

SDS-Q SERIES PUMP REBUILD INSTRUCTIONS
Bottom Mounted Pistons

DISASSEMBLY

1. Remove cable guard screws and cable guard.
2. Loosen the 4 discharge head screws about 4 turns each but do not remove at this time. With a rubber mallet tap the discharge head to break the bond between the head and the diaphragm. This will relieve any pressure in the motor housing.

WARNING: PUMP HOUSING MAY BE UNDER HIGH PRESSURE. USE EXTREME CAUTION IN REMOVING THE DISCHARGE HEAD.

3. Turn the pump over and remove the 3/8" set screw using 3/16" hex wrench and the two socket head screws from end cap 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 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 from the discharge head using a 5/32" hex wrench.
8. Remove the suction screen, check valve assembly, relief valve assembly and o-rings from the discharge head. **Note: Check valve removal may require a light tap with a blunt tool through the discharge opening.**
9. Remove the four motor adapter screws using a 5/32" hex wrench. Remove the set screw from the cam assembly using a long 1/8" hex wrench. This wrench must be inserted through the hole in the side of the motor adapter. 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 four piston screws and then the cam assembly.
11. Clean and inspect all parts to be reused and make sure the electrical studs protruding from the epoxy in the end cap are in good condition and the epoxy is still hard.

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ASSEMBLY

1. Set the brass pistons flat side down on the pump assembly plate, positioning the two holes over locating studs.
2. Place the diaphragm face down over the pistons locating the piston shafts through the four holes. **CAUTION: NEVER USE ANY TYPE OF GREASE ON THE DIAPHRAGM, IT MAY CAUSE DIAPHRAGM FAILURE.**
3. Slip the support collars over the piston shafts with the round side toward the diaphragm.
4. Set the motor adapter face down over the diaphragm assembly allowing the piston to protrude through the four holes being careful not to nick or cut the diaphragm.
5. Insert the cam assembly over the piston shaft making sure the piston shafts fit into the cam plate holes.
6. Insert the four piston screws 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.
7. Place the motor on the assembly board with the shaft up. Turn the motor shafts until the flat side faces you.
8. Coat the inside of the cam hole and the outside of the motor shaft with silver anti-seize compound.
9. Insert a long 1/8" hex wrench through the hole in the motor adapter and into the cam set screw.
10. 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.
11. With the motor assembly still on the board, gently lift the diaphragm up on each end and insert a bolt in each motor adapter hole.
12. Rotate the motor adaptor slowly until screws "drop" into place. Tighten the screws while alternating between the four, to 40 inch lbs. of torque.
13. Lay the discharge head top side down on a flat surface. Install the relief valve assembly and secure with the two Phillips head screws. Install suction screen with the welded seam placed between the two cable guard screw holes.

14. Install the o-ring into the check valve and insert the check valve into the discharge head making sure check valve assembly is flush with discharge head. Turn the discharge head over and insert the four washers and the stainless head bolts in the 4 countersunk holes.
15. With the motor assembly still held in a vertical position install the discharge head on the motor adapter while carefully guiding the rings on the diaphragm into the mating holes in the check valve assembly.
16. While holding the discharge head in position tighten the four screws a little at a time, jumping to opposite sides, to 40 inch lbs. of torque.
17. Set the pump with the discharge end facing down on a flat table.
18. Install the two o-rings onto the motor adapter and lightly lubricate with a food grade grease or petroleum jelly.
19. Lightly grease the inside of both ends of the stainless housing about one inch deep and slip it over the pump assembly 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.
20. Screw a 10-32 X 3" stud into one of the coupling nuts on the back side of the motor. This is used as a guide when installing the end cap assembly.
21. Install the two o-rings on the end cap assembly and lightly lubricate the o-rings.
22. Connect the motor leads onto the electrical studs on the inside of the end cap. (The positive red wire lead connects to the red wire side). 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. Align the cable guard screw holes on the same side as the screw holes in the discharge head.
23. Push the end cap down inside the housing until it butts up against the brass cap lip and then remove the guide stud.
24. Slip a #10 stainless steel washer and the small o-ring on each of the end cap screws. Apply a small amount of non-outgassing silicone sealant around the o-rings of the two screws. Insert the two screws into the end cap and tighten to 35 inch lbs. of torque. (DOW CORNING 3145 RTV ADHESIVE/SEALANT IS RECOMMENDED).
25. Install the end cap plug and tighten with a 3/16" hex wrench. An anti-seize should be used on the threads.
26. Install the cable guard over the motor lead using the four screws.