

## RAYPAK SERVICE INSTRUCTIONS

### PROTÉGÉ SERIES PUMP AND FILTER RPAGP, RPSFP, RPCFP KITS 018249F, 018250F, 018251F, 018227F IMPELLER, MECHANICAL SEAL & O-RING

**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 install a replacement Impeller, seal and O-ring for the Protégé Line of pumps, filters and base mounted, pre-plumbed pumps & filters.

### Kit Parts

Components	Kit Numbers
Impeller	018249F, 018250F, 018251F
Seal and O-ring	018227F

### Required Tools

- Rubber mallet
- 1/4" or 3/8" drive ratchet
- 1/4" or 3/8" drive extension
- 1/4" or 3/8" drive swivel
- 6 mm open / box end wrench
- 6 mm socket
- 8 mm socket
- Phillips head screwdriver

- Wide-blade slotted screwdriver
- Narrow-blade slotted screwdriver
- Pocket knife

### Recommended Materials

- Any quality generic brand of appropriate lubricant for application onto O-rings and threads of plastic parts such as "Water Lube".



## Replacing Impeller, Seal, and O-ring

1. Turn off the electrical power at the Pump's power switch and/or unplug it at the receptacle.
2. Allow the pump motor to cool down before servicing it.
3. Close the water valves, if installed, to isolate the pump from the system.
4. Spin the suction and discharge bulkhead unions off the pump as shown in **Figure 1** and **Figure 2**.



**Figure 1. Suction Union**



**Figure 2. Bulkhead Union**

5. With an 8 mm socket and wrench, and in some instances an open-box end 8 mm wrench, remove the six (6) hex head 8 mm screws as shown in **Figure 3** and **Figure 4**. Set them aside carefully, along with the O-ring. Keep it clean for re-use.



**Figure 3. Removing Bolts**



**Figure 4. Separated Parts**

6. Using a Phillips head screwdriver, remove the two Phillips head screws that fasten the rear motor cover from the motor as shown in **Figure 5** and **Figure 6**.

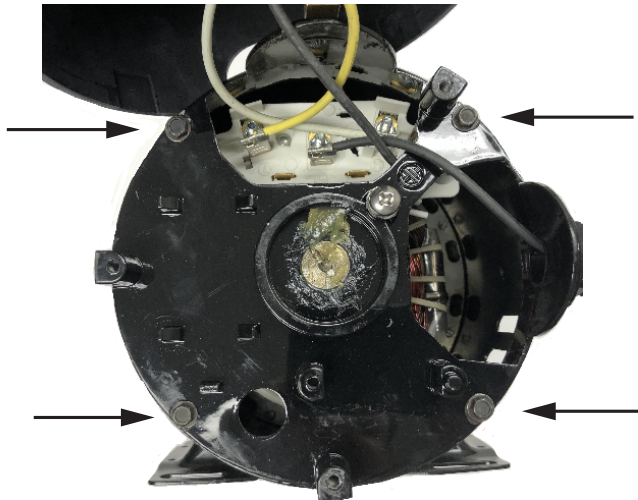


**Figure 5. Removing Bolts**



**Figure 6. Bolt Removal**

7. Using a 6 mm socket and wrench, carefully remove the four long bolts that fasten the motor to the “wet end” of the pump as shown in **Figure 7** through **Figure 9**.



**Figure 7. Bolt Location**



**Figure 8. 6 mm Socket Wrench**



**Figure 9. Loose Bolts Being Removed**

8. Once removed, take the four long bolts and inspect the threads for damage. Set them aside so the threads or the 6 mm hex head are not damaged as shown in **Figure 10**.

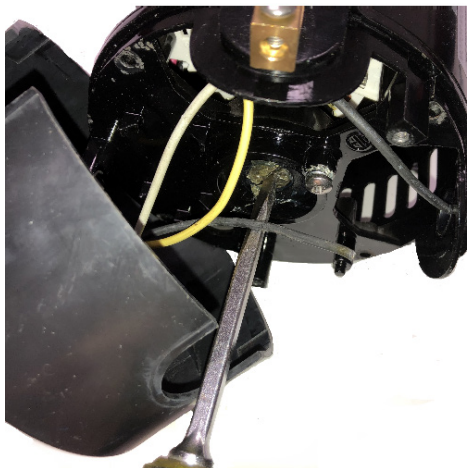
**NOTE:** Be careful with the four long bolts. Keep the long bolts protected from damage. The fine threads and 6mm bolt head may be damaged if not handled carefully.



**Figure 10. Loose Bolts**

9. Swing the motor cover out of the way. Place the wide blade screwdriver into the keyed slot in the motor shaft. Hold it in place. With your other hand, hold the pump’s impeller firmly and spin it counter-clockwise as shown in **Figure 11** and **Figure 12**. The impeller will spin free for removal and/or access to the seal.

**NOTE:** Hold the screwdriver securely with one hand and simultaneously spin the impeller clockwise to spin it off the shaft for replacement and or access to the seal.



**Figure 11. Holding Screwdriver**



**Figure 12. Spinning Impeller**

10. Using a rubber mallet and a slotted screwdriver, with light (gentle) taps, push that half of the seal out of the pump volute as shown in **Figure 13** and **Figure 14**.



**Figure 13. Gentle Tapping**



**Figure 14. Pump Volute Seal**

11. With a sharp-edged pocket knife, gently pry the other half of the seal away from the impeller and remove it as shown in **Figure 15**.



**Figure 15. Impeller Seal**

12. If the seal requires replacement, it is critical to keep the replacement clean, dry and free of any debris. It is best not to touch the ceramic and graphite sealing surfaces.

- Use clean, dry tools wherever possible when handling the replacement seal.
- Make sure not to scratch or gouge the sealing surfaces.

13. Using the new kit parts, reverse steps 11 to 1 to re-assemble the pump, and bring it back to operation.