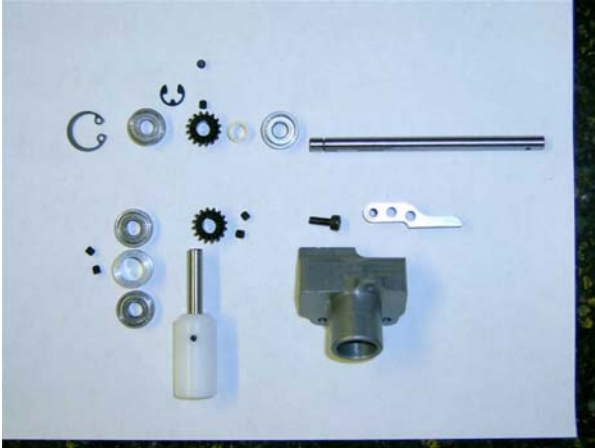


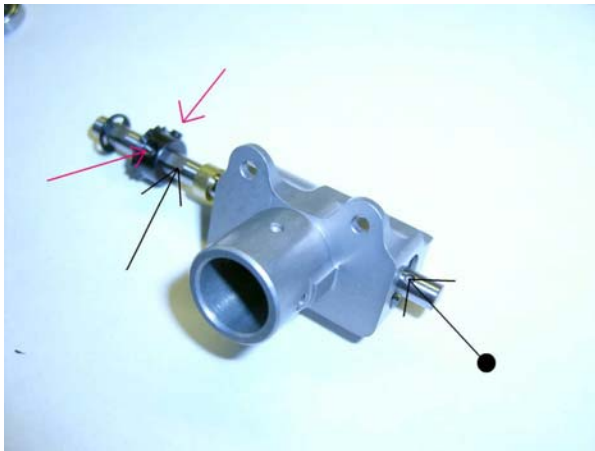
FURY TAIL ROTOR GEAR BOX ASSEMBLY NOTES

By Casey Veranth, Runryder ID = KC

These are just some things that can make the tail work and last a long time.



(1) These are the parts that I am concentrating on, all are from the diagram on page 59 of the instruction manual. There are other parts there, but they are for the tail rotor not the gear box.



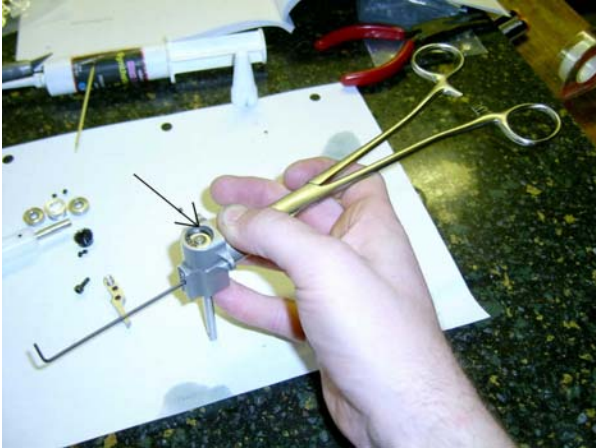
(2) Apply green loctite 290 to the outside wall of a 0425 bearing and insert into the tail box just before putting the tail output shaft assembly into the tail box. Apply a little green loctite to the inside of the 0427 gear before positioning it over the flat spot on the 0541-8 t/r shaft.

Green loctite has a working life a few minutes in small amounts and is best to start an assembly over if it takes you more than 10-15 minutes.

Assemble the tail shaft area as per instructions, note that the flat spot on the tail output shaft (middle arrow) aligns with one of the indentations at the end of the tail output shaft (circle arrows on right) this will help you when we get to step 3.

The red arrows are to indicate set screw locations on the 0427-1 tail gear, apply green loctite to these set screws.

Do not tighten set screws all the way yet, the tail gear must be able to slide up and down over the flat spot for final positioning.



(3) The small arrow points to the large c-clip, I placed the second 0425 bb in, loctiting the outer wall like the first one. I am pushing the whole tail shaft assembly against the large c-clip using the table and pushing on the gear inside at the same time using a pair of hemostats.

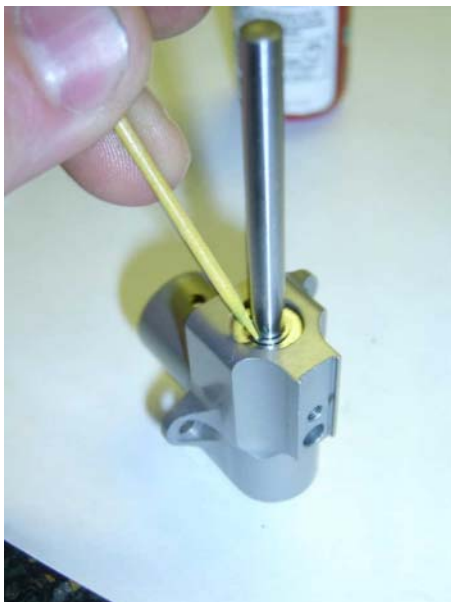
It looks funny but the hands are doing double duty, pushing on the tail shaft and the gear pushes both 0425 bearings all the way out and

positions the gear and t/r shaft all at once. The hard part of building the box is over.

Remember the flat spot on the tail shaft and those indentations? Looking inside the tail box from the big hole (t/r input side) you can see that flat spot. The indentations on the shaft will tell you where the set screws are inside the box.....so now you can tighten down the set screws on the 0427 gear through that small hole on the back side of the tail box WHILE YOU STILL ARE APPLYING PRESSURE ON THE COMPONENTS LIKE THE PHOTOGRAPH!

It's a bit of juggling but this is the only hard part of the tail assembly and it is an important part, this shaft should not have any fore/aft play once assembled.

Now that the set screws are tightened down, you can go back in with a little extra green loctite, it will work into the threads.



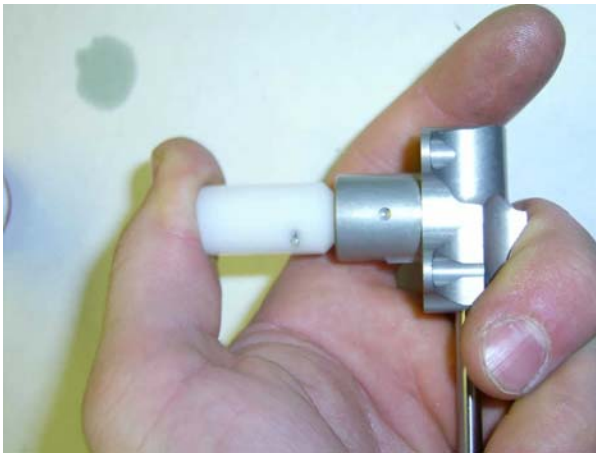
(4) Green loctite is like water, it flows everywhere and finds its way into all kinds of stuff, it isn't the easiest thing to apply, I will usually use a toothpick to apply it to small areas. Too much of it is just like red loctite, it can weld things together where you'll need a pencil torch to remove them!

Here I am applying green loctite to the inner race / output shaft contacts after finishing step 3. Do not worry if you get a little loctite in the bearing, just wait for it to dry and try to rotate the bearing, green loctite can be weakened by high heat when it comes time to remove components that have green loctite on them.

Don't skip loctiting all the metal components to

each other like this, when you grease the tail box, the grease will want to find its way out over time and will try to get between these components, the locite keeps that from happening and provides a strong bond for all the pieces.

Why green locite? It can be applied before or after assembly, you can use red too if you want, but in a lot of cases, green just makes things easier.



(5) The tail input shaft component assembly is pretty straightforward, I like to test fit it before I finish the tail box.

Put pressure on the tail input assembly by pressing on the driveshaft coupler with your thumb. Now remove your thumb and spin the tail output shaft a few times. This will give the proper gear mesh. The gears should now mesh well and feel ok.

This is a real subjective area, you cant really describe or take a picture of how things should feel. But if step 3 is followed, you shouldn't have any need for the supplementary 0426 shim in the instruction diagram.

Now pop the tail input assembly out, here's the "secret step"

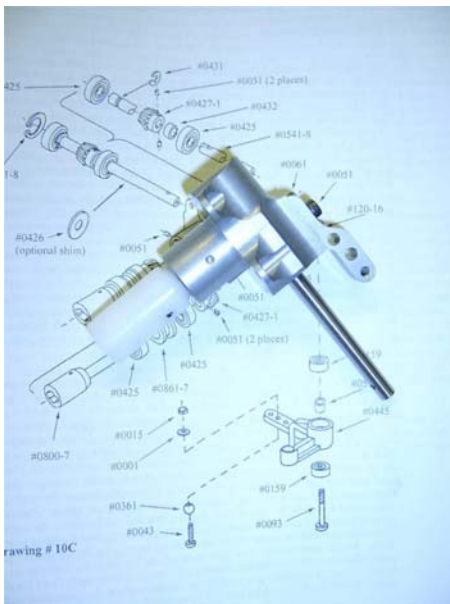


(6) Apply grease to the input 0427-1 gear before final assembly. Smooth it down to a very fine layer with your fingers and then fit the input assembly into the tailbox and do the final fitting.

The fine layer of grease will aid in getting the correct mesh and ensure that there is always enough room for a film of lube on the gears.

Just like the 0425 bbs on the output side of the tail box, you should apply a little locite to the outer walls of the 0425 bbs on the input side of the tail box before final assembly.

When tightening down the set screws that hold the input assembly into the tailbox, try to tighten them down evenly because this is how final mesh is determined. If you screw it up, take the whole thing out and rotate the 0861-7 and start again....you might notice that the set screws leave marks in this collar which they will follow again and can leave you with the same mesh as before if you do not rotate the collar a little ways.



(7) This is the final assembly. I put a little more grease in the tail box just before putting the 120-16 bellcrank support piece on. I used 4707 synthetic hydrocarbon grease, but there are plenty of other kinds that work!

Maintenance: it is not a bad idea to add lubes every 50-100 flights, it is important to get it on the gears, just packing it in is no guarantee that you will get it on the gears and is messy.

By chance or design, the tail gears are hardened metal, the torque tube is wound graphite and the crown gear is delrin plastic. Logic would say that delrin breaks before graphite which breaks before hardened metal gears....this has been my experience with shaft drive tails in all my hard landings / "minor

crashes"....keep spare crown gears!

When should you replace the tail gears? I tend to replace gears when I don't like the sounds they make or I am suspicious or worried, or 150-200 flights to be safe. It has been my experience that these gears will take hard, bad, and good flying, it seems to be the assembly that they are sensitive to.

Give the loctite a few hours to dry and it's ready for flying.

I hope that this information helps anyone building this tail or rebuilding one of these tails! It took me a couple of times to get it "right", but after much unwanted practice I can say that it can be made from bag to tail in fifteen minutes 🙏

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