



Helicopter Weather Vane



mobibi

[VIEW IN BROWSER](#)

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Summary

Gear Linked Main and 'tail' rotor, like an upside down autogyro.

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Managed to get this to work, which was cool. Main and tail rotor gearlinked, 1:2 ratio.

Print in whatever, this one in PETG. A 608 bearing would be desirable for the pedestal, the other 4 could be 608s, but I used the printed bushings(below) to good success with a bit of lithium grease. Will need to make sure the shafts are worked in/sanded, etc so they spin smoothly before you assemble.

Spring 2023 am trying one or maybe both gears printed in TPU, see what it does for gear train noise. → Generally successful, quieter, smoother running. Will incorporate TPU gears in future projects.

Print all parts, one of each and four of the bushings. Rotors probably need support/brim. Work in the shafts so they spin in the bushings, or fit firm if you are using 608s. Make sure the gearteeth are free of imperfections.

Mount the front tailshaft bushing first, then the back. Insert the tailshaft and mount the secondary gear. Next, install the bottom & top mainshaft bushings. Slide the main gear into place and run the mainshaft down into place. Here you need to make sure everything runs smoothly. I hooked the tailshaft up to a drill even, to work the gears in. When it runs well, you can mount the rotors.

Maybe a bit of an exercise/challenge to get the gears and bushings to move smoothly enough to run well. This one seems to spin with winds about 7km/h(4 1/2 mph)

UPDATE: 15 Oct 2022, [philb59](#) found an error, a chunk taken out of the secondary gear. Fixed now, Thanks philb59!

UPDATE: 1 Nov 2022, [Alexandre Sraga](#) found the fit a bit tight, so I've tweaked some on the tolerances out a bit, Thanks Alexandre!

Model files



helo-frame.3mf



bushing.3mf

☐ Print 4



main-gear.3mf



secondary-gear.3mf



main-rotor.3mf



tail-rotor.3mf



main-shaft.3mf



tail-shaft.3mf



pedestal.3mf



mechanical-helicopter-weather-vane-v15.step



mechanical-helicopter-weather-vane-v15.f3d

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