

RAYPAK SERVICE INSTRUCTIONS

PROTÉGÉ VARIABLE-SPEED PUMP (VSP) MODEL RPVSP

KITS: 018232F, 018233F, 0182234F

DIFFUSER, IMPELLER, SEAL

IMPORTANT NOTICE: These instructions are for the use of qualified individuals specially trained and experienced in the installation and maintenance of this type of equipment and related system components. Installation and service personnel are required by some states to be licensed. Persons not qualified shall not attempt to install, service, or maintain this equipment.

DANGER – SHOCK HAZARD: Make sure electrical power to pump and heaters is disconnected to avoid damage to components, potential serious personal injury or death.

WARNING: Make sure water & power have been turned OFF before making any repairs or service to the unit.

Scope

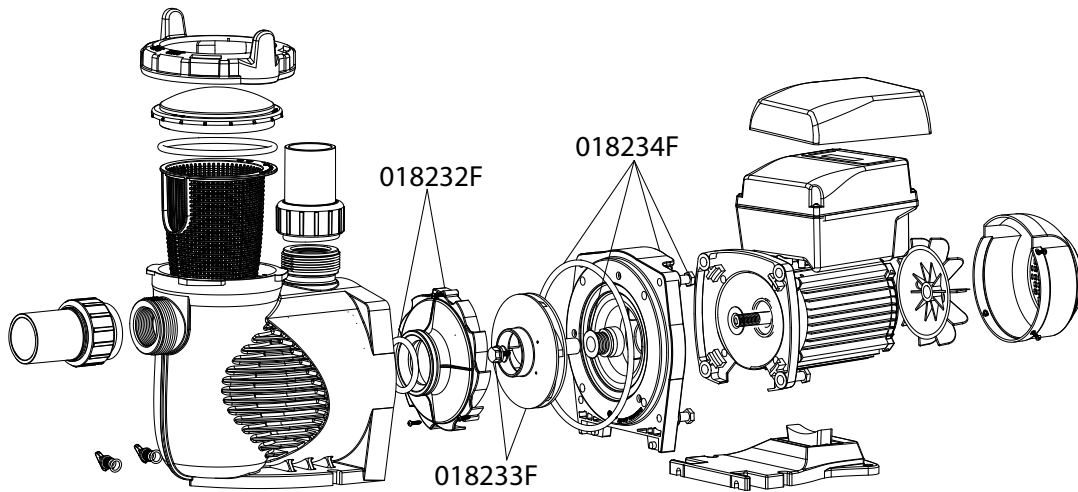
These kits provide the parts required to replace the Diffuser, Impeller and Seal for the Protégé Variable-Speed Pump (VSP).

Required Tools

- Flat head screwdriver
- 5/8" ratchet wrench
- Adjustable wrench

Kit Parts

Kit	Parts Included
018232F	Diffuser with O-Ring
018233F	Impeller, Impeller screw and O-ring
018234F	3/4" Mechanical seal, Flange O-ring, Flange, M8 X 35 Screw with washer (Set of 4)



Replacing Diffuser, Impeller and Seal



⚠ DANGER: ELECTROCUTION OR ELECTRICAL SHOCK RISK. DISCONNECT ELECTRICITY BEFORE WORKING ON PUMP, OR SHOCK, BURN OR ELECTROCUTION CAN RESULT.

Remove power from the pump by turning off the breaker. Death or serious injury to service people, pool users or others due to electric shock could result from failure to avoid the high danger risk.

1. Power must be in the OFF position in the breaker panel as the unit is hard-wired directly into the power panel, meaning that is the only way to cut power.
2. Allow the pump motor to cool down before servicing the unit.
3. Close the water valves, if installed, to isolate the pump from the system.
4. Separate pump motor and flange from pump volute by removing the two outer bolts and then the two outer bolts on the opposing side. Pull the motor and flange back and away from the volute. See **Figure 1**.

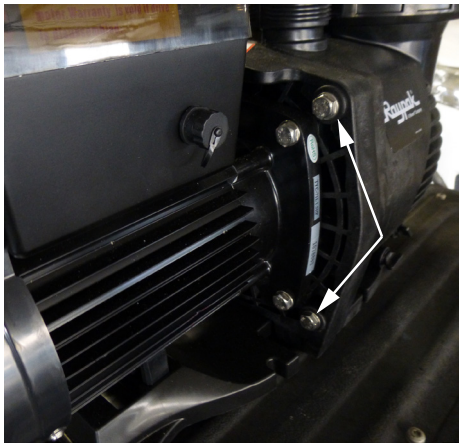


Figure 1. Pump Separation, Bolt Location

5. Using a Phillips screwdriver, remove the three screws holding the diffuser to the flange/seal plate, freeing the diffuser for removal. See **Figure 2**.

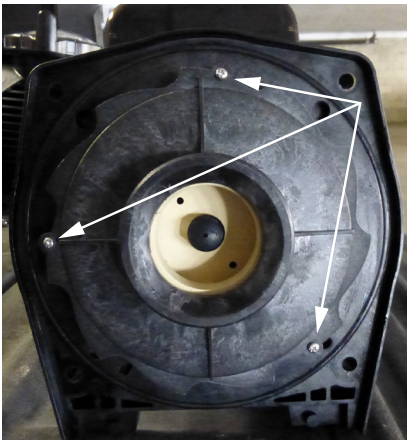


Figure 2. Diffuser Plate Separation, Screw Location

6. Remove the impeller center screw using a 5/8 inch socket wrench. NOTE – this screw is REVERSE THREADED and can only be removed by turning CLOCKWISE while holding the impeller stationary. See **Figure 3**.

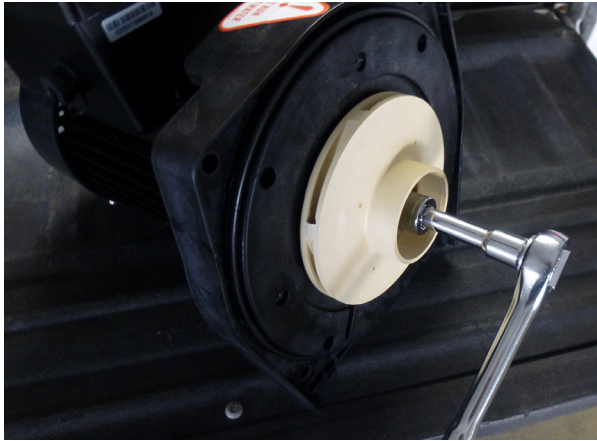


Figure 3. Impeller Bolt Removal

7. Removing the impeller requires holding the motor shaft stationary while turning the impeller counter-clockwise. A flat screwdriver must be inserted into the slot in the end of the shaft at the rear of the motor. An access hole is provided in the center of the rear motor cover. While holding the shaft still with the screwdriver, manually rotate the impeller counter-clockwise to unscrew. See **Figure 4**.

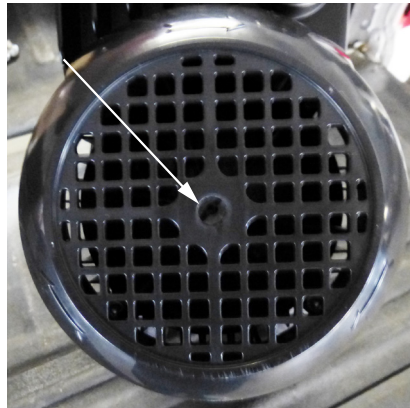


Figure 4. Screwdriver Insertion Point

8. Remove the remaining four bolts holding the flange/seal plate to the motor, and separate the two. See **Figure 5**.

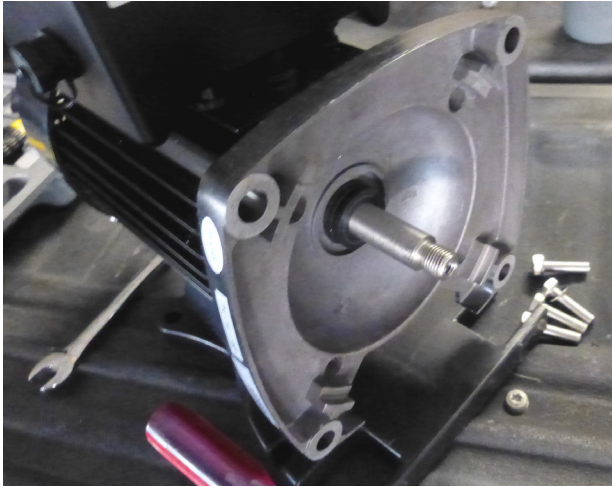


Figure 5. Shaft Seal Removal

9. The mechanical shaft seal is a two-part device, consisting of a larger, spring-loaded rubber sleeve and a smaller white ceramic disc with a rubber outer cover. See **Figure 6** and **Figure 7**. At no time should the contact surfaces of the two halves be touched with bare hands or fingers, as this will contaminate the surface. The disc is pushed into the indentation in the center of the seal plate with the white ceramic side facing outward, toward the impeller. Wetting the rubber outer cover may be helpful. Do not use lubricant. Press the disc completely into place until it is fully seated and level. A clean rubber glove or the rounded handle of a screwdriver may be used to push the seal into place. The spring portion of the seal is pushed on to the stem on the back side of the impeller, again making sure bare hands do not come in contact with the smooth surface of the black ceramic point of contact.

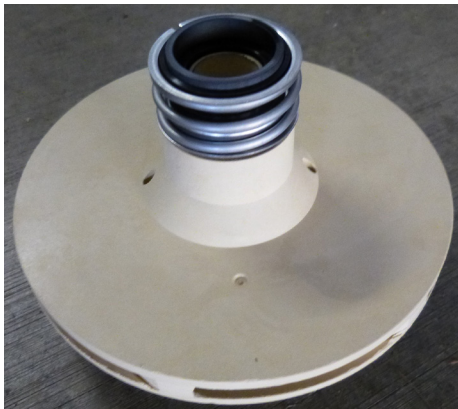


Figure 6. Spring Loaded Seal



Figure 7. Ceramic Disc

10. Reattach the flange/seal plate to the motor with the shaft protruding through the disc, and reinstall the four bolts to secure.
11. Again, holding the motor shaft stationary with the screwdriver as before, thread the impeller onto the shaft, turning clockwise until tight. The spring will compress and hold the two halves of the seal together.
12. Using a small screwdriver, pry the old O-ring from the slot on the diffuser, lubricate the new O-ring, and install in the slot. See **Figure 8**.



Figure 8. Diffuser O-ring

13. Attach the diffuser to the flange/seal plate with the 3 provided screws.
14. Locate the existing large O-ring on the inside of the flange/seal plate and replace with the new one, using appropriate lubricant.
15. Rejoin pump motor and flange with the pump volute, pushing forward until seated, and reattach with four bolts. Tighten bolts by alternating across, turning each one a few turns until they are all tight.
16. Open water valves, if installed, and make sure the pump is filled with water.
17. Check for leaks.
18. Reconnect the electrical and turn on power.