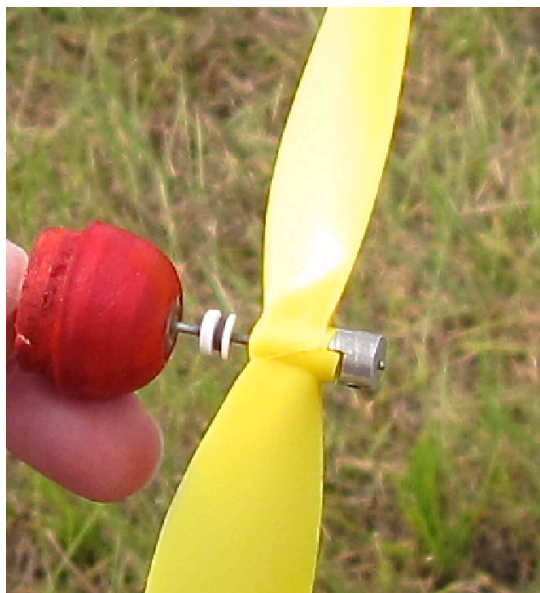
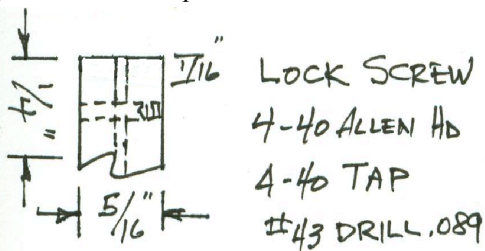


FREEWHEEL DRIVE — CLEAN, SIMPLE

By George White

Bill Duke has been at it again — coming up with unusual, but simple solutions for modelers. This time he's come up with a freewheel drive scheme which is simple, can be used on plastic or wood props, with or without a spinner, and allows the prop to be removed without damage to the prop shaft. *There just ain't much more a guy could ask!!*

The key to this scheme is the drive piece. Bill cuts a 1/4" long piece of 5/16" diameter K&S aluminum rod (stock# 3046), and drills two holes as shown below. The first hole is fore and aft and is very slightly larger than the prop shaft which will fit in that hole. He drills that hole by clamping the aluminum piece in a suitable clamp (lever jaws will work if you don't have a horizontal vice for your drill press) and uses a punch to make a pilot dimple in the center. This doesn't have to be exact — just get it as close to the center as you can. Then drill the hole. Then, turn the piece 90° and drill a hole for the lock screw, using the equipment listed in the illustration below. Then, take a file and make a ramp in one end of the drive piece, about 1/16" deep or slightly more as shown. That ramp is to match the ramp in the prop, as shown in the photo below.



One important thing to remember — file a small flat spot in the prop shaft where the lock screw is to contact it. Otherwise, there's a high probability you'll hear some exciting noises as the drive disappears and the wound motor goes wild. Ask me how I know!!

That's all there is to it when using a plastic prop. To engage the prop after winding, simply pull the prop forward, and you're ready to go.

Bill goes a step further and uses that scheme with a wood prop. Here's how he does that:

Make the prop in the normal way, with a small pilot hole drilled for the shaft.

Drill a 5/16" deep hole in the front of the prop (preferably with a Forstner bit) 5/16" in diameter, centered as best you can over the pilot prop shaft hole already in the prop.

Cut a piece of hard 5/16" dowel, 5/16" long and drop it into the hole you just cut in the prop. Mark the dowel piece and the prop with alignment marks so that you can later replace it in the exact position (since the chances are good you didn't succeed in drilling the 5/16" diameter hole in the prop exactly centered on the pilot hole).

Tack glue the dowel in the prop with a very small spot of Duco/Ambroid and drill the entire assembly with a hole the size needed for your prop shaft.

Use acetone/lacquer thinner to remove the dowel from the prop and extend the alignment marks down the sides.

Using a coarse sanding board, sand a ramp in the dowel which will match the ramp of the drive piece.

Reinsert the dowel in the prop, align it properly, secure it in place with thick CA or Epoxy and flood the dowel with thin CA to harden it.

Re-drill the prop/dowel to remove any excess CA, and if you prefer, re-drill as needed to insert a brass sleeve in the prop to prevent wear. Be sure the brass sleeve doesn't protrude into the dowel piece.

This makes for a nice prop under a spinner when all you need be concerned about is a small space for the drive piece to move forward in freewheel mode. Bill says he's used this scheme for props ranging in size from 6" to 11".