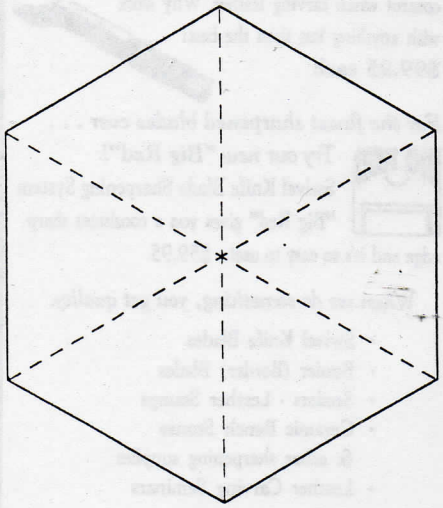
FINDING CENTER

by Frederick J. Nachbar

Illustration #1



Many times it is important to find the center of a project. Some shapes lend themselves to easily finding center while others pose more of a challenge. None are really difficult. Here are methods of finding the center of squares, rectangles, circles and different polygons. Also given are directions for making a jig to find center on various sizes of circles. It is suggested that you trace on paper or Illustration board the shape of the object. Do your cutting and punch out on the paper or Illustration board. This will save leather in case of mistakes. I prefer to use Illustration board as it can be used over and over as a template.

To Find the Center of Squares and Rectangles

1. Using a straight edge, draw a line from one corner diagonally to the opposite corner.

2. Repeat Step 1 for the remaining two corners. Where the lines intersect is the center.

To Find the Center of Even Number Sided Polygons (Hexagons, Octagons, etc.)

1. Using a straight edge draw a line from one corner across to the opposite corner (**see Illustration #1**).

2. Repeat Step 1 for as many times as necessary to connect all corners (hexagons three times, octagons four times, etc.). Where the lines intersect is the center.

Note: The reason for connecting all of the corners is for more accuracy. If all lines do not intersect at a common point, then one or more sides of the polygon is not equal length. You will have to make a determination as to what the problem is and make appropriate adjustments.

To Find the Center of Uneven Number Sided Polygons (Pentagons, etc.)

1. Measure from one corner to an adjacent corner and divide this measurement in half. Do this for each side (**see Illustration #2**).

2. Mark the sides at the half way point determined in Step 1 for each side.

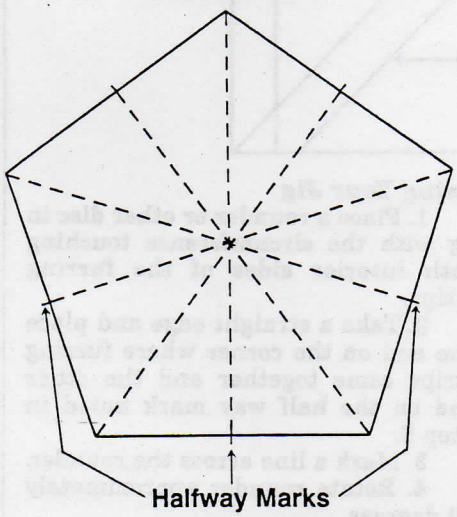
3. Using a straight edge draw a line from one corner to the opposite half way mark made in Step 2.

4. Repeat Step 3 for remaining corners. Where the lines intersect is the center.

To Find the Center of Circles

1. Take a circle (rounder, etc.) and trace the outline on paper or **Illustration** board.

Illustration #2



2. Lay a carpenter's square on the traced circle so that both interior parts of the square touch the circumference of the circle. Draw lines along the interior of the square (**see Illustration #3**).

3. Place the carpenter's square on the opposite side of the circle and repeat Step 2. You should now have a circle within a square.

4. Draw a line from one corner to the opposite corner of the square. Repeat for remaining corners. Where lines intersect is the center of the circle.

5. Carefully place the paper/illustration board circle over the rounder so that the rounder is within the traced lines of the circumference. Now punch a small hole at the intersecting lines with an awl. If you did the above correctly the punch mark should be in the center of the rounder.

To Find the Center of Circles (Alternate Method)

1. Measure to the best of your ability the diameter of the circle (rounder).

2. Take wing dividers and set them to half the measured diameter of Step 1.

3. Mark four points at approximately 90 degrees from each other along the circumference of the rounder.

4. Place one leg of the dividers at one of the marks done in Step 3 on the circumference and scribe an arc (**see Illustration #4**).

5. Repeat Step 4 for remaining three marks done in Step 3. Where the lines intersect is the center. If lines did not intersect go to Step 6.

6. Draw lines from opposing corners that the scribed arcs make to form an "x". The point where the lines cross is the center (**see Illustration #4**).

Illustration #3

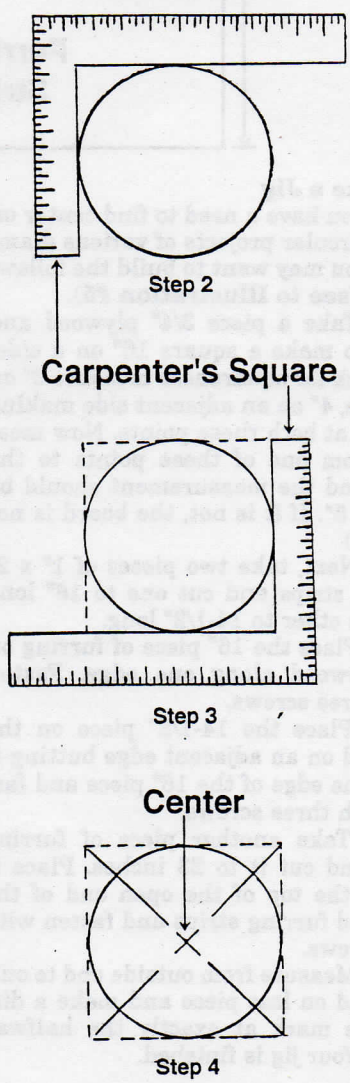


Illustration #4

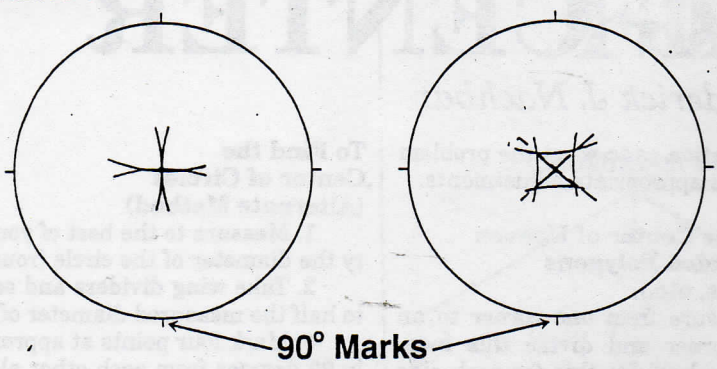
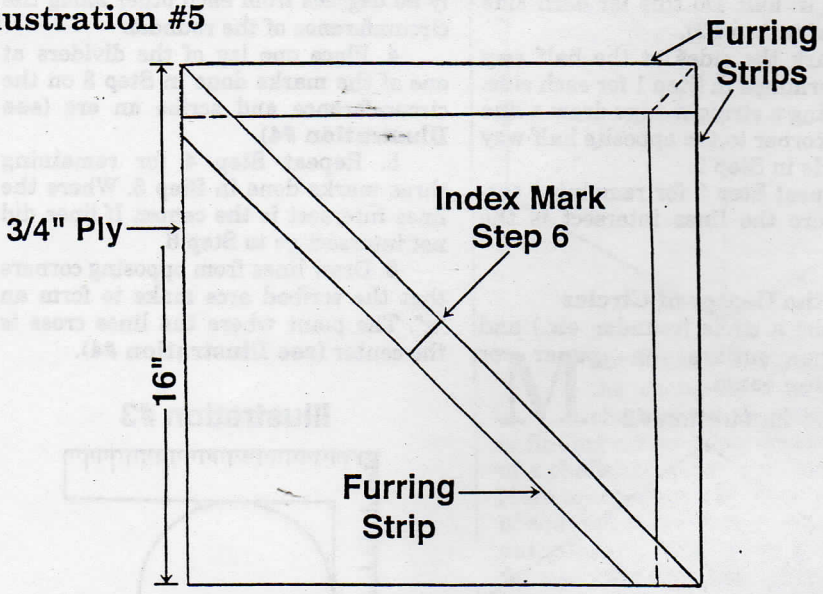


Illustration #5



To Make a Jig

If you have a need to find center on many circular projects of various diameters, you may want to build the following jig **(see to Illustration #5)**.

1. Take a piece 3/4" plywood and cut it to make a square 16" on a side. (To check for squareness measure 3" on one side, 4" on an adjacent side making a mark at both these points. Now measure from one of these points to the other and the measurement should be exactly 5". If it is not, the board is not square.)

2. Next, take two pieces of 1" x 2" furring strips and cut one to 16" long and the other to 14-1/2" long.

3. Place the 16" piece of furring on the plywood along one edge. Fasten with three screws.

4. Place the 14-1/2" piece on the plywood on an adjacent edge butting it up to the edge of the 16" piece and fasten with three screws.

5. Take another piece of furring strip and cut it to 23 inches. Place it across the top of the open end of the fastened furring strips and fasten with two screws.

6. Measure from outside end to outside end on last piece and make a distinctive mark at exactly the halfway point. Your jig is finished.

Using Your Jig

1. Place a rounder or other disc in jig with the circumference touching both interior sides of the furring strips.

2. Take a straight edge and place one end on the corner where furring strips come together and the other end on the half way mark noted in Step 6.

3. Mark a line across the rounder.

4. Rotate rounder approximately 90 degrees.

5. Repeat Steps 1, 2, 3. Where lines intersect is center.

The jig will find center on any size rounder (circle) within its capacity of approximately 17-18 inches. *Note:* If you think you won't have a need for a jig of this size, feel free to make a smaller version. Drill a hole in the jig at any convenient point and use this hole to hang the jig up and out of the way when not in use.

Sometimes the careful placement of center via the aforementioned methods will not agree with the perception of center to the eye. In such situations one must make a decision as to which has priority, true center or perceived center. I usually err on the perceived center. After all, it all comes down to what we see. ★