



SmallWaterCraft LLC
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INSTRUCTIONS

XG1577

**CRANKSHAFT / HUB REMOVAL & REASSEMBLY
AND BUSHING REPLACEMENT**

REVISION DATE: OCT 2004

TOOLS REQUIRED:

7/16" WRENCH
7/16" SOCKET
1/8" ALLEN WRENCH
3/16" ALLEN WRENCH
3/8" drill bit
"F" drill bit (0.257" dia.)
Drill motor
Channel Locks (or preferably a 1^{3/4}" socket and driver)
NON-WATER SOLUBLE MARINE GREASE

PARTS:

KIT 4218—Crank Bushing Assembly

(2) 3922	Bushing Subassembly	 — See Figure 1.
(2) 3924	Backing Plate	
(2) 3925	Nut	
(2) 4093	Outer Gasket	
(2) 4094	Inner Gasket	
(2) 0166	Collar w/o Set Screw	
(2) 3797	Bolt, 1/4-20 x 1-1/4 Socket Head-SS	
(2) 0098	Nut, 1/4-20 Nylock, Full Size, SS	

REMOVAL OF THE CRANKSHAFT AND PADDLEWHEEL.

1. Remove the nut and bolt attaching the crankshaft to the paddlewheel axle. (one bolt per side). Old style boats use the hex head bolt and nylock nut. The new version (OCT 2000) uses a socket head bolt and nylock nut. A lock washer may have been used as well. This lock washer is unnecessary.
2. If the boat is equipped with the latest bushing possessing the large (1.75" Hex) nut within the paddle wheel well, skip to step 3. Otherwise, loosen the set screw that secures the crank collar to the hull side of the crankshaft. Some older models have a snap ring in this location. Spread the snap ring with a screwdriver and remove it with a pair of pliers.
3. Pull the crankshafts out of the bushings. You may need to knock them loose with a rubber mallet.

4. If crank bushings are to be replaced, continue with “CRANK BUSHING REPLACEMENT” section as follows. Otherwise, skip to “CRANKSHAFT AND PADDLEWHEEL INSTALLATION” section.

CRANK BUSHING REPLACEMENT

1. **If riveted or bolted bushings are installed in the boat**—remove all tie bolts, or if riveted, use an “F” size drill bit (0.257”) installed in a drill motor, and drill out 3 rivets on both the port and starboard bushing assemblies. **See Figure 2.** Remove the original bushing assemblies from the boat. **If the boat is equipped with the latest bushing possessing the large (1.75” Hex) nut within the paddle wheel well**—remove the large nut and disassemble the inner and outer bushing halves from the boat.
It is suggested that the bushing through holes in the boat be deburred once exposed.
2. Remove the 4093 Gasket adhesive backing paper. With the gasket adhesive toward the ribbed side of the 3922 Bushing, take care to align the small hole on the gasket with the small hole on the bushing. Apply the gasket to the ribbed side of the bushing. Repeat. **See Figure 3.**
3. Remove the 4094 Gasket adhesive backing paper. With the gasket adhesive toward the 3924 Backing Plate, take care to align the small hole on the gasket with the pin on the backing plate. Apply the gasket to the backing plate. Repeat. **See Figure 4.**
4. Insert one of the gasketed 3922 assemblies into the large crank bushing hole in the pedal boat. Orient the small alignment hole vertically upward, so the **uppermost rivet hole** is visible in the alignment hole.
5. Using the “F” drill bit installed in a drill motor, use the 3922 alignment hole to pilot the drill and ream the hole, to ensure the bushing and boat holes match. Repeat on the opposite side of the boat.
6. Note—To simplify installation of Crank Shafts, and to reduce risk of damage to Bushings, remove the 3922 Bushing from the boat, lubricate the bushing bronze and the Crank Shaft on the bushing side of the welded stop washer, using a light coat of non-water soluble marine grease, and slide the 3922 Bushing onto the Crank Shaft. Then insert the Bushing / Crank Shaft unit into the boat. The Crank Shaft may be supported on the gunwale as shown in **Figure 7.**
7. From inside the paddle wheel well, place the 3924 Backing Plate over the 3922 Bushing threads, and insert the backing plate pin through the “F-size” hole in the boat. Ensure the 3924 pin engages the alignment hole in the 3922 Bushing as well. **See Figure 5.**
8. Thread the 3925 Nut onto the 3922 Bushing. Tighten the nut against the backing plate to a strong “hand-tight” torque. Ensure the backing plate is solidly in contact with the boat hull surface. Using the channel locks, turn the nut 3-4 additional “clicks” of the locking feature. Do not over tighten. **See Figure 6.**

9. Repeat steps 6 through 8 on the opposite side of the boat.

CRANKSHAFT AND PADDLEWHEEL INSTALLATION:

1. If not previously accomplished during Crank Bushing Replacement section--lubricate the bushing hole and the crank shaft on the bushing side of the welded stop washer, using a light coat of non-water soluble marine grease. **See Figure 7.**
2. Push the crankshafts through the bushings approximately $\frac{1}{2}$ ", and slide the crank collars over the ends of the shafts. **See Figure 8** (new bushing design shown).
3. If your boat had the standard hex head bolts you will need to drill out one side of each hole with a $\frac{3}{8}$ " drill bit to allow the socket head bolts to be installed (see diagram)
4. Place the paddlewheel in the direction so that, when pedaling, the smooth side of the blades will push against the water. Insert the cranks into the paddlewheel **one at a time**. Line up the holes in the cranks and the axle. The cranks should be positioned 180° from each other (see diagram). Insert the $\frac{1}{4}$ -20 x 1- $\frac{1}{4}$ " hex head bolts or socket head bolts (depending on year of boat) and secure with the $\frac{1}{4}$ -20 nylock nuts.
5. If the boat is equipped with the latest bushing possessing the large (1.75" Hex) nut within the paddle wheel well--remove the collar set screw from 0422 (if provided) and discard. See Figure 9 (completed assy of new bushing shown). If the riveted or bolted bushings are used--secure the crank collar by first locating the dimple in the crankshaft and rotating the collar so the screw will set into the dimple. Carefully tighten the set screw. On older models, simply reinstall the snap ring in the same location that it was removed from.
6. Spin to ensure that assembly freely rotates.

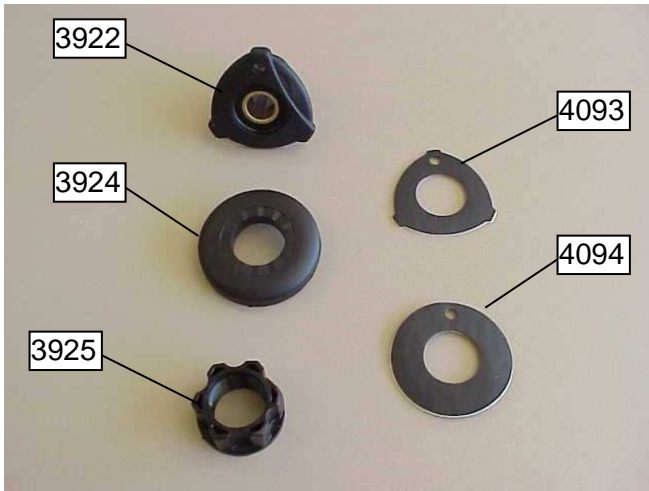


Figure 1.

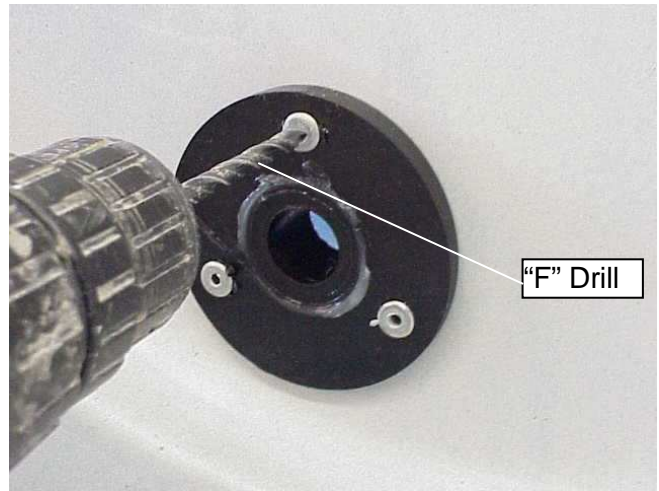


Figure 2.

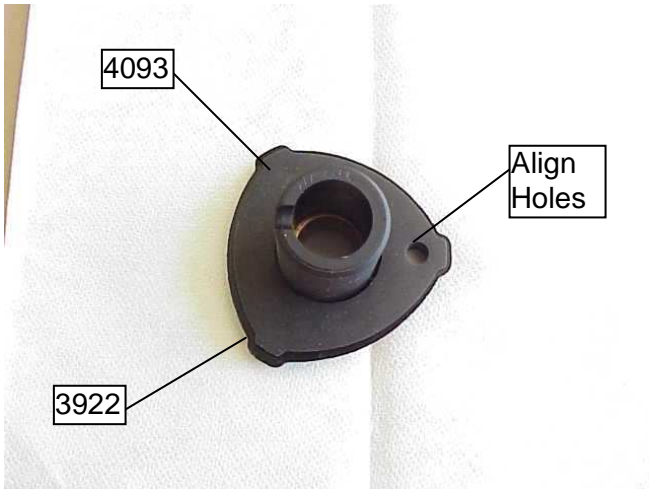


Figure 3.

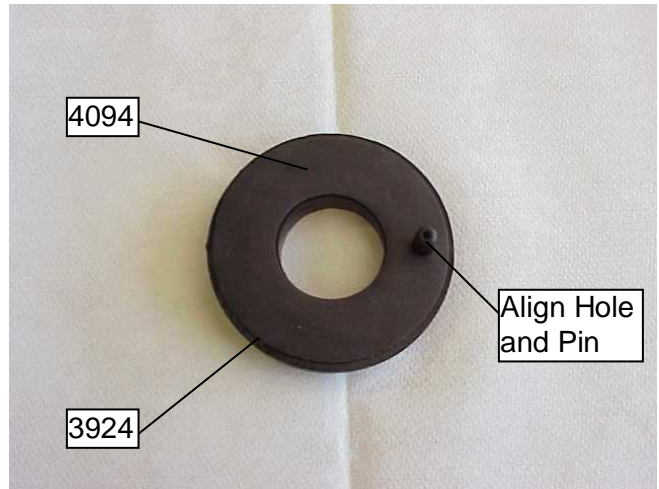


Figure 4.

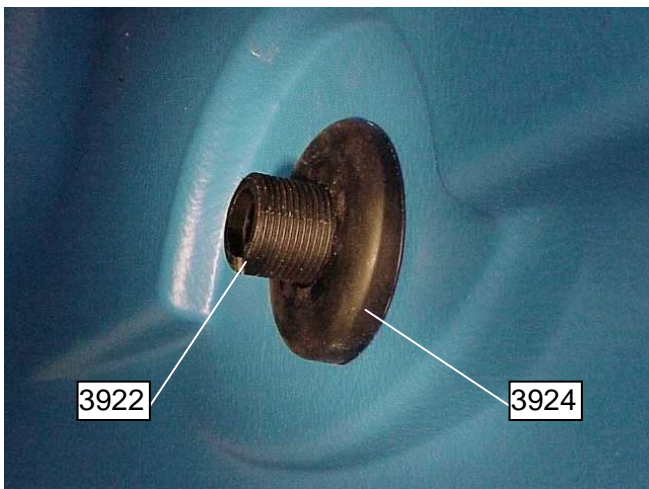


Figure 5.

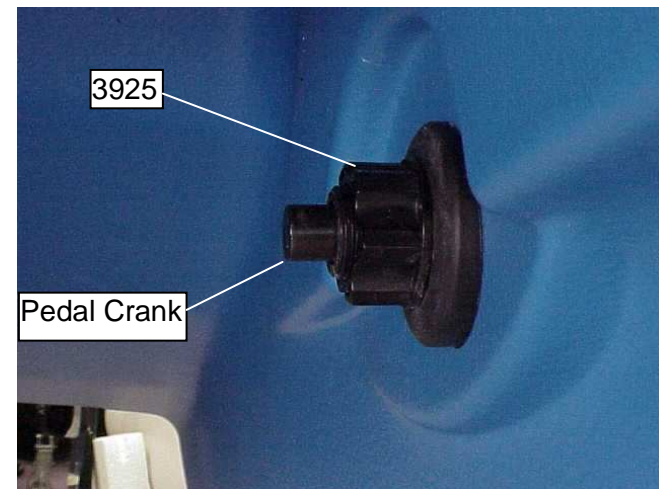


Figure 6.

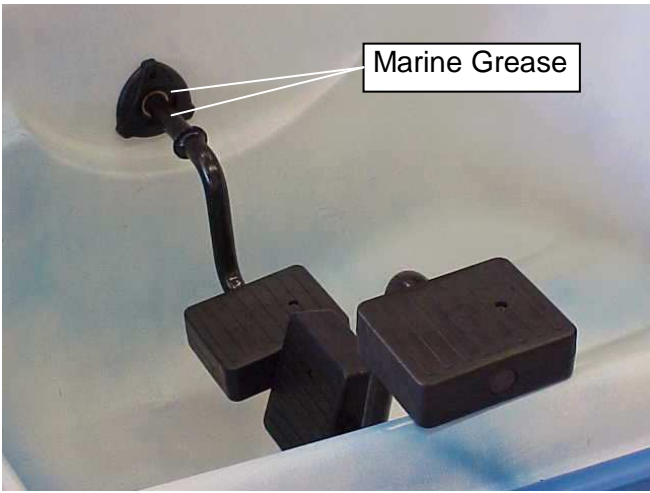


Figure 7.

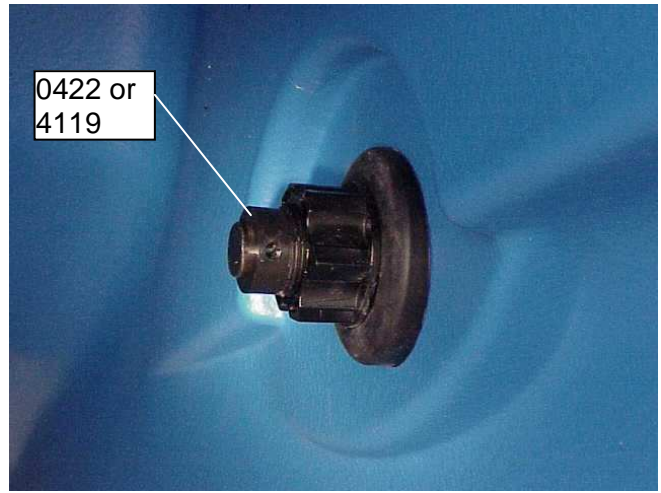


Figure 8.



Figure 9.