale directly beside the chart area from which the distance was lifted. Make this a habit. It is good practice as the latitude scale is not constant. The effect of the Mercator projection, from which most nautical charts are produced, is to stretch the scale slightly at higher latitudes. This is because the angle at the centre of the earth increases towards the poles and the cylinder of the projection, when unwrapped from around the spherical earth, distorts the latitude scale.
5. Take care to read the chart details carefully and note whether soundings are in fathoms or metres.
6. A chart is always true. A compass course is always magnetic. Be sure to take account of these two facts in your chart and navigation work. Conversions must be done correctly.
7. Some charts will have more than one compass rose displayed. This is because variation is not constant. It is changing continuously and it varies from place to place. Always use the compass rose closest to the area you are working in and be sure to note the variation details on that compass rose and apply them consistently to your bearings.
8. For formal chart work the following symbols and lines are used:

Fixed Position (FP)
Estimated Position (EP)
Dead Reckoning Position (DR)

Heading

Course over Ground

Tidal Drift

There are a number of ways to fix the position of a vessel at sea depending on the circumstances. For coastal fixes the selected features for bearing observations must also be marked on the chart being used.

Dead reckoning:

This is a method of fixing position which is, at best, an estimate of the vessel's position based on information gathered earlier. It is a deduced position used when navigators are unable to sight visible features due to distance from the coastline. A known fixed position (a circle with a dot in it) at a recorded time, the intended course and distance traveled in a given time period are used to determine the deduced position (a triangle with a dot in it).

Example: A vessel traveling at 10 knots on a course of 035°T is at point A at 0730h. Estimate its position at 0830h.