

## **Century Drive Systems Inc.,**

### ***INSTRUCTIONS FOR INSTALLATION OF THE CH-3 COUNTER ROTATING UPPER ASSEMBLY - TAPERED SHAFT UNITS ONLY***

# **WARNING**

- **Never reach hands or other body parts in or near moving parts!**
- **Unit upper assembly is shipped without oil in the gear case. Be sure to fill with the proper type and amount of lubricant. This assembly weighs 120 lbs. Be careful when handling to avoid injury or damage. Always have a co-worker or assistant available to help.**
- **Maintain a safe distance from any fixed or moving propeller!**

**Note: Be sure to disconnect batteries prior to beginning maintenance on your drive unit. Also remove all tools and loose objects from engine area prior to testing.**

**WARNING: IT IS VERY IMPORTANT THAT YOU CAREFULLY FOLLOW ALL DETAILS OF THESE INSTRUCTIONS**

**DEATH OR SERIOUS INJURY MAY OCCUR WHEN WORKING ON OR AROUND MOVING PARTS.**

1. With the aid of (2) assistance, hold the belt up so that you can slide the upper assembly pulley under the belt. To do this, you should be sure that the bearing flange has the short side down as it is on an eccentric to give you slack on the belt to assemble. After the pulley is under the belt, you must pick up on the entire upper assembly to get the flange up into the main case, then turn the bearing holder clockwise to tighten the belt.

**Note: That the oil sight glass should be on the right hand side of the upper assembly when facing the rear of the boat at about the 3:30 position, just a little below center .**

2. Temporarily put in (4) 3/8" - 16 x 2 1/4" cap screws. Before rotating look in from the bottom of the unit with a flash light to visually inspect that the belt is somewhat centered on the pulleys, so that the belt will not hit the flexplate bolt heads when you first rotate the unit through. If the belt is somewhat centered, turn (2) revolutions by hand without starting the engine, to finish centering the belt. Check the belt tension by having a helper hold downward on the propeller tip to make a slack side to the belt. Then by feeling the slack side, determine the amount of belt deflection. The belt should be snug but not stretched drum tight. If your belt is too tight, you could cause premature pulley or bearing wear. Readjust to the proper tension, then put in all (9) 3/8" - 16 cap screws and lock washers, then rotate through again and recheck.

**Note: Some belt rumble at 500-750 RPM is normal and the belt will tighten a little more as the unit warms up. If you hear the belt whine it is most likely too tight.**

3. If you are using the (SFC-24TC) lock style bearing, you must tighten the lock ring around the split portion of the inner race of the lower bearing and again re-tighten after a few hours of drive unit operation. If you are using the standard set-screw bearing (SFC-24), take out the set screw and with the bearing in place, reach through the set screw hole with a drill and, drill bit to make (2) dimples for the set screws to lock into.
4. Place front propeller over the 2 1/4" dia. shaft, adjust propellers to the manufacturers maximum effective pitch setting so that most of the load is on the front right hand rotation shaft as it is a 1.5 to 1 reduction to the rear propeller. The bore thru your hub should be at least 2 3/8" diameter.

**Note: Counter Rotator ratios available:**      **1.774 to 1 - 2.661 to 1**  
   **2 to 1 - 3 to 1**  
   **2.3 to 1 - 3.5 to 1**

5. With paint thinner clean any oil or rust inhibitors from the internal 1 1/4" - 12 threads of the inside of the shaft as well as the 1" in 12" tapered shaft end. Also clean with paint thinner the inside taper of the propeller hub plate to remove all oils or preservatives.
6. Make certain no oils are on the tapered shaft area. Be sure the woodruff key is seated in the keyway and coat the tapered shaft area as well as the inside of the prop flange with 60905 loctite. Have your 1 1/4" centering bolt cleaned, free of oils, and ready with loctite on the threads and a 1/4" bead of silicone under the bolt head at the base of the threads. Tighten this with a 2" wrench as tight as possible or to at least 120 lbs. Tap the prop flange lightly with a dead blow hammer and re-tighten.

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7. This assembly requires 62 ounces (just shy of 2 full quarts) of synthetic automatic transmission fluid (We recommend Pennzoil 159920 ATF). This is put in slowly with a small end funnel in the top of the assembly thru the hole where the 1/4" pipe plug goes in. When plug is replaced be sure to use the silicone sealant provided on the threads.
8. Depending on your belt adjustment, the sight glass window may be rotated too high or too low to give you a visual oil level. Please note the oil level if in the window after you start and stop your unit for a few minutes for future reference. If at a later time you are unsure of your oil level, drain your oil into a clean container and measure the volume of oil. You should have 60 ounces as about 2 ounces will be retained in the secondary shaft compartment. If you have less than 60 ounces, put in a full 62 ounces.

9. The first oil change should be done after 20 hours of breaking time and then we recommend changing your unit oil every 6 months or 100 hours of use.

**Note: The bottom plug is magnetic and will attract fine metallic materials as your unit breaks in or as it wears over its lifetime.**

10. Please remember your lower bearing still needs 2 pumps of high temp bearing grease every 16-20 hours of operation. **DO NOT OVER GREASE!**
11. Propellers must maintain a 1" minimum clearance between the trailing edge of the front prop and the leading edge of the rear propeller.
12. If you must take your unit off of the boat, first drain your counter rotating upper assembly oil. **Also note: that the vent in the rear of the center shaft could leak remaining residual oil if stood up on the pulley.**
13. During handling or assembly of the boat, be sure to set the unit on foam pad (or like material) to protect the aluminum pulley teeth.

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**If you have any questions or need technical assistance,  
contact Customer Service at 866-679-4200.**