6-6.   The military protractor, GTA 5-2-12, contains two scales: one in degrees (inner scale) and one in mils (outer scale). This protractor represents the azimuth circle. The degree scale is graduated from 0 to 360 degrees, with each tick mark representing one degree. A line from 0 to 180 degrees is called the base line of the protractor. The index (or center) of the protractor is where the base line intersects the horizontal line, between 90 and 270 degrees. (See Figure 6-6.)
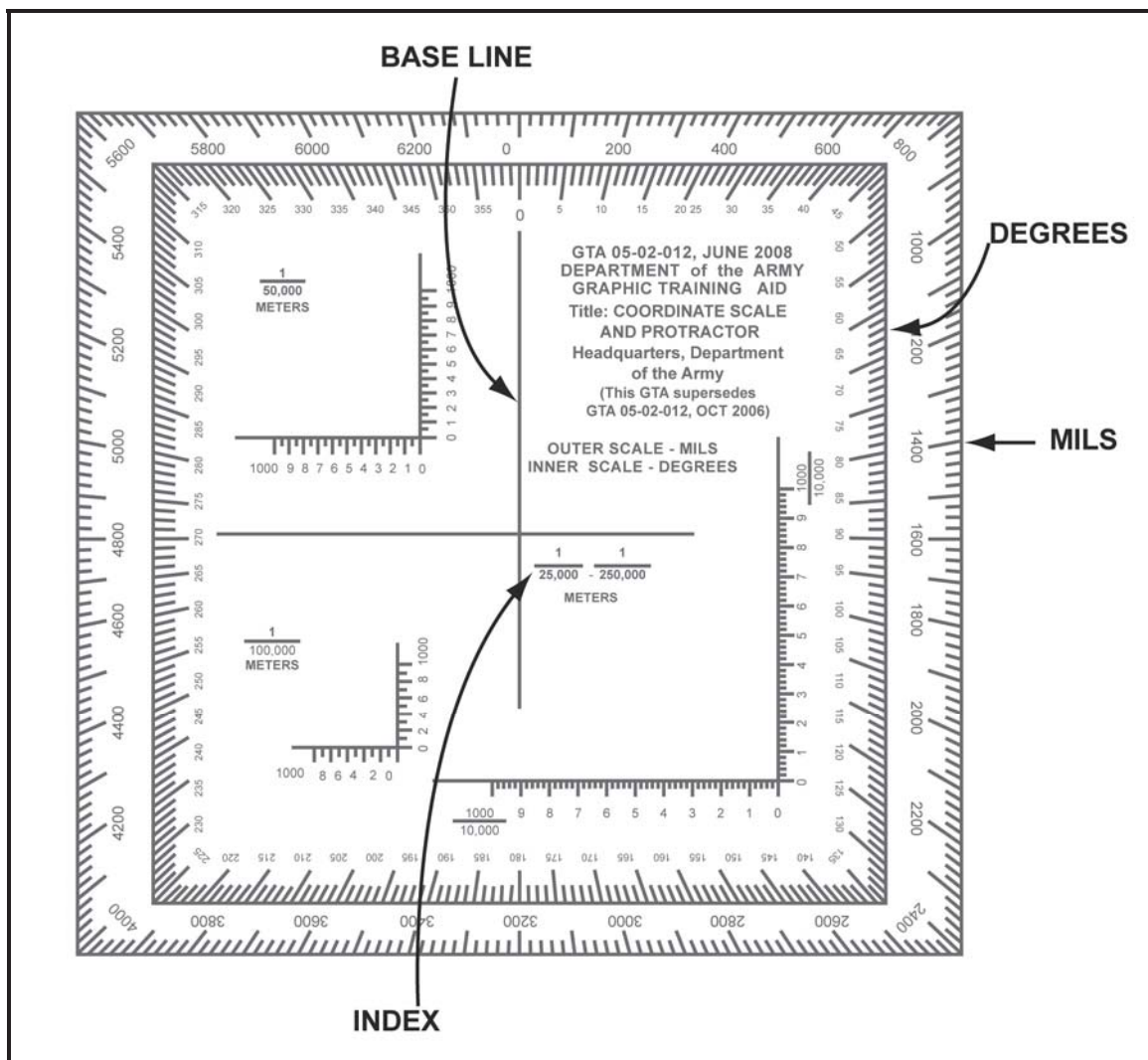

Figure 6-6. Military protractor

6-7.   When using the protractor, the base line is always oriented parallel to a north-south grid line. The 0- or 360-degree mark is always toward the top or north on the map and the 90-degree mark is to the right. To determine the grid azimuth:

- Draw a line connecting the two points (A and B).
- Place the index of the protractor at the point where the drawn line crosses a vertical (north-south) grid line.
- Keeping the index at this point, align the 0- to 180-degree line of the protractor on the vertical grid line.
- Read the value of the angle from the scale; this is the grid azimuth from point A to point B. (See Figure 6-4.)

6-8.   Figure 6-7 shows how to plot an azimuth from a known point on a map:

- Convert the azimuth from magnetic to grid, if necessary.

- Place the protractor on the map with the index mark at the center of mass of the known point, and the base line parallel to a north-south grid line.
- Make a mark on the map at the desired azimuth.
- Remove the protractor and draw a line connecting the known point and the mark on the map. This is the grid direction line (azimuth).

Note. When measuring an azimuth, the reading is always to the nearest degree or 10 mils. Distance does not change an accurately measured azimuth.
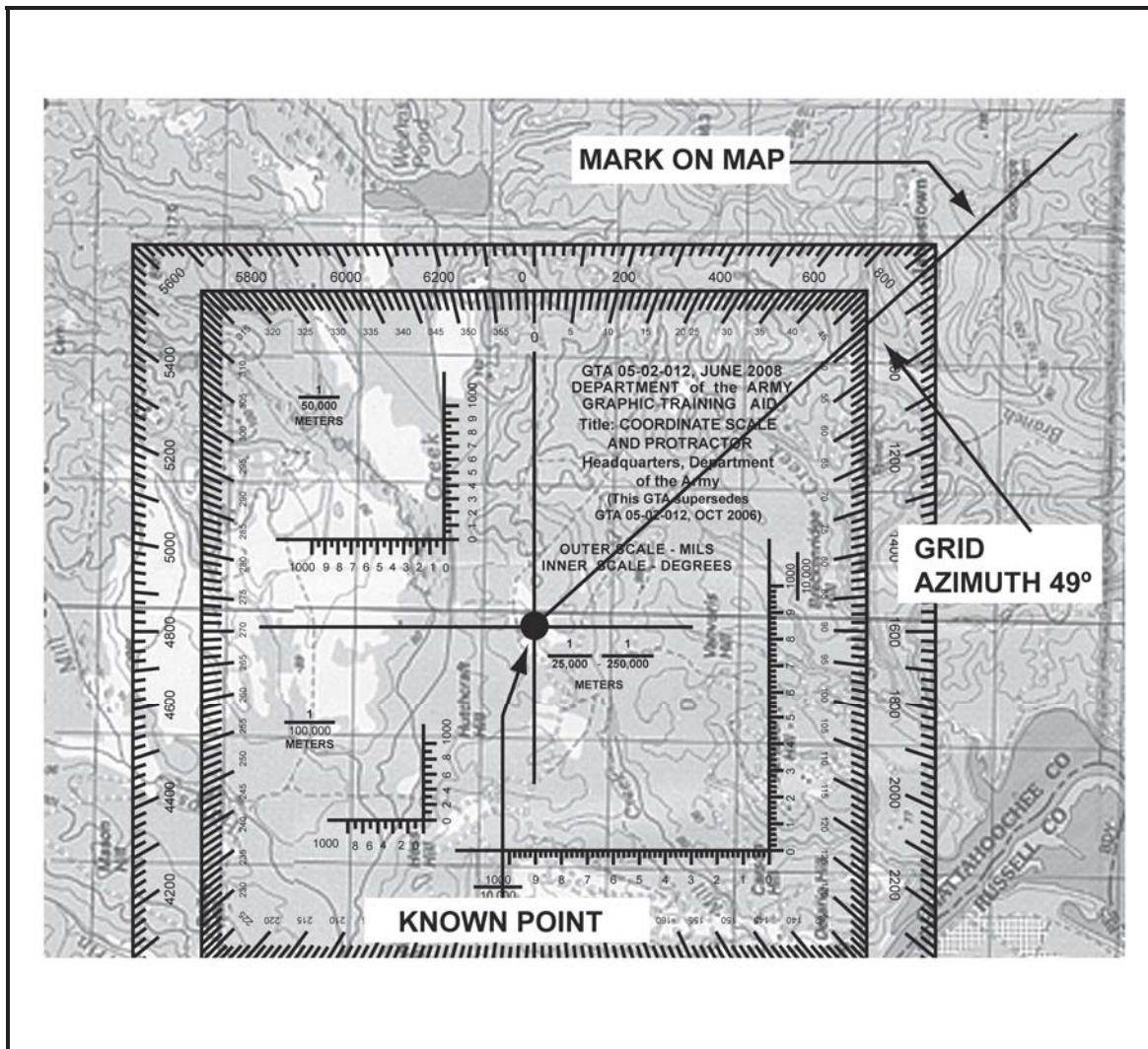

Figure 6-7. Plotting an azimuth on the map

6-9. To obtain an accurate reading with the protractor (to the nearest degree or 10 mils), there are two techniques to check that the base line of the protractor is parallel to a north-south grid line:

- Place the protractor index where the azimuth line cuts a north-south grid line, aligning the base line of the protractor directly over the intersection of the azimuth line with the north-south grid line. The user should be able to determine whether the initial azimuth reading was correct. The user should re-read the azimuth between the azimuth and north-south grid line to check the initial azimuth.
- Note that the protractor is cut at both the top and bottom by the same north-south grid line. Count the number of degrees from the 0-degree mark at the top of the protractor to this