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Pressman's Toolbox

How to make moving skates

By Frank Bourlon

Have you ever needed to occasionally move heavy press equipment?

The cost of having someone move the equipment can be staggering.

One option, moving skates, can help, but they can be very expensive to purchase. A set of four rated at 1,500 pounds per skate can range from \$700 to \$1,400. And the larger the skate's load capacity, the higher the price.

If you have more time than money, one alternative is to build your own skate. Keep in mind, however, that your creation won't be rated. You have to assume the risk if your equipment is damaged due to failure of the skate.

That said, take a look at Figure 1.



Fig. 1: The skate above is made from a newsprint roll shaft.

Photos: Frank Bourlon

The skate roller here was made from an old discarded newsprint roll shaft once used on a Goss Community press unit. But you could

make a skate out of just about anything, from a shaft to a piece of pipe.

Let's more closely examine the roll shaft. The outside dimension is 2 inches. The shaft was cut into 4.25-inch lengths so that it would fit easily inside the skate frame.

Tapered design

The skate roller edges were tapered to limit the amount of contact the roller might have with the skate frame. If the skate rollers are left square (not tapered on the edges), then the skate roller should be made 4 inches or less so that spacers can be added to each side of the roller to prevent the skate roller from contacting the skate frame.

The hole drilled through the center of the roller is 1/2-inch in diameter. The holes can be drilled using a drill press, but the center of the hole is difficult to locate.

One way to locate the center of the roller would be to use a 2-inch fender washer placed carefully over the roller shaft end. Then use a transfer punch to mark the center of the hole.

I used a small lathe to ensure that the hole was perfectly centered. The bolts used are 1/2-inch, grade 8 hardness bolts that are 6 inches long.

The frame of the skate is a 5-inch "C" channel cut to a length of 9 inches.

Drill four holes in the skate-frame (the 5-inch "C" channel) to support the skate rollers (see Figure 2).



Fig. 2: Holes drilled closer to the ground will improve the skate's safety.

The skate-frame hole location for each hole is 1.5 inches from the end of the skate-frame and 3/8-inch from the bottom edge of the skate-frame. This will make the actual skate height approximately 2.5 inches tall, which keeps the heavy load closer to the ground for safety.

Once the holes are drilled the skate is ready for assembly. I inserted two washers on each side of the skate-roller to reduce any drag that may develop as the skate-roller rubs the skate-frame.

Want to reduce the resistance of the moving skate? There can be a lot of resistance to movement from the friction created by the bolt rubbing against the inner hole of the skate.

Making it roll

Add grease to the bolt; if that doesn't work, try adding needle bearings to the skate rollers. My project is designed so that I can enlarge the ends of the skate-rollers to 3/4-inch and then insert a needle bearing in each edge of the roller.

The dynamic load capacity of each bearing is 1,500 pounds each, which is 6,000 pounds per skate. However, remember the skate is not tested. Its carrying capacity would be pegged to the strength of the skate-frame and bolt or pin used to support the skate-roller.



Fig. 3: Because home-grown skates aren't rated, exercise extreme care.

A completed skate is shown in Fig. 3. Happy skating.

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