INSTRUCTIONS FOR INSTALLATION OF THE CH-2 and CH-3 DRIVE UNIT TO AN ENGINE

WARNING

- Never reach hands or other body parts in or near moving parts!
- Maintain a safe distance from any fixed or moving propeller!
- Prior to beginning any work on your project, turn off the main battery switch and/or remove the battery terminals and ignition keys!
- Some parts are heavier. The unit components weigh between 20 lbs. - 60 lbs. Take necessary precautions to avoid injury when preparing to, or when installing the drive unit. Always have a co-worker or assistant available to help.

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

Century Drive Systems, Inc.
687 Bucktail Road
Franklin, PA 16323

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13 STEPS

Step 1: Check the top of the engine block bell-housing for an attachment hole. Some blocks have a top center hole drilled. If no hole is drilled, place the main case over the engine dowels and use a 7/16" transfer punch to center at location to drill a hole. Drill 1" deep with a 5/16" drill and tap with a 3/8"-16 tap. It is recommended to clean out the other holes with the tap as well.

Step 2: Be sure that the end of your crank shaft pilot area is clean and free of rust and burrs. Also, some engines have a dowel pin in the crankshaft to align the flywheel. This pin must not extend through the flywheel more than 1/16" or it will interfere with the bolt heads of the Drive Unit's lower assembly. You may either grind the dowel pin flush, or drive it back toward the engine.

Step 3: In most cases the Generation 5 Flex Plate on a 2:1 or 2.3:1 ratio Drive Unit will bolt directly to your flywheel without drilling new holes. However, when you use other unit ratios or engines, you may have to drill the new pattern into your flywheel. In such cases, contact your dealer or manufacturer and a pattern and centering hub will be supplied for your use to drill the flywheel as needed.

Step 4: Put a thin film of grease into the pilot area of the crankshaft then slide the lower assembly stub shaft into the end of the crankshaft. This is a close fit so you may need to lightly tap the end of the shaft with a leather or rubber mallet. DO NOT USE A STEEL HAMMER OR EXCESSIVE FORCE. If the fit is too tight, use a piece of emery cloth to polish out the pilot area of the crankshaft. Clean, re-grease and try again. After inserting the stub into the crankshaft, use the six (6) fine thread bolts, washers, flange nuts and spacers provided to attach the flexplate to the flywheel. The spacers are placed between the flywheel and the flexplate. Place a washer on the bolt and install the bolt through from the Drive Unit side with the flange nut being on the engine side. Although the nuts are a locking style, it is recommended Loctite material be used on each of the six (6) bolts. Only lightly snug the six (6) bolts at this time making certain you don't bow the two plates together. The plates must not be forced together, pre-loaded or bent in any way when tightening.

Step 5: Sprinkle some baby powder on the teeth of the Drive Unit belt, and then place the belt on the lower pulley. The powder will help the upper pulley to slide under the belt for assembly.

Step 6: Mount the main case using the (3) 1-1/2" long and (4) 2" long 3/8" - 16 L9 hex head cap screws and lock washers provided in the hardware package. Apply Loctite to the threads and torque to thirty-five (35) pounds. **WARNING: DO NOT SUBSTITUTE A LESSER QUALITY MOUNTING BOLT THAN THE CAP SCREWS PROVIDED.** Minimum requirement is a coated Grade 8, however we provide L9 plated fastener.

Step 7: Roll your engine through by hand about 4 or 5 revolutions, be sure to protect the belt from being damaged, and then finish tightening the six (6) bolts on the flexplate and flywheel. Torque them to 35 pounds.

Step 8: With an indicator, confirm that the lower shaft that extends through the lower bore of the main housing is running true within .005 prior to placing the lower bearing over the shaft and in position bolted to the main housing. You can use a leather or dead blow mallet to gently bump the shaft end in line.

NOTE: At this time if your unit is a Counter Rotating System please refer to the Counter Rotating Upper Assembly Installation Instructions. If you are installing a standard CH-3 Drive unit continue with Step 9.

Step 9: With a helper, hold the unit 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 lip up into the main case, then turn the bearing holder clockwise to tighten the belt. Temporarily put in (4) 3/8"-16 x 11/2" cap screws. Before rotating engine look in from the bottom with a flash light to visually inspect that the belt is somewhat centered on the upper pulley. Then rotate the engine a few revolutions by hand without starting the engine, to center 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 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.

Step 10: If you are using the SFC-24TC 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 screws and with the bearing in place, reach through the set screw holes with a drill and, drill bit to make (2) dimples for the set screws to lock into.

Step 11: All Drive Units are shipped pre-greased. However, after the first hour of operation, give the upper (2) grease fittings (2) pumps of grease only. Then, give the grease fitting on the lower bearing (2) pumps of grease.

Note: Grease the three (3) bearings with only two (2) pumps of grease every 15 hours of operation. Over-greasing at one time can push out dust and grease seals.

Step 12: The rear mounts of the Drive Unit main case should be sandwiched between neoprene. This is accomplished with a long 9/16" Grade 8 bolt, a large flat washer and a 3/8" thick neoprene rubber pad being installed from the top. A 1-1/2" thick neoprene pad should be directly under the Drive Unit case between the case and the engine stand. Under the engine stand, use another 1-1/2" thick neoprene pad, large flat washer, lock washer and a 9/16" lock nut (or use two (2) nuts to jam nut secure). You will need a total of three (3) neoprene rubber pads per each bolt for the rear mounts being a total of 6 pads. Century Drive Systems Inc. does not supply this hardware or neoprene pads for the rear mounts since so many different mounting frameworks are used. Remember for proper alignment that the 1-2" thick neoprene pad under the drive unit will compress approximately 1/4" to 1/2". This compression will vary depending upon the density of the neoprene pads being used. We suggest using medium to stiff Neoprene pads.

Step 13: After 5-10 hours of operation, it is recommended all drive unit bolts be re-torque and verify that the lower bearing set screws or ring clamp are still tight.

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DRIVE UNIT	*AVAILABLE RATIOS*
CH-2	*2 TO 1*
CH-3	*1.774 TO 1; 2 TO 1; 2.3 TO 1*
CH-3 COUNTER ROTATOR - INPUT RATIOS	*1.774 TO 1; 2 TO 1; 2.3 TO 1*
CH-3 DIESEL	*1.5 TO 1*
CH-3 LONG BELT DRIVE	*2 TO 1 ; 2.3 TO 1*
BRIGGS MINI DRIVE	*1.65 TO 1 ; 2 TO 1*