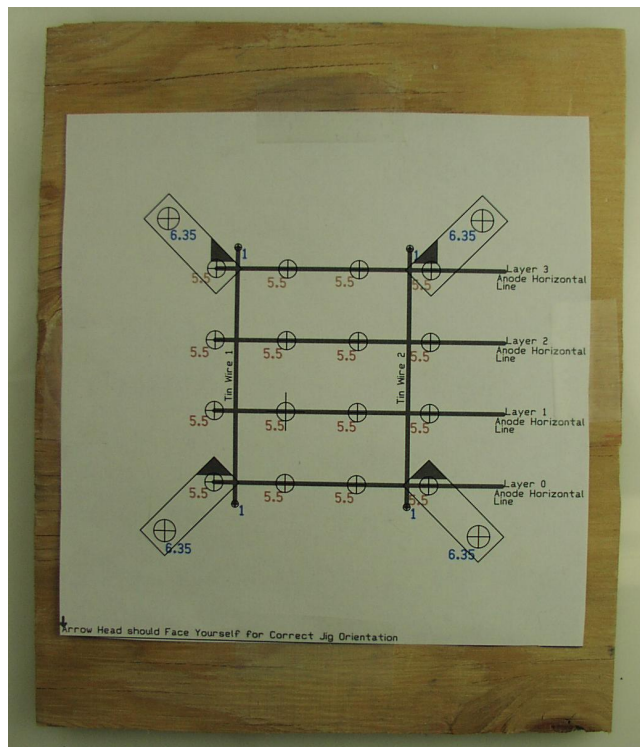


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## Jig Construction Manual

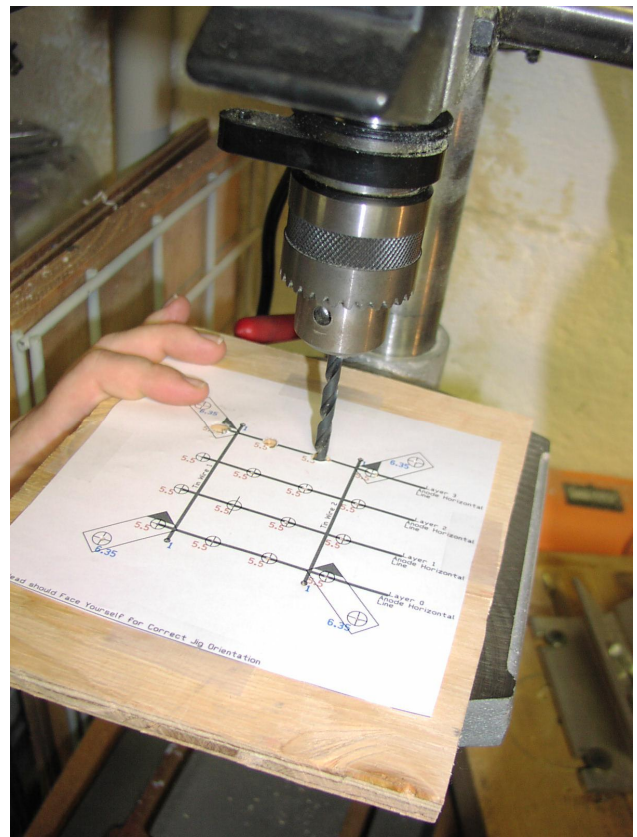
See the layout of the jig below. The last page of this manual is a diagram you can use to make your jig. Tape that page to an appropriate piece of wood, see figure 1.



Jig is made of 6" x 6" , 3/8"-1/2" thick wood. Drill the holes in the wood, see figure 2. Circles are holes to be drilled and the cross lines inside them provide a reference center. Numbers attached to each circle indicate the diameter of hole in mm. Diameter of circles is kept to same size of hole. Use nail to punch starter hole at cross lines for each hole and then drill holes. Use Drill Stand for accurate drilling.

The four black circles are holes with .0473/64" diameter(drilled using #56 drill bit). These holes are used to hold thick tinned wires (about 0.8 mm wire without sleeve) in place.

The sixteen 7/32" holes and four 3/64" holes will be used to make individual layers, while the



sixteen 7/32" holes will also aid in constructing cube by joining individual layers.

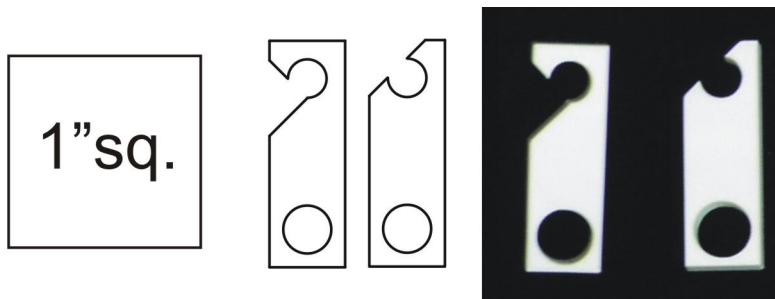
The four blue circles are holes with 0.25" in diameter(drilled using 1/4" drill bit). These holes hold 1/4 – 20 bolts at required positions. Diameter Numbers for holes in jig should be readable to you if jig is oriented in correct way. Nuts come in standard heights. Depending on the local availability you can get nuts of any height. The jig comes with spacers and nuts and when used achieve a height of 0.75" between layers.

If you do not rent the jig your goal is to stack up 3 to 4 nuts to achieve height of 2 cm (0.75"). The four 1/4" holes hold bolts, to which the LED holders attach to hold the layers one above the other at accurate positions. This is not as complicated as it sounds, the pictures will explain. Bolts are a minimum of 4 in long.



## LED Layer holders & Tube Spacers

These holders are included with the jig and are used to hold layers at their required position above one another. We need total of 12 holders, divided into two groups of 6. Both groups have minor differences. See the figure 4 for strip designs.

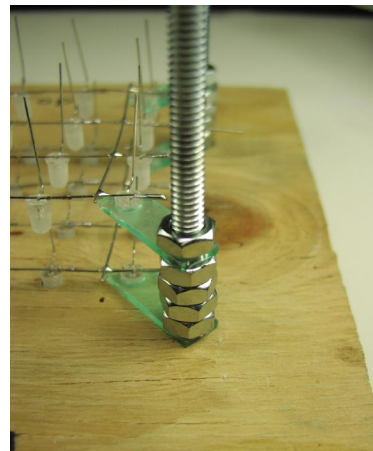
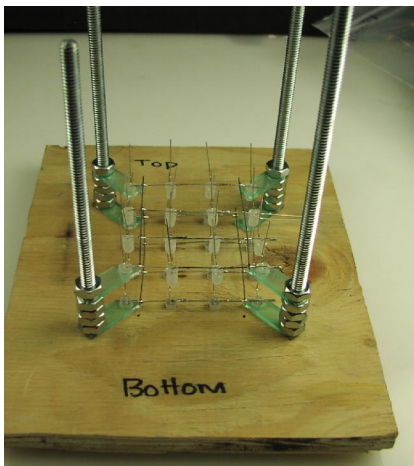
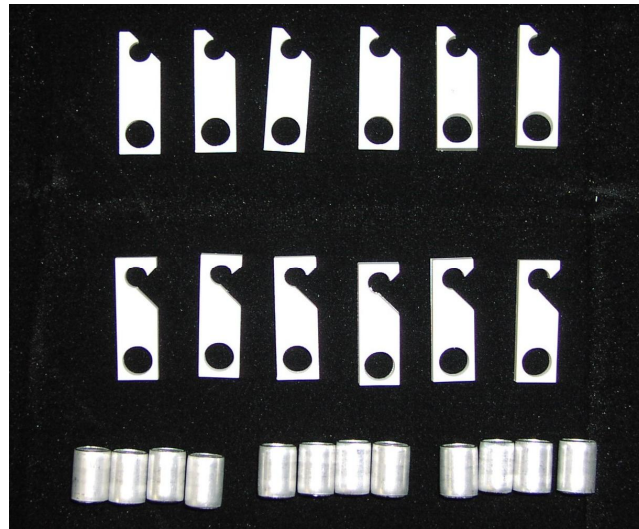


**Figure 4**

To make these strips use the above layout. Glue layout on 16 gauge sheet metal. Cut the sheet metal along the borderlines with tin snips. Then use a hole-punch to mark the centers where the cross lines intersect and drill holes with required drill bits. The hole in the LED Holders are  $17/64$ " as opposed to  $1/4$ " in the Jig base. This slight increase in this hole allows for adjustments in jig when positioning the LED layers. The LED holders provided with the jig are made from  $1/8$ " acrylic.

As stated you can use the  $1/4$ -20 nuts as spacers or you can fabricate tube spacers. Tube Spacers are used to maintain required height of  $3/4$ " between two layers. These spacers are made from  $3/8$ " OD hollow aluminum tubes, having height around  $0.5$ ".

Figure 5 shows the 12 holders and 12 spacers.



Use of the jig is explained in the LED construction manual.

