LED Gooseneck Lamp Adaptation

I developed a need for a lightweight, precisely directed beam of light when working with my wood lathe to highlight detail and grain surfaces. I wanted this light to be flexible not only in it's direction but also in it's mounting capability. Several of the lamps that I had been using each had a serious drawback, either in the size of the lamp head interfering with my line of sight, the heat of the bulb drying the wood prematurely, or the heat of the head of the lamp being very hot to the touch.

Attending the Florida Woodturner's Symposium, I observed a lamp that would compensate for each of those issues, but was being sold at $65 each. As much as I liked the design, I wanted to put my "turning money" into local wood stock that I could not as easily get here in New England. I did note that the lamp itself had the IKEA designation on the description and that started my search for the components.

The IKEA lamp is in fact a JANSJO LED Work Lamp (#201.696.58) which sells for $9.99 in their retail stores and comes in white or black. It has a large weighted base instead of the desired magnetic base that I wanted, so off to the local Harbor Freight store for a variety of magnets. They sell disc magnets in a series of sizes and pull strengths that would be applicable to this application. At the time I purchased several of these sizes to test the best combination of size and strength, they also had one that was 3 ¼ inch diameter (82mm), but I can only find that size on the pick up wand currently.

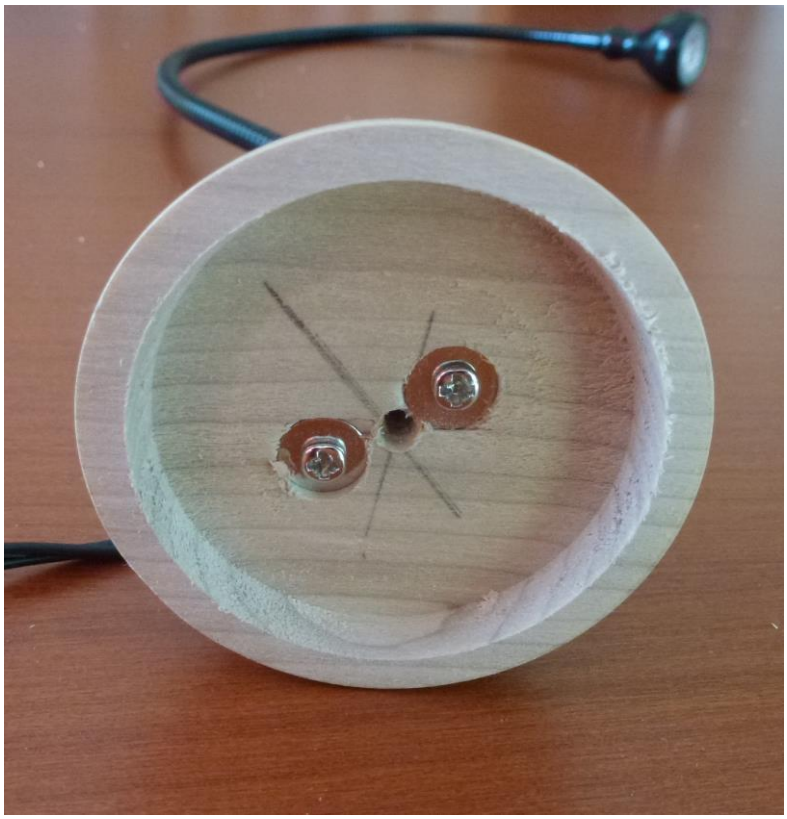
#96649	40mm diameter x 3/16 thick, 15# pull	$1.99
#96651	50mm diameter x 3/8 thick, 25# pull	$2.99
#96650	66mm diameter x 1/2 thick, 95# pull	$4.99

Using the 50mm magnet, I mounted a 2 1/2 inch square of 3/4 hardwood into a four jaw scroll chuck and turned a circular recess into the face, testing the diameter to just fit the size of the magnet that I had selected (with the larger size magnets larger stock will be appropriate). Once the diameter of the recess was just snug, I extended the recess depth so that 1 to 1.5 mm (0.040-0.060") of the magnet extended proud of the outside surface.

I then turned the block around, mounting it internally on the edge of the turned recess, and turned the outside to a full round contourering the outside edge to a half round profile. Sand and finish this shape while still on the lathe. This will give you a puck with a profiled top and a recess for the magnet. Design augmentation and surface treatment can be added at this stage to personalize to your own style.

The JANSJO Lamp comes as a ready to assemble kit, with a weighted base plate, plastic base cover and a PSA felt pad to put under the weight. I set the base parts aside for the moment and looked at the two pins coming from the base of the lamp. The pins are 5.5mm (~0.218") diameter and are approximately 15.5mm (~0.616") on center. The pins are approximately 6.5mm long with a washer and screw for each pin.

I set the puck onto a drill press and drilled two 15/64" (0.2344) holes on 5/8" centers from the top of the puck through to the recess. I drilled these two holes on an axis across the grain of the wood for optimized strength. It took a bit of "fitting" to get the lamp pins to set into these holes exactly but I liked the original size and location choices. From the underside of the puck, I used these two holes to locate a 3/8" drill to counterbore the holes just deep enough for the screws and washers to sit below the surface of the recess. At the very center of the recess, I drill a 3/32" pilot hole roughly 1/4 inch deep.



Assembly is as straight forward as setting the lamp pins into the base and attaching it with the washers and screws. Insert the magnet, making sure that it sits flush on the inside face without the screw heads interfering, and secure it with a #8 x 3/8 pan head wood screw.

The lamp is ready for use on your lathe or other machine tool at this time, but the assembly is too top heavy to function on a non magnetic surface. I use the discarded weighted base now, by double sided taping the inside of the plastic cover to the weight, and then applying the pressure sensitive adhesive (PSA) felt to the bottom surface. When you want to use the lamp on a regular surface just place the weighted base and attach the magnetic base to the top of the plastic.

I find that the best mode of moving the base is to slide it to one edge of the surface it is attached to and then tilt it away from the expose edge, rather than trying to pull it directly up from the surface.

Note that I had worked with a series of different magnet sizes, and rather than making the wooden interface block significantly larger, on the larger magnets I did not cut the recess initially, but followed the remaining steps, then set the interface block on top of the larger diameter magnet.

I find that I have full flexibility as to the strength of the magnet relative to the space and application I am using it for, and have an extra $50 available for turning stock for each one I have made.

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