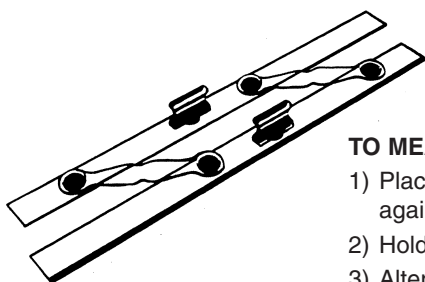


Kit includes:

- Parallel Rules
- Course Plotter
- Protractor Triangle
- Professional Dividers
- One-Arm Protractor
- Pencil

These precision plotting tools are everything you need for chart work in one handy kit. A choice selection of navigational tools for cruisers and racers as well. All are conveniently organized in a 5-3/4" x 16-1/4" (15 x 42 cm) heavy gauge plastic carrying case. Instructions included (and reproduced here).

Highest quality printing: Davis plotting tools feature sharp printing process, high gloss finish on front and back, and overlamination for durability.



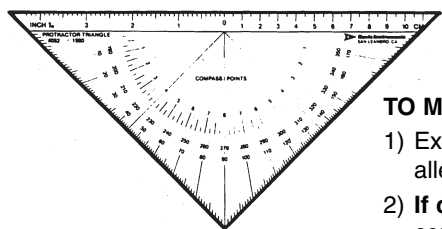
## #061 PARALLEL RULES

### TO MEASURE COURSE BEARING:

- 1) Place outer edge of one rule on the course line. Holding that rule down firmly against the chart, swing the second rule out away from the first.
- 2) Hold the second rule firmly against the chart and swing the first rule up to meet it.
- 3) Alternately holding and swinging each rule, "walk" the rules across the chart to the nearest compass rose.
- 4) With the outer edge of one rule at the center point of the rose, read the bearing at the rose.

### TO DRAW A COURSE OR BEARING FROM A GIVEN POINT:

- 1) Place the parallel rules on the chart so that the outer edge of one of the rules passes through both the center point of the compass rose and the desired bearing.
- 2) "Walk" the rules across the chart as above until the outer edge of one of the rules passes through the given point. Draw the line against the edge of the rule.



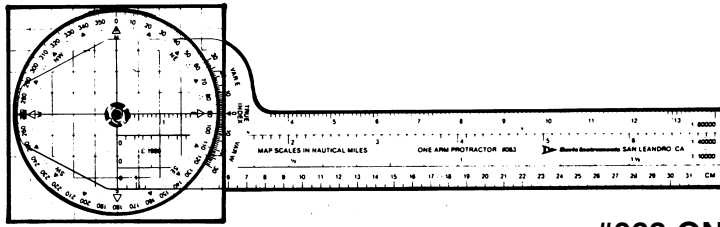
## #062 PROTRACTOR TRIANGLE

### TO MEASURE COURSE BEARING:

- 1) Extend the course line so that it intersects either a meridian of longitude or a parallel of latitude.
- 2) **If course line intersects a meridian**, place the 180° line of the triangle along the course line. Slide the 180° line along the course line until the center point of the triangle is at the intersection of the meridian and course lines. Read the angle at the meridian. Use the outer scale if you are traveling in an easterly direction, and the inner scale if you are traveling in a westerly direction.
- 3) **If course line intersects a parallel**, place the 90° line of the triangle along the course line. Slide the 90° line along the course line until the center point of the triangle is at the intersection of the parallel and course lines. Read the angle at the parallel. Use the outer scale if you are traveling in a southerly direction, and the inner scale if you are traveling in a northerly direction.
- 4) To find magnetic course, add or subtract the local variation given for your area in the center of the compass rose on your chart.

### OTHER USES OF PROTRACTOR TRIANGLE:

- 1) Extend a line by sliding one triangle against another or against other plotting tools.
- 2) Lay off bow or beam bearings.
- 3) Measure distance using handy inch and centimeter scales on base edge.



## #063 ONE-ARM PROTRACTOR

### TO MEASURE COURSE ANGLE:

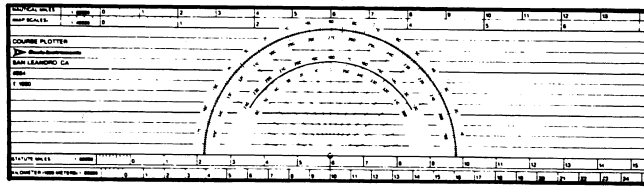
- 1) Place the one-arm protractor on the chart so that the compass rose points true north. The grid on the base plate should be parallel to a meridian of longitude or a parallel of latitude.
- 2) Keeping the compass rose pointing north and the grid parallel, rotate the arm and slide the protractor along the chart until the "true index" edge of the arm is along the course line.
- 3) Depending upon the direction traveled, read the true bearing at the true index point or at the arrow 180° opposite to the true index point.
- 4) To read magnetic bearing, find the variation given for your area in the center of the compass rose on your chart. Count the number of degrees of variation to the right or left of the true index point on the protractor. The line on the inner compass scale that matches the degrees of variation on the outer variation scale is your magnetic bearing.

### TO DRAW A COURSE OR BEARING FROM A POINT:

- 1) Place the protractor on the chart so that the compass rose points true north and the center of the base plate is over the given point. The grid on the base plate should be parallel to a meridian of longitude or a parallel of latitude.
- 2) If the point is some distance from a meridian or a parallel, check the alignment of the grid by rotating the arm of the protractor until the "true index" edge passes through the center of the nearest compass rose. Read the true angle on the rose at the "true index" edge of the arm. Holding the arm firmly in place, rotate the base plate until the reading at the true index point is the same as that of the compass rose on the chart. The grid should now be parallel.
- 3) Holding base plate firmly in place, rotate the arm until the desired bearing is read at the true index point or at the arrow 180° opposite to the true index point (for true bearing) or at the variation scale (for magnetic bearing).
- 4) Draw line along "true index" edge of arm. Slide base plate as needed to extend line to the given point.

### OTHER USES OF ONE-ARM PROTRACTOR:

- 1) Measure distance using chart scales on arm. Be sure to use the scale (1:80000, 1:40000 or 1:10000) indicated on your chart.
- 2) Handy centimeter scale on long edge of arm.



## #064 COURSE PLOTTER

### TO MEASURE COURSE ANGLE:

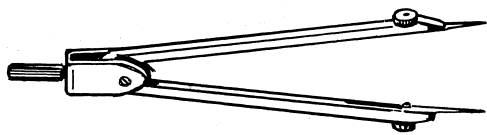
- 1) Place either long edge or any of the parallel lines of the plotter along the course line.
- 2) Slide the plotter along the course line until the center point is at a meridian of longitude or a parallel of latitude.
- 3) **If the center point is at a meridian**, read the bearing at the meridian using the large outer scale. Use the outer numbers of this scale if you are traveling in an easterly direction and the inner numbers if you are traveling in a westerly direction.
- 4) **If the center point is at a parallel**, read the bearing at the parallel using the small inner or auxiliary scale. Use the outer numbers of this scale if you are traveling in a southerly direction, and the inner numbers if you are traveling in a northerly direction.
- 5) To find magnetic course, add or subtract the local variation given for your area in the center of the compass rose on your chart.

### TO DRAW A COURSE OR BEARING FROM A POINT:

- 1) Place the center of the plotter on a meridian or a parallel. Rotate the plotter until the desired bearing is read at the meridian or parallel. Use the large outer scale if you are reading at a meridian and the small inner or auxiliary scale if you are reading at a parallel. (Note: When drawing magnetic course, be sure to adjust your bearing for variation as in step #5 above).
- 2) Keeping the center point and the desired bearing on the meridian or parallel, slide the plotter along the meridian or parallel until the outer edge of the plotter touches the point.
- 3) Draw the course line along the straight edge of the plotter.

### OTHER USES OF COURSE PLOTTER:

- 1) Extend a line by sliding plotter against a triangle or the two tips of a divider.
- 2) Advance a line of position by using parallel lines on plotter.
- 3) Measure distance using chart scale on either long edge of plotter. Be sure to use the scale (1:80000 or 1:40000) indicated on your chart.



## #075/076 DIVIDERS

### TO MEASURE DISTANCE BETWEEN TWO POINTS:

- 1) Separate the arms of the divider, placing the tips of the arms on the two points.
- 2) Without changing the setting of the arms, carry the divider to the latitude scale mid-point of your course on either side of the chart. Placing the tips of one arm on a whole minute mark, count the number of minutes or tenths of minutes to the tip of the second arm.
- 3) Note that one minute of latitude equals one nautical mile.

### TO MEASURE DISTANCE GREATER THAN WIDTH OF DIVIDER:

- 1) Draw a line on chart connecting the two points.
- 2) Using the latitude scale mid-point of your course on either side of the chart, set the arms of the divider to a convenient distance, say 5 minutes (5 nautical miles).
- 3) Without changing the setting of the arms, carry the dividers to the line drawn on the chart. Set the tip of one arm on one point and "walk" the divider down the line, counting 5 nautical miles for each width of the divider.
- 4) When the distance to the second point is less than the width of the arms, change the setting of the divider so that the tip of second arm touches the point.
- 5) Without changing the setting of the arms, carry the divider to the latitude scale on either side of the chart and read the number of minutes (nautical miles) as above. Add this distance to the number of nautical miles found in Step #3 above.

### TO DRAW A LINE BETWEEN TWO POINTS OR TO EXTEND A LINE:

- 1) Separate the arms of the divider, placing the tips of the arms on the two points or along the line.
- 2) Placing a straight edge against the divider, draw the line.

#### Replacement Parts

#061 Parallel Rules may be purchased separately.

## **Davis Instruments**

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