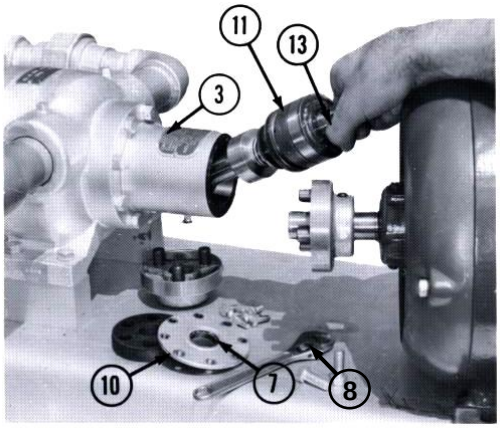
SMITH PUMPS

Instructions for Replacing and "Exchanging" Shaft-Seal Assemblies in Medium and High Capacity Smith Pumps.



Pump Parts Illustrated

(3) Shaft End Cover
(7) Grease Seal
(8) 8-inch Adjustable Crescent Wrench (which is actually the only tool normally needed for this procedure).
(10) Bearing Retainer Plate
(11) Shaft-Seal Assembly
(13) Main Shaft

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. Prepare to withdraw the main shaft (13) from the drive end of the pump (3). At bulk plants, disconnect the electric motor from the base by removing the four motor mounting screws. Slide the motor back, or to one side. If directly connected to a PTO, disconnect the universal joint on the pump shaft.
2. Next, discharge all pressure from the pump in a safe manner, remove the eight small hex head bolts in the bearing retainer plate (10), and *turn the shaft by hand so the outside keyway is at the top*. Then pull the shaft-seal assembly out. If the shaft will not come out, to avoid damage to the internal shaft bushings, 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. 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, assembly views, and parts lists for your particular model).
3. Examine the bore in the shaft end cover (3) to see if it is at all rusty. Where it is safe and recommendable to do so, clean out any rust with fine sand paper 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 specific instructions before proceeding).
4. Making sure that the outer keyway is at the top, slide the replacement shaft-seal assembly into place. When the shaft is most of the way in, a resistance may be felt. This would mean that the inside shaft keys to not quite line up with the keyway(s) in the center gear(s). Rotate the shaft a little, back and forth, while *lightly* pushing by hand, until the keys are felt to enter their respective keyways. Do not pound on the shaft to force it into place. Remember that Smith pumps are modular. Larger units, such as the "MC-3" , "MCAT-3R and L", "ATC-3R and L", and "TC-3" types, have two sets of gears, so this procedure may have to be done twice. "MC-4", "MCAT-4R and L", and "ATC-4R and L" types have three sets of gears. "MC-5", and "ATC-5R and L" types have four sets of gears. After properly aligning the drive gear key(s) with the drive gear keyway(s), push the replacement shaft-seal assembly the rest of the way in by hand, replace the bearing retainer plate (10), and the small bolts, then reconnect the drive coupling or universal joint.
5. In most cases, the aforementioned is relatively easy to accomplish within less than a half hour, without removing the pump from the piping. THIS IS A BIG ADVANTAGE OF SMITH PUMPS, OVER COMPETITIVE MAKES.
6. 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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