SMITH PUMPS

Instructions for Replacing and "Exchanging" Shaft-Seal Assemblies in Low-Capacity Smith Pumps, Model Types "MC-1", "GC-1", DW-1Z", "DW-HZ", "EG-1Z", "EC-HZ", "SQ-1", "SQ-H", "SQ-HH", and "SQ-HH8" (Face-Mount and Foot-Mount Types)

DO NOT DISASSEMBLE THE PUMP UNLESS IT IS SAFE TO DO SO. FOLLOW ALL APPROPRIATE SAFETY CODES AND REGULATIONS FOR YOUR PARTICULAR APPLICATION. CONTACT THE FACTORY IF THERE ARE ANY QUESTIONS REGARDING THESE PROCEDURES. SHAFT-SEAL ASSEMBLIES STORED FOR PROLONGED PERIODS MAY LEAK OR NOT GIVE SATISFACTORY PERFORMANCE, SHOULD CORROSION DEVELOP ON THE SEAL FACES, OR ELASTOMERS TAKE ON A COMPRESSION SET.

1. SEPARATE THE PUMP AND MOTOR, OR ENGINE. For face-mount types, remove the four bolts attaching the pump to the motor or engine. With "MC or GC-Series", these bolts are on the end-bell next to the motor or engine. For all other models, these bolts are with the others that hold the pump together. They pass clear through the pump casing, and screw into the four hexagonal "mounting spacers" between the pump and the motor, or engine. **For foot-mount types**, unfasten the motor or engine from the base. Slide the motor or engine back. Usually, all the different Smith models mentioned, above, can be left installed in the piping, if desired, except in very specialized circumstances (see specific instructions before proceeding).

2. PREPARE TO REMOVE THE SHAFT-SEAL ASSEMBLY FROM THE PUMP. Be sure all pressure is discharged from the pump in a safe manner. Remove the small screws, or bolts, from the bearing retainer plate at the shaft end of the pump. It is necessary to first remove the flexible drive coupling from the drive shaft to obtain access to these fasteners. (With face-mount "MC and GC-Series" pumps, the screws are way inside the end bell; a long screwdriver is needed. *Also*, with "MC and GC-Series" pumps ONLY, remove the pump gear end cover, slide the center gear off of the drive shaft, and remove the drive gear key from the drive shaft, *before* attempting to remove the seal assembly). With all models, rotate the drive shaft so the drive end keyway is at the top.

3. REMOVE THE SHAFT-SEAL ASSEMBLY FROM THE PUMP. Pull the shaft straight out of the pump, from the drive end. If the shaft will not come out, to avoid damage to the bearings and/or internal shaft bushing regardless of the model type, although tapping *very lightly* on the side of the coupling half still mounted on the drive shaft might seem to help, the best procedure is to remove the gear end cover and tap the drive shaft lightly with a soft metal drift in the direction of the coupling. In all cases, if the end cover is removed, it will have to be cleaned, resealed, and reassembled in the prescribed manner. (See Technical Bulletins "AL-1", "AL-97", appropriate Manuals (such as "ED-1" and "GM-1"), assembly views, and other use-specific literature as required).

4. EXAMINE THE BORE IN THE SHAFT END OF THE MAIN HOUSING, OR IN THE SHAFT END COVER. This is the area where the assembly was located. See if it is rusty. When safe and recommendable to do so, clean out any rust with fine sandpaper or emery cloth. Then, apply a light coating of any grease as a rust preventive. (Note: these procedures are **not** recommended in certain specialized services, or where handling highly reactive substances. See use-specific instructions before proceeding).

5. SLIDE THE REPLACEMENT SHAFT-SEAL ASSEMBLY INTO PLACE. Be sure that the drive end keyway is at the top. When the shaft is most of the way in, a resistance may be felt. This would mean that the inside shaft key does not quite line up with the keyway in the center gear. Rotate the shaft a little, back and forth, while lightly pushing by hand, until the key is felt to enter the keyway. Then, push the shaft-seal assembly by hand the rest of the way into place. Do not pound on the shaft to force it into place. With the "GC and MC-1 Series" pumps, after the shaft-seal assembly is in place, replace the gear drive key and center gear. Then, after cleaning off old sealant from both the gear end cover and the main housing in the prescribed manner, paint a thin film of the casing sealant that we recommend on the face of the main housing only, and replace the gear end cover. BE SURE THAT THE COVER PORTS ARE PROPERLY ALIGNED WITH THE CORRESPONDING PORTS IN THE MAIN HOUSING.

6. REPLACE THE BEARING RETAINER PLATE, AND SCREWS OR BOLTS. Refer to Bulletin "AL-99" for torque requirements. Replace the flexible coupling also. **For face-mount types**, bring the motor, or engine, into contact with the pump, and tighten the mounting bolts. **For foot-mount types**, position the motor or engine properly on the base, and tighten the mounting bolts in the prescribed manner. With the Smith coupling, be sure to leave the appropriate gap between the coupling halves and the coupling insert; also be sure to align the pump and motor shafts properly (see Technical Bulletins "AL-1" and "AL-3").

7. In most cases, the aforementioned is relatively easy to accomplish within less than a half hour, without removing the pump from the piping. No special tools of any kind are required. THIS IS A BIG ADVANTAGE OF SMITH PUMPS, OVER COMPETITIVE MAKES.

8. Good credit can usually be allowed by the factory for the used shaft-seal assembly returned for credit against the remanufactured replacement under the Exchange Plan (see "AL-1"). Do not disassemble the old assembly, as this results in less, or no credit.

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