SERVICE BULLETIN 004

The Pumps with Nine Lives

35 Frame Crankcase Oil Seal Replacement Tool Kit

Use Seal Tool Kit PN 32273 to remove plunger rod oil seals if oil leaks between the inlet manifold and the crankcase.

Prior to using this seal tool kit, follow these steps on plunger pumps.

Draining the Oil, Removal of Manifolds, Plungers and Plunger Retainers:

1. Remove the drain plug from the rear cover of the drive end to drain the oil from the crankcase.
2. Follow the instructions in the pump service manual to remove the discharge manifold from the pump.
3. Remove the V-packing assembly from the pump.
4. Remove the inlet manifold from the crankcase.
5. Remove the plunger retainer and plunger from the plunger rods.
6. Remove the O-ring and backup ring from the plunger retainer.
7. Remove seal retainers, keyhole washers and slinger barriers.

KIT INCLUDES:

- (1) Seal Removal Tool
- (1) #2 x 6" Phillips Driver
- (9) #8 x 3" Phillips Screws
- (1) 5⁄16" Flat Washer
- (3) #10 Flat Washers
- (3) Crankcase Oil Seals

Removal of Plunger Rod Oil Seals from the Crankcase:

NOTE: The oil seal will be damaged during this process and must be replaced.

1. Tighten an adjustable wrench around the crankshaft, specifically on the keyway.
2. Rotate the crankshaft so the plunger rod is fully retracted into the crankcase.
3. Insert the seal tool over the plunger rod and press it back to make contact with the oil seal.

NOTE: Confirm that the seal tool is seated directly against the seal, completely inside the plunger rod oil seal bore (Figure 1).

4. Install a washer over the first screw and insert the screw into one of the three seal tool holes (Figure 2). Repeat with the other 2 screws.
5. Insert a long #2 Phillips bit driver into the chuck of a drill.
6. Hold onto the backside of the crankcase with one hand and use the other hand to press the driver against the screw.
7. Slowly tighten the screw into the face of the oil seal, puncturing the surface until the screw head is tight against the washer (Figure 3). Repeat steps 6–7 with the other 2 screws.

NOTE: If the screw does not pierce the seal, tap it gently with a hammer to penetrate the metal in the seal before using the driver.

8. Use an adjustable wrench to turn the crankshaft, pushing the plunger rod and tool outwards and pulling the oil seal out of the crankcase.
9. Remove the oil seal tool and oil seal from the plunger rod.
10. Use the drill to remove the screws from the oil seal.
11. Repeat to remove the other two oil seals if necessary.

Figure 1

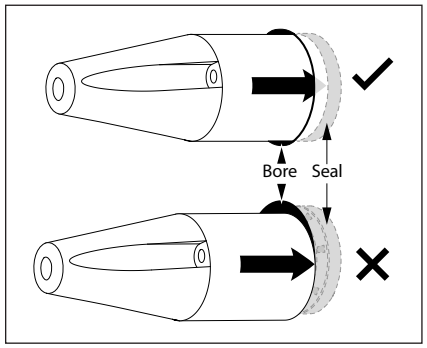


Figure 2

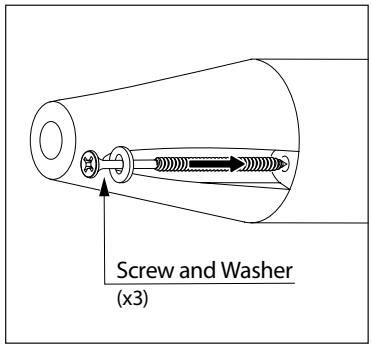
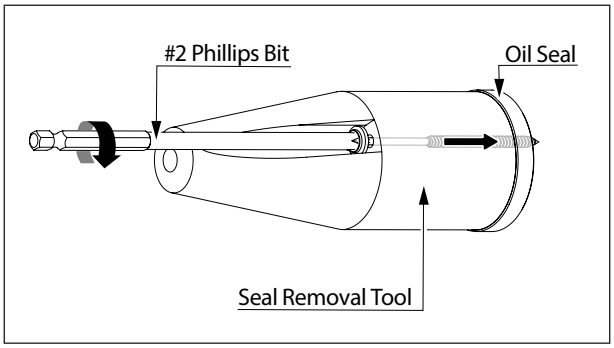


Figure 3



Reinstallation of Oil Seals

NOTE: There are three different configurations depending on the pump model (Figure 4).

1. Use the adjustable wrench to turn the crankshaft so the plunger rod is extended as far as possible.
2. Wipe the plunger retainer and crankcase oil seal bore clean with a clean towel.
3. Put some light assembly oil or grease on the inside diameter of the new oil seal.
4. Install the oil seal over the plunger rod and press it back into the crankcase bore by hand.
5. Insert the seal tool over the plunger rod and press it back towards the oil seal (Figure 5).
6. Install the plunger retainer on the rod and hand-tighten it against the tool.
   a. For most models, the plunger retainer diameter is larger than the hole in the seal tool. The bottom of the plunger retainer will sit against the top edge of the seal tool.
   b. For models 3550 and 3560, install the plunger retainer on the rod and hand-tighten it into the bore so the head of the plunger retainer seats against the top edge of the seal tool.
   c. For models 3501HS, 3507HS and 3801HS, install the flat washer included with the kit over the plunger rod before installing the plunger retainer. The bottom of the retainer will sit against the washer.
7. Use the adjustable wrench to turn the crankshaft, pulling the plunger rod and tool inwards and pushing the oil seal into the crankcase.
8. Remove the plunger retainer and oil seal tool from the plunger rod.
9. Repeat to install the other two oil seals if necessary.

Figure 4

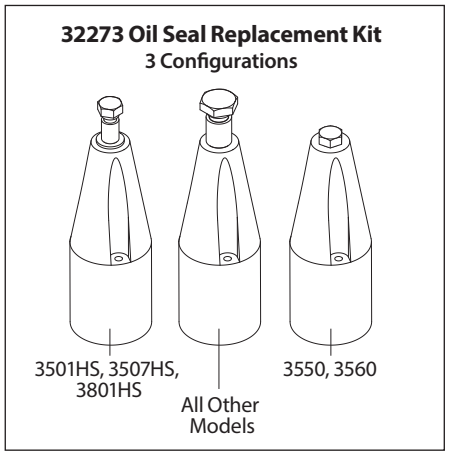
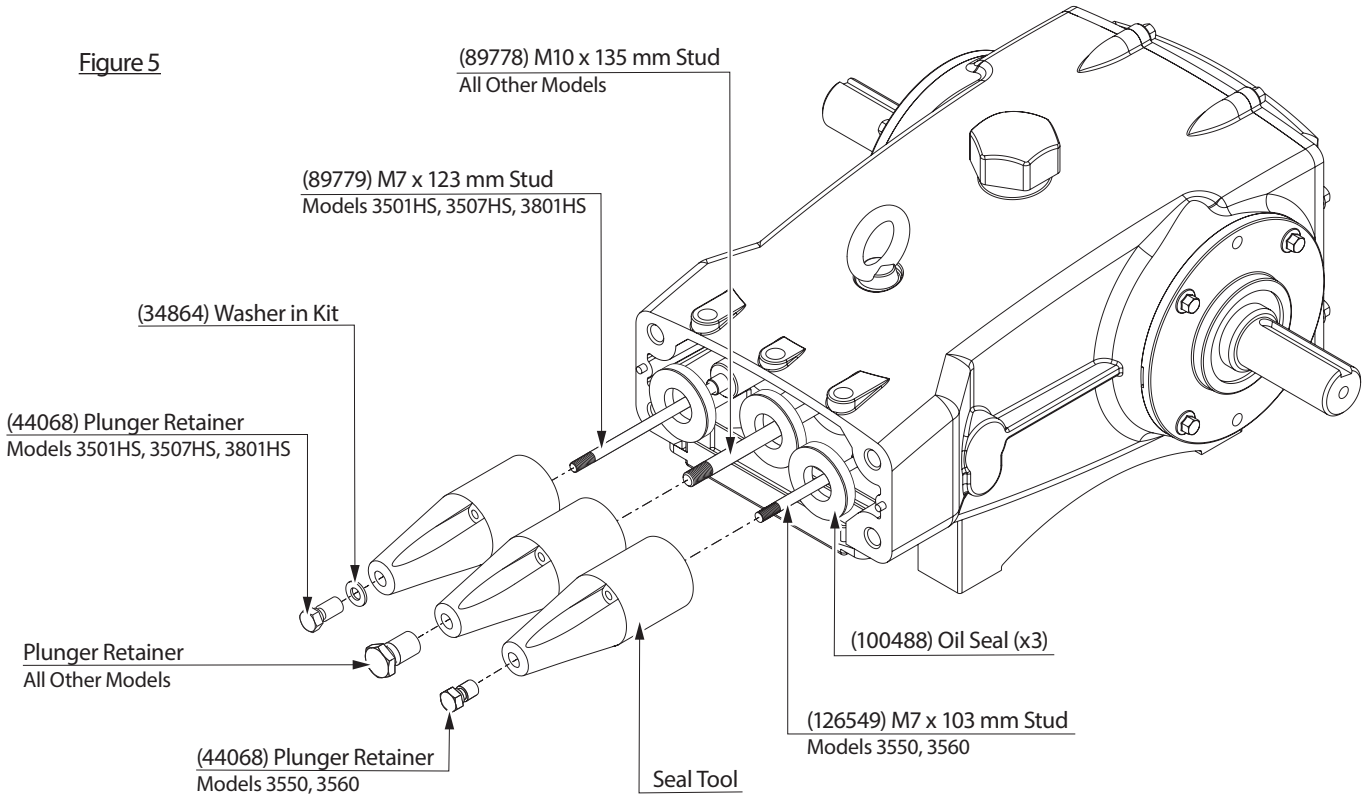


Figure 5



Cat Pumps
Technical Services Department

1681 94th Lane N.E., Minneapolis, MN 55449-4324 P: (763) 780-5440 F: (763) 780-2958 E: techsupport@catpumps.com www.catpumps.com