

# INSTRUCTION BULLETIN

No. 1739 Machines: 240, 260, 265, 525, 527, 240 EH, Published: 8-86

This kit contains seals for Vickers V-10 Vane Pumps 69181, 69181-1, 53235-1, 53235-2, 53235, 69076A-1, 59264, 59918, and 64053, the accessory pump in the tandem pump assembly.

### HYDRAULIC PRINCIPLES:

- \* Cleanliness is extremely important when working with hydraulic components. Work in a clean, dustfree area. Dirt and foreign material in the system can damage equipment and impair operation.
- Before disconnecting hydraulic hoses or fittings, thoroughly clean the outside of the pump to help prevent dirt entry into the system.
- Mark location of fittings and hoses before you take them off the pump.
- Immediately cap disconnected hoses.
- \* Discard all hydraulic fluid drained from the system. Replenish hydraulic reservoir with new, approved hydraulic fluid.

#### **PROCEDURE:**

- 1. Park the machine of a level surface. Turn off the engine/motor and set the parking brake.
  - WARNING: Always turn off the engine/motor and set the parking brake before working on the machine.
- 2. Allow the system to cool before disconnecting the pump.

WARNING: Always allow the hydraulic fluid to cool before draining. Hot fluid can cause severe burns.

- 3. Disconnect and cap hydraulic hoses leading to pump assembly.
- 4. Disconnect foot pedal linkage from pump control arm.
- 5. Disconnect the pump from the engine. See Fig. 1.

IB1739(8-86)LITHO IN U.S.A.

page l 0549t

- 6. Remove the bolts that attach the pump to its mounting bracket.
- 7. Remove the pump.
- 8. Separate the Vickers V-10 accessory pump from the propelling pump. Note the arrangement of the coupling assembly that connects the two pumps (Fig. 2).

DISASSEMBLY OF THE VICKERS VANE PUMP:

- 1. See Fig. 3. Clamp the pump body in a vise, cover end up. Do not clamp too tightly.
- 2. Remove the (4) cover screws.
  - NOTE: Make note of the position of the cover port with respect to the body before lifting off the cover and o-ring.
- 3. Remove the pressure plate and spring. Note the position of the ring for correct reassembly.
- 4. Lift off the ring and remove the locating pin.
- 5. Separate the vanes from the rotor and remove the rotor from the shaft.
- 6. Turn the pump body over and remove the shaft key and the snap ring that holds the outer bearing.
- 7. Tap with a soft hammer on the splined end of the shaft to force the shaft out of the body.
- 8. Support the bearing inner race and press the shaft out of the bearing.
- 9. Pull the shaft seal out of the body with a suitable hooked tool and press out the inner bearing.

INSPECTION & REPAIR:

- 1. Discard the used shaft seal and all o-rings.
- 2. Wash the metal parts in mineral oil solvent. Blow dry with compressed air. Place on a clean surface for inspection.
- 3. Check the wearing surfaces of the body, pressure plate, ring and rotor for scoring and excessive wear. Remove light score marks by lapping. Replace any heavily scored or badly worn parts.
- 4. Inspect the vanes for burrs, wear and excessive play in the rotor slots. Replace rotor if the slots are worn.
- 5. Check the bearings for wear and looseness. Rotate the bearings while applying pressure to check for pitted or cracked races.

page 2

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6. Inspect the oil seal mating surface on the shaft for scoring or wear. If the marks on the shaft cannot be removed by light polishing, replace the shaft.

ASSEMBLY OF THE VANE PUMP SECTION:

- 1. Coat all parts with new hydraulic fluid. Use small amounts of petroleum jelly to hold o-rings in place during assembly.
  - IMPORTANT: During handling and shipping of the precision machined cartridge parts, it is possible to raise burrs on the sharp edges. All sharp edges on the parts of a new cartridge kit should be stoned prior to installation.
- 2. Begin assembly by pressing the shaft into the front bearing while supporting the bearing inner race. Next, press the inner bearing into the body, using a driver which contacts the outer race only. Be certain both bearings are firmly seated.
  - NOTE: Before assembling the shaft seal, determine the correct position of the sealing lip. Double lip seals are assembled with the spring toward the pumping cartridge. Single lip seals have two pressure holes, which are assembled toward the shaft end of the pump.



DOUBLE LIP SEAL SINGLE LIP SEAL (Assemble with spring toward (Assemble with pressure holes cover end of pump) toward shaft end of pump)

- 3. Press the seal firmly in place and lubricate the lip with petroleum jelly or other grease compatible with the system fluid.
- 4. Slide the drive shaft into the body until the bearing is seated. Tap lightly on the end of the shaft if necessary.
- 5. Install the snap ring.
- 6. Install new o-rings in the body and cover.
- 7. Insert the ring locating pins in the body and assemble the ring so the arrow on the perimeter points in the proper direction of rotation. Check the assembly against the drawing.
- 8. Install the rotor on the shaft and insert the vanes in the rotor slots. Be certain the radius edges of the vanes are toward the cam ring.

IB1739(8-86)LITHO IN U.S.A.

page 3

1



- 9. Place the pressure plate on the locating pins and flat against the ring. Use a small amount of petroleum jelly or grease to stick the spring in the recess in the pressure plate.
- 10. Carefully install the cover with the outlet port in the correct position.
- 11. Tighten the cover screws to 40  $\pm$  5 ft.lb. torque. Turn the shaft through by hand to ensure that there is no internal binding.
- 12. Install the shaft key.

REINSTALLING THE PUMP:

- Bolt the accessory pump to the propelling pump, making sure the coupling is assembled correctly, and the the o-ring and gasket are in place on each side of the adapter between the pumps (Fig. 2). Tighten the accessory pump mounting bolts to 29 to 31 ft.lbs. torque.
- 2. Install the pump on the machine.
- 3. Connect the hydraulic lines to the pump, following the markings made during disassembly.
  - NOTE: Hydraulic connections must be clean Note that the o-ring ends of the fittings are screwed into the pump.

START-UP PROCEDURE:

- 1. Remove the plug at the drain port and fill the pump with new hydraulic fluid.
- 2. Check level of hydraulic fluid in hydraulic reservoir.
- 3. Connect foot pedal linkage to pump control lever.
- 4. Jack rear wheel off the floor 1/4 to 1/2 inch.
- 5. Disconnect spark plug wires and crank engine for 30 seconds with the foot pedal in neutral.
- 6. Reconnect spark plug wires.

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- 7. Start engine and run with throttle at "idle". Maintain throttle in idle position through step 11.
- 8. Depress foot pedal 1/4 to 1/3 stroke and run for 30 seconds.
- 9. Continue holding the foot pedal. Turn on all brushes and run for 1 minute.
- 10. While continuing to hold the foot pedal, raise and lower the hopper 3 times.
- 11. Then depress the foot pedal fully for 30 seconds and release to neutral.
- 12. Stop engine and lower rear wheel to floor.
- 13. Check hydraulic reservoir. Refill to proper level.
- 14. Start engine and run at idle for 30 seconds.
- 15. Advance throttle and run machine on floor for 30 seconds.
- 16. Check for correct operation. Adjust pump control arm centering springs if necessary.

#### BILL OF MATERIAL FOR SK 1739

 Description	<u></u>
SHAFT SEAL	1
O-RING	1
O-RING	1
O-RING	2
SHAFT SEAL O-RING O-RING O-RING	

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## Fig. 2 - ACCESSORY PUMP TO PROPELLING PUMP JUNCTURE

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Fig. 3 - EXPLODED VIEW OF VICKERS ACCESSORY PUMP

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