

How to install the 2.6 : 1 Cog belt reduction drive

Step # 7

NOTE: In November of 1994, Quad City Ultralights changed the drive system from a 2.2 : 1 ratio with a 54" propeller to a 2.6 : 1 ratio with a 60" propeller. (60x44)

Belt reduction allows the Challenger to swing a bigger diameter propeller and is smoother than a gear drive. Care must be taken to install the reduction drive system properly to get the maximum life from the drive belt and the engine.

Begin by bolting the reduction tower to the output end of the engine with eight bolts provided (Hirth use 6 bolts). Make certain the mating surfaces are flat, smooth and free of burrs. Install mounting bolts with #271 Red Loc-tite and torque to 18 ft lb. With QCU starter, see starter instructions. Hirth bolts to be tightened to 28 ft lbs.

Next, install the small drive pulley on the output shaft with the 1/2" x 20 bolt, thick washer and lock washer provided (use loc-tite on this bolt) and torque to 50ft lbs. (Be sure to lock Rotax engine by inserting a locking pin provided in Rotax tool kit into the vacuum nipple on the side of the engine). Now install the adjuster bracket and large (driven) pulley to tower and snug up the large nut.

Pulley alignment:

Check for proper pulley alignment between the drive pulley and driven pulley (large pulley) by Placing a straight edge on the face of both pulleys.

Belt tension

Tighten the adjuster bolt on the adjuster bracket until correct tension is achieved and snug up the large castle nut. Remember, when tightened, the shaft is forced straight and the belt becomes tighter. With the large nut snug, re-check tension. See diagram xxx for proper tensioning. When you are satisfied with the belt tension, torque the large castle nut on the 1" pulley shaft to **250 to 300 ft. lb.** (hold the shaft from turning with a wrench on the square portion of shaft). Install 1/8" cotter pin, bend over and trim ends.

Back off the adjuster bolt, apply a small drop of loc-tite and screw down until bolt touches the top of the mount plate. Loc-tite the jam nuts and torque to about 20 ft lbs.

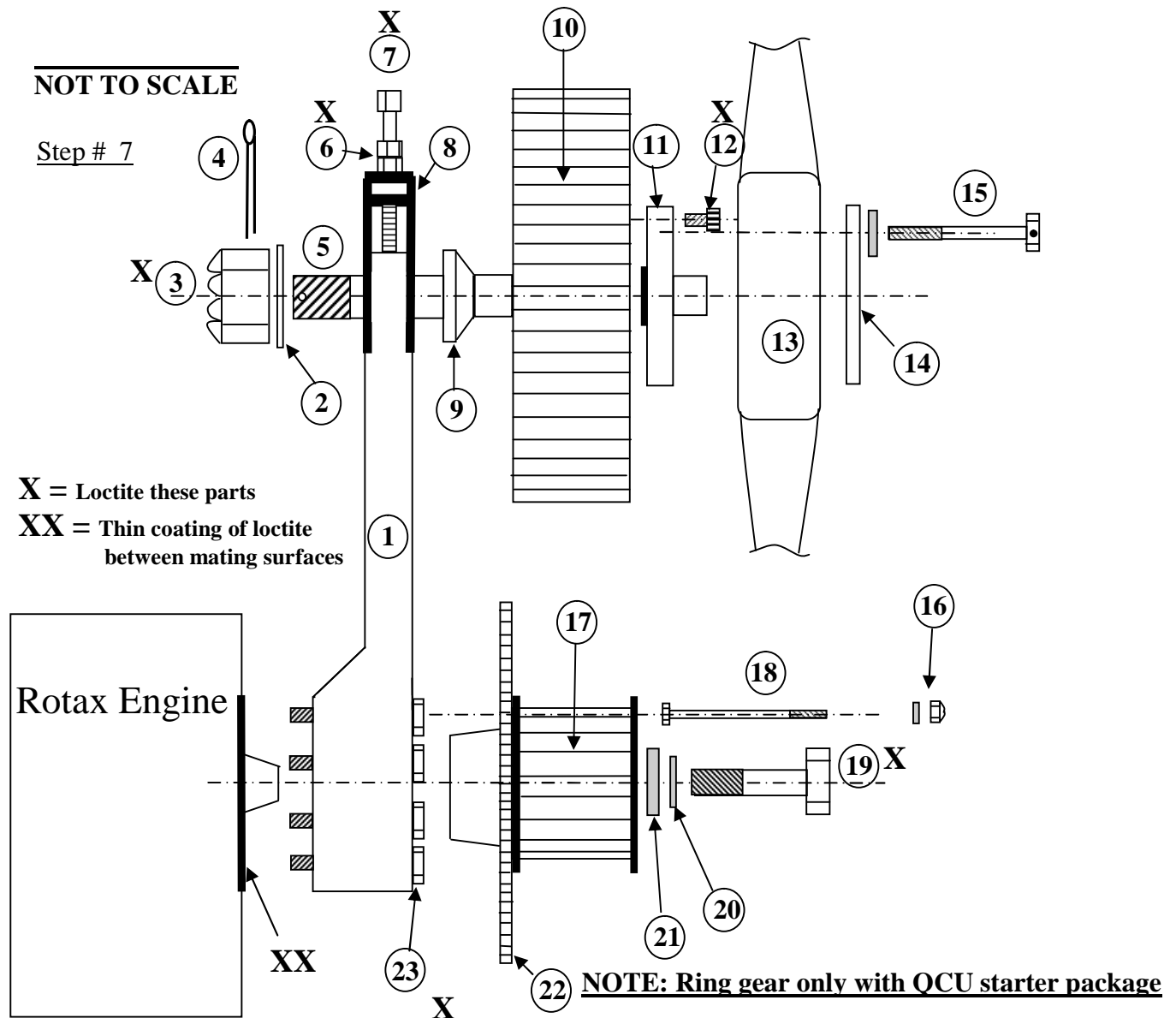
Install the propeller hub with 6 allen head 5/16" hex bolts. Loc-tite and torque to 18 ft lbs.

Install the propeller per instruction manual. (Sect III).

Check belt tension and torque values every 50 hours of operation.

The GT-2 belts should last 400 or more hours, but we recommend replacing after 200 hours of operation or every 24 months, whichever comes first. Remove prop, clean mating surfaces, reinstall and retorque to 18 ft. lbs. every 100 hours. At 500 hours we recommend replacing the prop shaft bearings in the top pulley. These bearings are installed in the top pulley at the factory but can easily be replaced with the use of an Arbor press.

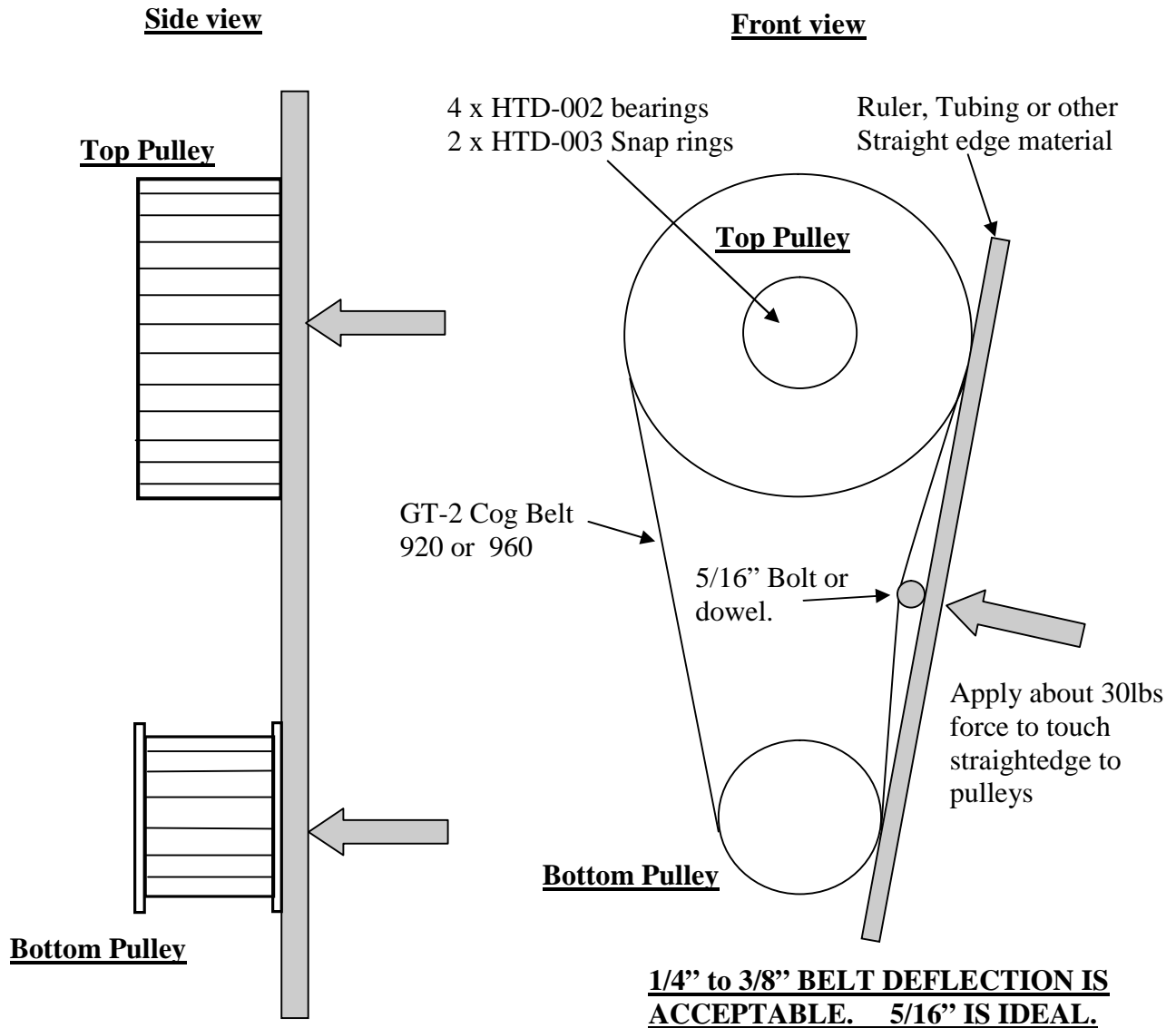
Reduction drive detail



- | | |
|---|--|
| <ul style="list-style-type: none"> 1. Reduction tower (spacer incorporated) 3. 1" Castle nut (Torque 125 - 175ft lb). 5. Pulley Shaft (4140 Chromalloy). 7. Adjuster bolt (3/8" grade 8). 9. Thrust washer (Stainless steel) 11. Propeller hub (6061-T6 Alum). 13. Propeller 15. Prop mounting bolts (& washers)
x 6 (drilled head). torque to 18 ft lbs 17. Bottom pulley 19. 1/2" bottom pulley bolt (1/2" x 2-1/2"
SAE fine grade - Torque to 50ft lb) 21. 1/2" Extra thick washer (stainless steel) 23. Re-drive mount bolts x 8. (8mm x 70mm torque
to 15ft lb Rotax - 10mm x 50mm Hirth torque to 20ft lb)
(do not use washers under bolt heads with QCU starter shown) | <ul style="list-style-type: none"> 2. 1" AN960-1616 Washer 4. 1/8" cotter pin 6. Adjuster brkt jam nuts x 2 (3/8" zinc) 8. Adjuster bracket HTD-012 (s. steel). 10. Top Pulley (6061-T6511 Alum). 12. Hub mounting bolts x 6 (5/16" socket
Head. HTD-007 - Torque to 18 ft lb) 14. Propeller face plate - HTD-008 16. 6 x AN365-1032 nyloc nuts and washers 18. 6 x AN3-26A bolts with ring gear
(AN3-24A without starter package) 20. 1/2" lock washer 22. Ring gear - for Starter motor assy. |
|---|--|

How to check belt tension and alignment for 2.6 : 1 Reduction drives

Step # 8



Run a straight edge as shown above
to make sure the top and bottom pul-
leys are aligned.