



when designing the layout of the top. Mount the DC motor to the underside of the clear disc/lid; drill a 3-millimeter centered-access hole 2" from the top edge of the lid. Then, use a two-part epoxy that dries clear to secure the motor. Allow it to dry for an hour, making sure the motor body is perfectly parallel to the plane of the lid, so it won't wobble when rotating.

3) The blank CD acts as the mechanical medium through which the light source is attenuated before it reaches the photo resistor. I used two rubber grommets, stacked and glued together, to act as a hub adaptor for the motor's spindle. The rubber grommet must fit snugly in the center hole, as well as around the spindle shaft of the motor. To fit our design, it should be approximately 1" tall.

4) Drill two $\frac{3}{8}$ " holes and mount the rheostat and 10k potentiometer to the lid, midway between the motor and the bottom edge of the lid, so the knobs will not interfere with the

4.5" CD-sized rotating disc mounted on the motor spindle. Mark the sides of the project box, approximately $1\frac{1}{2}$ " in from the end, and drill one $\frac{3}{8}$ " hole on either side to mount the $\frac{1}{4}$ " panel jacks. On the top edge of the box, drill a $\frac{3}{8}$ " hole to mount the size M DC power jack (for easy access on a pedalboard).

5) Locate, mark, and drill the mounting hole for the photo resistor. It has a plastic grommet holder that requires a $\frac{7}{32}$ " hole. Drill this hole approximately $1\frac{1}{2}$ " to the right of the center of the DC motor spindle and push the plastic grommet in the hole before inserting the photo resistor through it, leaving the two leads dangling from the underside of the photo resistor.

6) You should mount the bulb socket and lamp so it shines directly on top of the photo resistor, positioned above the CD with a 1" gap (so the CD can spin freely). I used a scrap piece of maple to carve out a pedestal to mount the lamp socket. Here's the completed wood pedestal, with the bulb and socket mounted,

overhanging the spinning CD while positioned directly over the photo resistor.

7) To focus and contain the lamp, you can make a light hood. Make a template out of paper to ensure proper fit, then transfer the outline to a piece of 24-gauge aluminum. Fine-sand its edges before bending the aluminum so it rests securely on top. I stained the pedestal before attaching the shield with a small wood screw.

With the major components installed, next month we'll wire the circuit and create some semi-transparent CD discs. The schematic for this circuit is very simple, and the wiring won't take long, so be sure get your project box ready for the fun!

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