

The Leonard Grind-R-Lap came with a very cleverly designed angle guide to present the tool being ground to the diamond wheel at a precise angle. It also facilitated grinding small angles on the side of a tool, for example, the  $14\text{-}1/2^\circ$  angle on an Acme threading tool. Most angle guide designs do not accommodate that particular function. Photo 1 shows the Leonard angle guide, complete with the unique sliding block used for small angles as mentioned above.



**Photo 1**

Unfortunately, since most of these machines were made long ago, the original angle guide often has gone astray. In that case, making a new one for your Leonard Grind-R-Lap or similar grinder is a very worthwhile exercise. The following details and dimensions will help you make a replacement angle guide that is true to the original and that will become a valued accessory for your grinder.

Figure 1 shows the guide from an underneath view and gives the required dimensions. The body of the original guide was made up of two sheets of .077" thick sheet steel spot welded together. One alternative construction would be to use rivets filed flush with the gage's top and bottom surfaces after peening. Photo 2 shows the underside of the age. The guide strip on the underside of the base should be of a width that fits nicely and slides easily in the table groove on your

grinder. Position the guide strip on the bottom of the gage so it will locate the straight edge of the gage flush with the edge of the grinder's table where that edge is notched to clear the wheel.

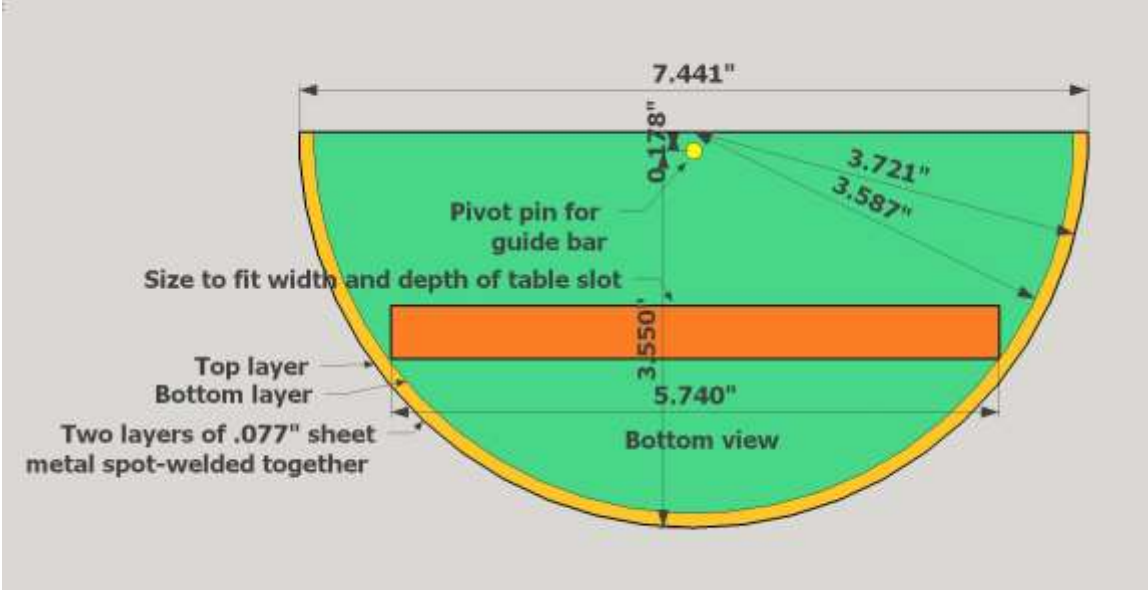


Figure 1



Photo 2

On the top side of the gage, the guide bar is a piece of 1/2" x 1/2" steel rounded on the pivoting end and provided with a chamfer on the opposite end to accommodate the clamping clip that holds it in place. The pivot pin is spot welded in place, but could easily be rivetted in place instead or threaded and installed in a tapped hole in the base plate (Photo 3). The lower end of the guide bar is drilled and tapped to accept the No.10-24 TPI clamping screw. The clamping clip assembly is shown in Photos 4, 5 and 6.



**Photo 3**



**Photo 4**



**Photo 5**



**Photo 6**

Note that the angular graduations on the base are not engraved symmetrically. When the guide bar is at 90° to the straight edge of the base, the "0" angle mark is off center to the right of the guide bar (Photo 7). Also, note the small notch at the bottom of the guide bar on the right hand side. The notch is at an angle that is parallel to the graduation lines ((Photo 8), making it easy to take precise readings of the angle scale.



**Photo 7**

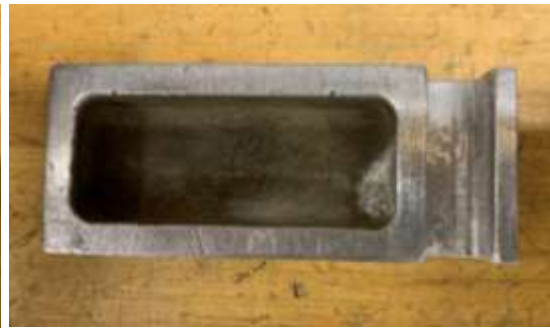


**Photo 8**

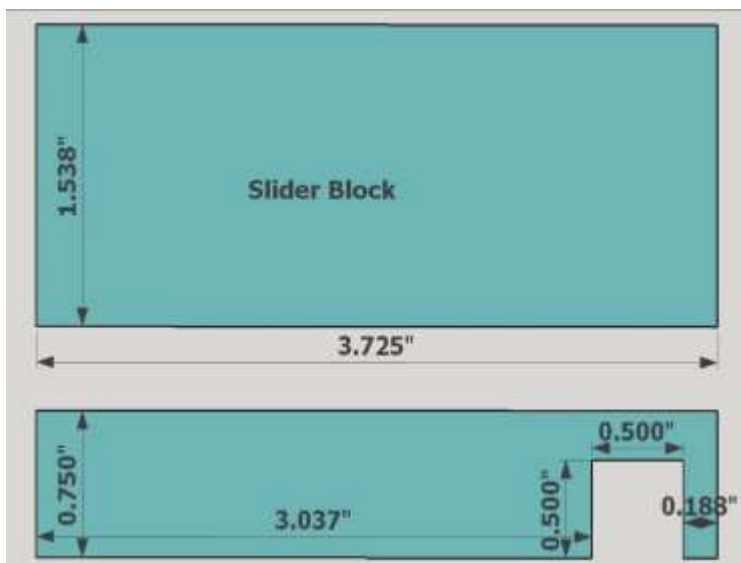
And finally, there's the sliding block for grinding small angles. Photos 9 and 10 provide side and bottom views of the block. The original block was a hollow aluminum casting, but other materials would work as well. The sliding block's fit to the guide bar should allow it to slide freely, but with a minimum of play between the block and the guide bar. Figure 2 provides the block's dimensions.



**Photo 9**



**Photo 10**



**Figure 2**