

SDS-D SERIES PUMP REBUILD INSTRUCTIONS

DISASSEMBLY

1. Remove cable guard screws (Item 1).
2. Remove 1/8" pipe plug (Old Style) or 3/8" NC set screw (New Style) (Item 5) using 3/16" hex wrench. **WARNING: PUMP HOUSING MAY BE UNDER HIGH PRESSURE. USE EXTREME CAUTION IN REMOVING END CAP PLUGS AND END CAP SCREWS.**
3. Remove the two socket head screws (Item 26) from end cap (Item 8) using a 5/32" hex wrench.
4. Clamp the pump in the puller and screw the proper threaded mandrel in the end cap.
5. Pull the end cap out of the stainless housing. If the brass ends seem to be stuck, warm the stainless housing slightly with a small propane torch, being careful not to overheat and warp the housing. As the end cap (Item 8) comes out disconnect the two motor wires plugged into the cap.
6. With the end cap removed from the housing turn the pump around, screw the appropriate mandrel into the discharge head, and remove the pump assembly from the stainless housing.
7. Remove the four socket head screws (Item 25) from the discharge head using a 5/32" hex wrench.
8. Remove the bypass valves and springs (Items 19 & 20), suction screen (Item 24), check valve assembly (Item 21), and gasket (Item 22) from the discharge head. **Note: Check valve removal may require a light tap with a blunt tool through the discharge opening.**
9. Remove the two motor adapter screws (Items 4) using a 5/32" hex wrench. Remove the set screw from the cam assembly (Item 13) using a long 1/8" hex wrench. This wrench must be inserted through the hole in the side of the motor adapter (Item 16). Before inserting the wrench, visually align the set screw with the hole by turning the motor adapter while holding the motor.
10. Pull the motor adapter and cam assembly away from the motor, remove the two piston screws (Item 12), and then the cam assembly (Item 13).
11. Discard support collars (Item 14), o-rings (Items 9), diaphragm (Item 17), check valve (Item 21), and gasket (Item 22).
12. Clean and inspect all remaining parts and make sure that the electrical studs protruding from the epoxy in the end cap are in good condition and the epoxy is still hard.

SDS PUMP REBUILD INSTRUCTIONS

ASSEMBLY

1. Set the brass pistons (Items 18) flat side down on the pump assembly plate, positioning the two holes over locating studs.
2. Place the diaphragm (Item 17), with the offsets up, over the pistons locating the piston shafts through the two holes.
3. On an SDS-D-128 use only the white santoprene diaphragm. On an SDS-D-228 use only the black EPDM diaphragm and install the teflon wear washer (Item 15) around the piston shaft. **CAUTION: NEVER USE ANY TYPE OF GREASE ON EITHER DIAPHRAGM, IT MAY CAUSE DIAPHRAGM FAILURE.**
4. Slip the support collars (Item 14) over the shafts with the radius side toward the diaphragm.
5. Set the motor adapter (Item 16) face down over the diaphragm assembly allowing the piston to protrude through the two holes being careful not to nick or cut the diaphragm.
6. Put the set screw into the cam and insert the cam assembly (Item 13) over the piston shaft making sure the piston shafts fit into the cam plate holes.
7. Insert the two piston screws (Item 12) through the cam assembly, and tighten with a 5/32" hex wrench to 60 inch lbs. of torque. (Be careful not to allow the pistons to slip off the locating studs while tightening the screws.) Each screw should be tightened a little at a time alternating between each side. This will pull both pistons into alignment before either piston clamps the diaphragm.
8. Place the motor on the assembly board with the shaft up. Turn the motor shafts until the flat side faces you.
9. Coat the inside of the cam hole and the outside of the motor shaft with silver anti-seize (NAPA part no. 765-1674, is recommended).
10. Insert a long 1/8" hex wrench through the hole in the motor adapter and into the cam set screw.
11. Slip the cam assembly over the motor shaft aligning the set screw to the center of the flat on the shaft. As the cam assembly is inserted over the motor shaft tighten the set screw until it lightly touches the motor shaft and then back it off 1/8 turn. Continue installing the cam assembly until the motor adapter butts up to the motor. Then push on the pistons until the cam assembly bottoms on the motor shaft. While holding the piston down firmly, tighten the set screw.

12. With the motor assembly still on the board, gently lift the diaphragm up on each end and insert one stainless washer (Item 6) in each motor adapter hole.
13. Insert the two 10-32 X 2" motor adapter screws (Item 4) into the motor adapter holes. Rotate the motor adaptor slowly until screws "drop" into place. Tighten the screws while alternating between the two, to 50 inch lbs. of torque.
14. Lay the discharge head (Item 24) top side down on a flat surface and install the suction screen (Item 23) with the welded seam placed between the two cable guard screw holes.
15. Install the check valve seal (Item 22) and check valve (Item 21) into the discharge head. (Make sure check valve assembly is flush with discharge head.) Turn the discharge head over and insert the four washers (Items 6) and the 10-32 X 1 1/2" stainless screws (Items 25) and in the 4 countersunk holes.
16. Install the two relief valves (Items 20) into the two springs (Items 19) until seated. With the motor and motor adapter still on the assembly board insert the two relief valve spring assemblies (Items 19 & 20) over the small studs on the diaphragm with the relief valves pointing up.
17. With the motor assembly still held in a vertical position install the discharge head on the motor adapter while carefully guiding the relief valves into the holes in the check valve assembly. Make sure the relief valve springs stay on the small studs and the relief valve is seated in the check valve assembly.
18. While holding the discharge head in position tighten the four screws a little at a time, jumping to opposite sides, to 45 inch lbs. of torque.
19. Install pumps on flow and amp test fixture and run for 20 minutes and then check the flow and motor current to see if they are within specs. (If test fixture is available.)
20. Set the pump with the discharge end facing down on a flat table.
21. Install the three o-rings (Item 9) onto the motor adapter and lightly lubricate with a non-outgassing food grade grease. (Swepeco #115 or petroleum jelly)
22. Lightly grease the inside of both ends of the stainless housing about one inch deep and slip it over the pump assembly, with the longer inside bore down, until it rests on the o-rings. With a small block of wood or other soft flat object push the housing down over the o-rings until it touches the brass lip on the motor adapter.
23. Screw a 10-32 X 3" stud into one of the coupling nuts (Item 10) on the back side of the motor. This is used as a guide when installing the end cap assembly.
24. Install the three o-rings on the end cap assembly (Item 8) and lightly lubricate the o-rings.

25. Connect the motor leads onto the electrical studs on the inside of the end cap. (Make sure the positive red wire lead connects to the red wire side, (yellow on two-wire pumps)). Before seating end cap in housing, be sure that the terminals on the wires are tight on the end cap electrical studs. Slide the end cap over the guide stud, making sure that the motor lead wires are not pinched between the end cap coupling nuts. Make sure the cable guard screw holes are on the same side as the screw holes in the discharge head.

26. With a small block of wood push the end cap down inside the housing until it butts up against the brass cap lip.

27. Remove the guide stud, insert the two 10-32 X 2"(short motor) or 10-32 X 1 1/2" (long motor) end cap screws (Items 26), washers (Items 6) and new o-rings (Items 7). Apply a small amount of non-outgassing silicone sealant around the o-ring. **CAUTION: DO NOT USE ANY SILICONE SEALANT THAT HAS AN ODOR.** (DOW CORNING 3145 RTV ADHESIVE/SEALANT IS RECOMMENDED). Tighten the two screws to 35 inch lbs. of torque.

28. Install the end cap plug and tighten with a 3/16" hex wrench. A non outgassing anti-seize should be used on the threads.

29. Install pumps on final flow and amp test fixture and run for 20 minutes. Retest the pump for flow and current. (If test fixture is available)

30. Install the cable guard over the motor lead using the four screws (Items 1).

31. Re-torque the four discharge head screws (Item 25) to 40 inch pounds of torque. Never re-torque the end cap screws if a silicone sealant is used.