

# YET ANOTHER FREEWHEEL IDEA

By George White

Claud Powell recently recommended I check out a series of "YouTube" videos produced by Chris Boehm. Included in that series was a video depicting a rather clever freewheel device which deserves our attention. It has the very desirable features of working with any prop, being independent of motor tension, being capable of use under a spinner and also allows easy change of props on the field.

I've had several conversations with Chris, and while it's very similar to the "bale" type freewheeler, it has some redeeming features beyond what can be done with the bale.

Chris starts with the following materials:

3/32" OD square brass tubing

1/16" OD round brass tubing

1/32" music wire

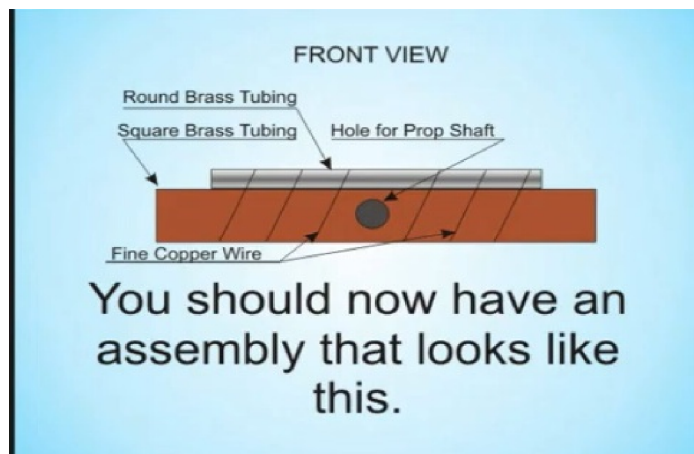
Fine copper wire raveled from an extension cord.

Sta-Brite Solder

Solder Flux (*I highly recommend not using regular solder flux here. Order some Superior #30 liquid solder flux from H&N Electronics, 10937 Rome Beauty Dr., California City, CA 93505. Check the PFFT website Articles Index for more information. It is the only flux I know of which does not result in corrosion.*)

In order to solder the round brass tube to the top of the square tube, sand both tubes so the solder joint will be strong and wrap them together with fine copper wire. Without the wire, you'll have more enjoyment trying to get the round tube to stay still while soldering than you'll want. Solder along the entire length of the round brass tube.

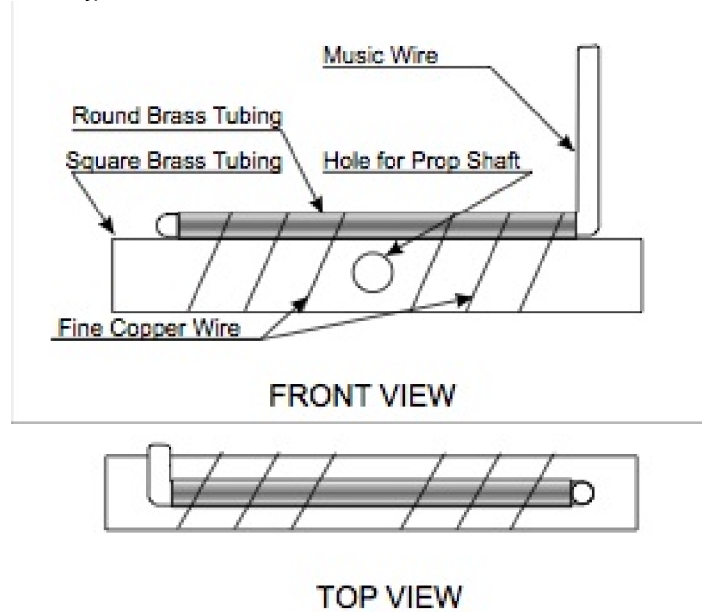
The photos below make the thing look large, but in fact, the largest Chris has made is only 3/4" long. It can be quite small. The assembly below is designed to fit between the nose button and the prop, so it doesn't need to be a big heavy slab of copper. As you can see, the round tube is cut about 1/8" shorter on both ends than the square tube. Then, drill a hole through the square tube for the prop shaft as shown below.



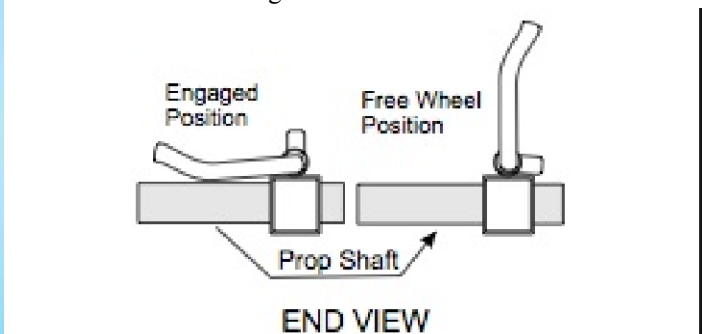
Once you have the device soldered, you're ready to install it on the prop shaft. Insert the prop shaft through the nose button and put a good bearing on the prop shaft. Leave plenty of wire out front. To ensure a max strength solder joint, file a shallow flat spot on the prop shaft where the assembly will be installed (be sure you've got enough slack to allow the prop hook to extend aft into the model for ease of moto hookup). You'll need an alligator clip of some sort between the point of soldering and the nose button to hold everything and to serve as a heat sink (melted nose buttons are very low class!) Get a good solder joint on each side of the square tube and the shaft.

Then, cut a piece of 1/32 wire and bend a 90° angle in one end. The angle piece should not be longer than about 3/32", or even shorter. Its primary purpose is to prevent the wire from sliding all the way through the round tube.

Slide the 1/32" wire through the round tube from left to right (as you face the model), assuming a standard right turning prop. Rotate the short section of the bent wire until it faces the model. Using a pair of needle nose pliers, bend the right hand portion of the wire straight up, which will result in the two bends being 90° apart. This arrangement is seen in the drawings below.

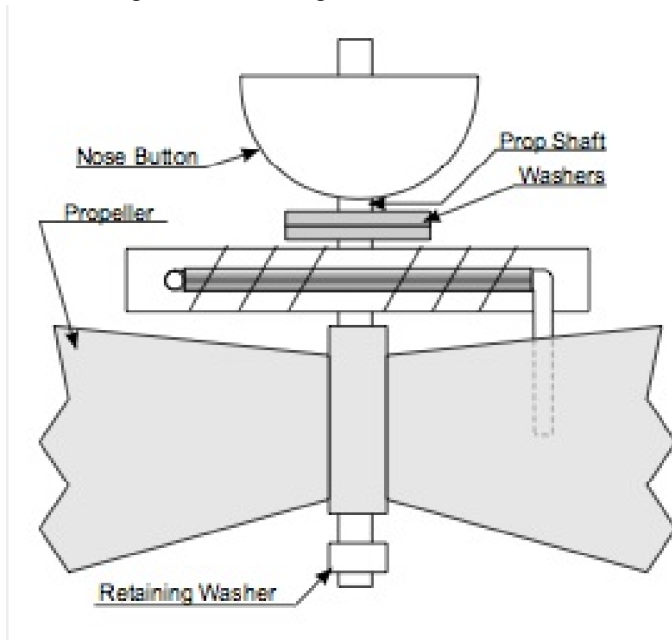


Cut off the long end of the drive wire to whatever length is needed to allow it to grab the trailing edge of the prop. Chris recommends that you bend a slight curve in it to ensure a good grab on the prop. The two positions of the drive wire are shown in the drawing below.



As you can see, the drive wire utilizes the surface of the square tube to hold it in place during the drive mode. When the power is off the prop, the prop flips up the drive wire and the short, 90° piece at the other end prevents it from rotating aft and damaging the nose block.

The drawing below says it all. Chris uses a dress sequin CA'd onto the front of the prop shaft to hold the prop on. That's easy enough to remove on the field. I generally use a piece of styrene tubing glued onto the shaft with E6000, but almost anything will work because there is no stress on the retaining washer. It's there only to keep the prop on during freewheeling and after landing.



If you're using a plastic prop with a ramp, you'll probably want to cut off the ramp.

For the detailed video on this device, simply enter "Yet Another Freewheeler" into Google. You'll also find interesting videos on making an "S" prop hook, and still others on vacuum forming. Enter "Vacuum Forming Video 1" in Google or "Reverse S Hook.wmv" and take a look